

AUGUST, 1907.

PRICE LIST.

Urban ♦ ♦ ♦
Bioscopes
.. and ..
Animated
Picture
Accessories.

Telegrams : " Bioscope, London."

The Charles Urban Trading Co., Ltd.,

The World's Cinematograph Specialists,

48, RUPERT STREET, LONDON, W.

LONDON - PARIS - BERLIN - NEW YORK.

PRICE LIST.

ALL PREVIOUS QUOTATIONS CANCELLED.

Urban Bioscope

.. and ..

Accessories. . .



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B2

Charles Urban Trading Co., Ltd.,

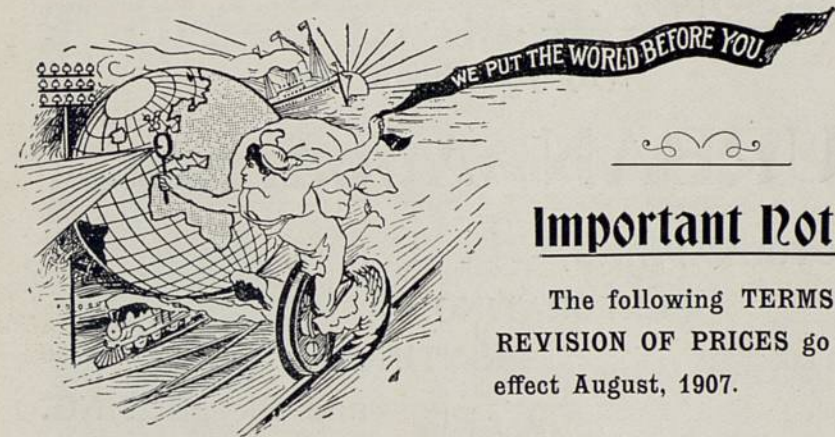
48, RUPERT STREET, LONDON, W.

Telephone 3118 CENTRAL.

Telegraphic Address: "BIOSCOPE, LONDON."

Codes used: "A.B.C. 5th Edition," "Lieber's Code," and "Western Union."

LONDON. — PARIS. — BERLIN. — NEW YORK.



Important Notice

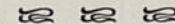
The following **TERMS** and **REVISION OF PRICES** go into effect August, 1907.

All Previous Quotations Cancelled.

The Prices, which depend on market fluctuations affecting the cost of raw material used in the manufacture of the Catalogued Goods, are subject to change without notice.

TERMS.

Our Terms are Cash with Order. We do not send Machines and Accessories on approval.



Transit.—All goods are sent at Consignee's risk. Every care is taken in packing, and we do not hold ourselves responsible for loss or damage in transit. Customers must claim on Carriers.

Cases and Packing are charged at cost price and are not returnable.

Delivery.—At our Warehouse, 48, Rupert Street, W.

Colonial and Foreign Orders.—In all cases remittance, payable in London, with full shipping instructions, must accompany order.

Bankers.—"London City and Midland Bank, Limited," Shaftesbury Avenue Branch. All cheques and remittances should be crossed.

REASONS . .

Why you should use

URBAN Apparatus

FOR
PHOTOGRAPHING, = =
PERFORATING, = =
PRINTING, = =
and PROJECTING.

BECAUSE

The most experienced and skilled mechanics in the cinematographic Art are engaged in the construction of **URBAN Machines**.

URBAN Apparatus is absolutely correct to the Standard American Gauge.

The **URBAN Bioscope** has gained its far-famed reputation strictly upon merits of construction and perfection of results.

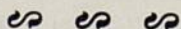
The **URBAN Bioscope** was the first practical Cinematograph put upon the market utilizing the "Dog" or "Cam" movement.

The majority of other makers have since imitated and copied the **URBAN Bioscope**, with the result that the market is flooded with many cheap inferior machines of this type.

The **Urban Bioscope** is neater in design, superior in workmanship, better in finish, and simpler to operate than any other machine of like character.

The **URBAN Bioscope** eliminates all flicker, as the rotary cut-off shutter, being only 8 per cent. of its circumference, compared with 30 per cent. found on other machines, operates more quickly.

The "Dog" or "Cam" movement of the **Urban Bioscope** has been pronounced by the most prominent scientists and mechanical engineers to be the only correct principle by means of which the steadiest projected results can possibly be secured.



These Results are proclaimed nightly at all the principal
Theatres in the World, where the
URBAN BIOSCOPE is in use.

THE Urban Bioscope Camera

... IS THE .

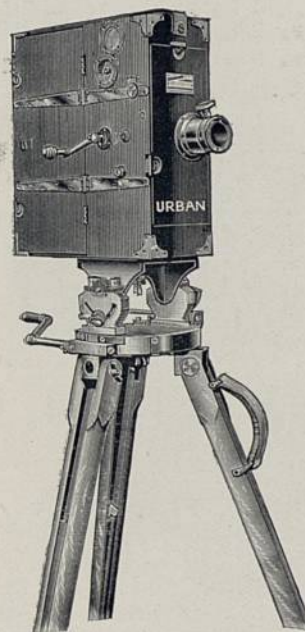
Handiest,

Most Compact, . .

.. AND ..

Efficient Machine

Obtainable.



Model "Bx" Urban Camera
fixed on
"Maxim" Rotary Tripod.

The many advantages of this Camera are so well recognised that it is unnecessary to enter into detail as to its scientific construction, high finish and workmanship.

Excessive cold, hot, moist or dry climate does not affect the smooth working, the accurate operation, or warp the case or mechanism of the **Urban Bioscope Cameras**.

These Instruments have stood the severest tests during many years by Explorers, Photographers and Film Makers in all Countries and Climates.

The Camera for the Practical Cinematographer

Many important pictures have been secured with the **Urban Camera** (which is self-contained and always ready for immediate use) during the time it took operators of other makes of Cameras to thread their instruments and adjust their film boxes, in consequence of which delay they lost opportunities of securing photographic records of events which could not be delayed to suit the user of an antiquated type of cinematograph camera.

THE URBAN MODEL "A" or "Junior" Bioscope Camera

PRICE, complete - - - £7 10s. 0d. nett.

MARVELLOUS
VALUE.

Every Exhibitor should
possess his own Animated
Picture Camera.



The complete "Junior" Outfit.

Every Traveller should bioscopically record incidents of his visits to Foreign Countries.

Every Explorer's Photographic Outfit is incomplete without the Urban "JUNIOR" Bioscope Camera.

Every Educational Institution should be equipped with the Urban "JUNIOR" Camera.

Every Missionary should photographically record the progress of his work by means of the Urban "JUNIOR" Camera.

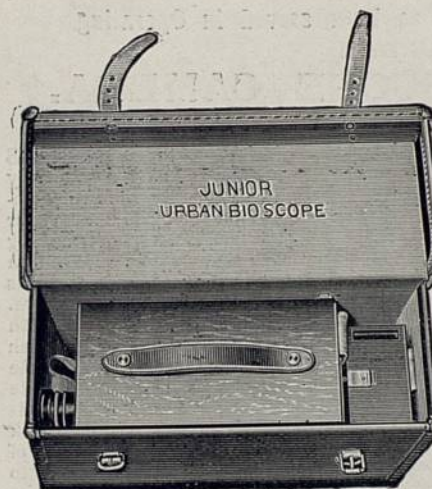
Every Amateur Photographer would experience ten-fold pleasure by embodying motion into his pictures by means of the Urban "JUNIOR" Camera.

Every Low-priced Motion Picture Camera heretofore offered to the public is more or less a toy. The Urban "JUNIOR" Camera is a high-class scientific instrument, producing photographic results equal to the best high-priced Bioscopic Cameras on the Market.

- - - DESCRIPTIVE, - - -

The size of Picture which the URBAN "JUNIOR" CAMERA produces is exactly similar to that utilized for the professional Animated Picture exhibits at the various halls and theatres throughout the world.

The Film is perforated to the Standard American Gauge (will fit any standard gauge machine in use).



Junior Outfit in Case.

The Length of Film used with the URBAN "JUNIOR" CAMERA is limited to 100 feet (32 metres).

The duration of Picture for one continuous exposure is two minutes.

The Camera is equipped with a 3-inch (equivalent) focus **VOIGTLANDER COLLINEAR LENS**, with Iris diaphragm, F 6.3 to F 22. **NONE BETTER.**

Two extra light-proof Film Boxes (capacity 100 feet each) are included with Outfit. (Four Film Boxes to each Outfit.)

THE "JUNIOR" CAMERA, EXTRA FILM BOXES, &c., &c., are all contained in a substantial stiff canvas Case, leather bound, with buckles, straps and handle.

MEASUREMENT of Case: 13 $\frac{3}{4}$ inches long, 5 $\frac{1}{2}$ inches wide, 9 inches deep.

WEIGHT OF COMPLETE OUTFIT: 8 pounds.

(About the weight of an ordinary quarter-plate hand camera.)

Measurement of Camera only: 10 inches by 4 $\frac{1}{4}$ inches by 8 $\frac{1}{4}$ inches.

Weight of Camera, loaded with 100 feet film ready for operating: 5 lbs. 7 ozs.

The lightness of the URBAN "JUNIOR" CAMERA thus enables you always to have the instrument at hand and ready to procure pictures which are usually missed owing to the heavier cameras not always being available. Even when they are, you expend your energies in lugging the bulky outfit around.

You can make no mistake in the focus of objects photographed with the Urban "JUNIOR" Camera.

The Lens is a set focus—you simply find the view and turn the handle at an even speed of 2 $\frac{1}{2}$ revolutions per second and **THE CAMERA DOES THE REST**, unless you want us to develop your negatives and make prints therefrom. No other house can possibly give you equal results. We employ experts and use only the best film.

Each "JUNIOR" Camera is equipped with a combined "reflex" and "direct sight" View Finder. By apparently looking down into your instrument while taking your picture, you are not attracting attention and, therefore, the subjects you are photographing will be more naturally reproduced, than if they are aware of your purpose.

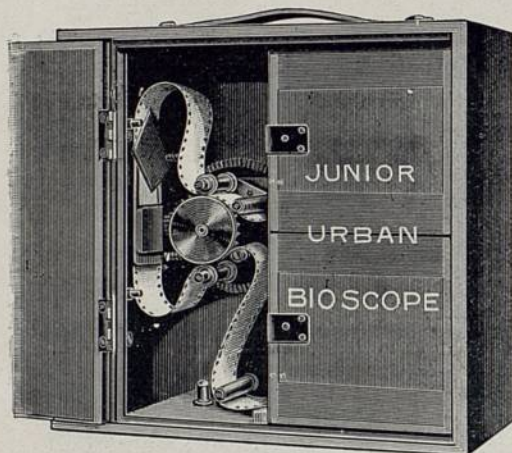
The Mechanism of the Camera is wonderfully simple and reliable—registration between Pictures being PERFECT. Upon this depends the steadiness of the reproduction of the film.

The Camera Case is beautifully finished in well seasoned mahogany, highly polished. Everything pertaining to the Outfit is of the highest class workmanship.

Price, Outfit complete, £7 10s. 0d. nett.

All Cameras are thoroughly tested before shipping. No instruments sent on approval.

Instructions and Precautions to be observed in Operating
THE URBAN
"JUNIOR" BIOSCOPE CAMERA.



LOAD YOUR FILM BOXES in a dark room by a safe ruby light. Place film roll over spindle. Slip end of film under roller inside box, through slot, making certain that emulsion side of film is uppermost and faces the lens when run through the camera. Film as supplied is rolled with emulsion on the inner side, which should thus protrude from the box in the proper manner. Make certain that film box cover is firmly closed before leaving dark room. To prevent the end of the film from slipping back into the box it is advisable to make several pleats or accordion folds in the end.

TO LOAD THE CAMERA, place box containing unexposed film on the top of lower or take-up box (see preceding illustration). Then thread the camera mechanism as shown in illustration, not forgetting to leave a loop of about $1\frac{1}{2}$ inches between the top and lower sprocket where the film passes through the gate. To open the gate raise same on side with thumb, slip the film in sideways, turn the handle until the movement pins protrude, insert the film over the pins, making certain that the aforementioned top and bottom loops are equal. Pass the end of the film against the lower curve of sprocket, making certain that the sprocket pegs engage the perforation accurately. Pass the end under the lower pulley and into the lower film box, then insert end under the brass clip of spindle. Turn the handle of the camera one or two revolutions to see that everything is working in order, then close the lower film box; always listen for "click" in closing boxes or camera door.

TO RE-WIND FILM into take-up box: When you turn the handle of Instrument and before closing the take-up box, see that the film is not left slack. If so, take up the slack by turning the protruding button at handle side of Camera (note this under term "Junior Urban Bioscope" in Illustration on page 6) in the direction the Film re-winds.

TO FOCUS.—The most certain manner of focussing with a rack lens is to view the object directly through the back of the film, provided you have a good light sufficient for this purpose. The most satisfactory way, however, is to insert a short piece of Matt surface film (which answers the purpose of ground glass) in the film gate by temporarily removing the sensitised film, which can be pushed outside the closed gate during this operation. Rack your lens either backwards or forwards, as may be necessary, until the image in view appears absolutely sharp. You now remove the Matt film and replace the coated film. After viewing through the aperture, be certain you close the same by swinging down the swivel plate before taking picture. **The lens supplied with the "Junior" Camera requires no focussing.**

(Precautions as to focussing are only to be followed when using rack lens.)

PREPARING TO TAKE THE PICTURE.—While you are focussing you should, at the same time, find your view, and adjust your camera and tripod for position, always keeping in mind that the camera should be in an absolutely level position with the subject, unless the latter be taken from an elevation. See that your tripod is firmly fixed into the ground, and that the camera is tightly screwed to the top of the tripod, so as to prevent any oscillation. The instrument being a light one, it is well to keep the pressure of your disengaged hand on top of camera while operating. Immediately before commencing to take the view, judge your light, and arrange your stop diaphragm in lens

accordingly. You must use your individual judgment in the matter, as it is impossible for us to give any definite instructions on this point, it being largely a matter of experience to adjust the stops for a proper exposure.

Every picture taken with the lens as adjusted to the "JUNIOR" Camera is in perfect focus, provided you do not photograph any object closer than 15 feet from the lens. The object of the direct view finder is to enable you to adjust your camera speedily to any change of position for following pictures.

Always photograph your views with the sun directly at the back of the camera, if possible. To take the picture with the sun facing the lens is certain to produce the most unsatisfactory result. The sun should directly illuminate the object you are photographing, which will assure you getting every detail, provided our previous instructions are complied with.



Showing Method of Threading "Junior" Camera.

TAKING THE PICTURE.—Turn the handle evenly at the rate of two and a half complete revolutions per second, which is equivalent to sixteen separate exposures or pictures, the minimum speed allowable to procure even movement of the objects photographed. A less speed than this would result in dislocated or jerky movements of the objects on the film when projected on the screen. **IMPORTANT.**—A funeral procession in order to assume natural motion should be taken at precisely the same speed as a race or an express train.

RELOADING THE CAMERA.—To reload for further exposures, after exhausting the film from the top box, remove the now filled box. Transfer the upper film box, which is now empty, into the lower section. Insert another filled box into the upper section, and repeat the operation as previously directed. All film boxes supplied with the Camera are interchangeable.

If you desire any further instructions with regard to any matter concerning animated photography, apply to us direct, and we shall be most pleased to give you every additional information.

RIGID TRIPODS, with Triangular Heads:

Length	...	2 feet	...	Price	£1 0 0	...	...	...
"	...	4 1/2 "	...	"	1 2 6	...	...	...

Leather-bound Canvas Carrying Case, Extra.

5s.

10s.

Urban Camera, Model "B,"

— CONSISTS OF —

Six Daylight Loading Film Boxes (capacity 150 feet each), fitted with brass-centred Film Core and re-winding device (interchangeable).

One Zeiss "Tessar" 3-inch Focus, full aperture F 5.4. This Lens is mounted with lever distance adjustment, and disc for setting Iris diaphragm. *This is the best "all around" Lens obtainable.*

View Finder and Spirit Level (side and top adjustment).

Automatic Register for enumerating the number of feet of Film used after each series of exposures.

Automatic Film Punch for marking the Film between the incidents photographed, thus preventing the cutting of the Film in the wrong place when preparing it for development in the Dark Room.

Fitted with direct Focussing Sight-Hole. Automatic Film Re-winding Device. Special Travelling and Carrying Case for Camera and Accessories (Aluminium corners, and fitted with lock, key and handles).

The Mechanism is of a combined continuous and intermittent principle, allowing the Film to be "fed" between two loops, preventing thereby any strain or "plucking" on the Film or injury to the perforations thereof, at the same time assuring absolutely correct registration.

The best quality Steel, Gun-metal and Brass and Aluminium is employed in the manufacture of these Instruments. All metal parts are oxydised, and are of the best workmanship. The cases and Film Boxes are made of thoroughly seasoned mahogany, and are guaranteed light-proof. Will stand all climatic changes. Finished in highly-polished mahogany.

No one can afford to take an event or incident (which may only present itself once in a lifetime) and have it turn out a failure owing to the inefficiency of a cheaply built apparatus. The best is always the Cheapest.

NOTE.—All "Urban" Film Subjects are taken with the Bioscope Camera. You can thereby judge of the accuracy and steadiness of the Apparatus.

CODE WORD: BIOAC.

OUTFIT MODEL "B" complete as above £25 0 0

" " " with 2 CANVAS Leather-bound Cases £28 10 0

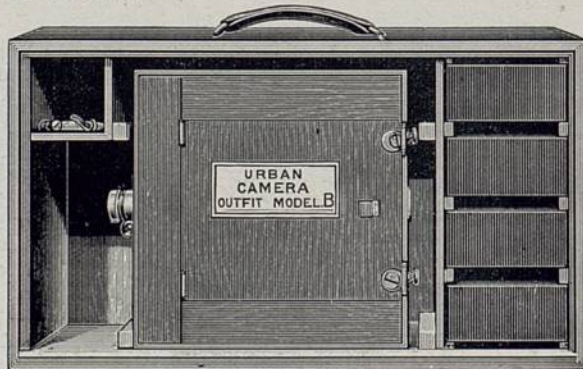
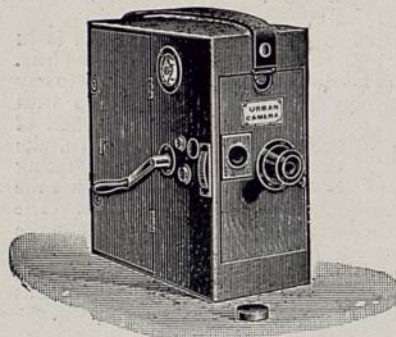
CODE WORD: BIOCAN

" " " with 2 All SOLE LEATHER Cases, &c. £30 0 0

CODE WORD: BIOLET.

An Outfit which is Light, Compact, Portable, Highly Efficient, and UP-TO-DATE.

BEWARE of Cheap Imitations.



Model "B" Camera with 4 Spare Film Boxes in Travelling Case.

Urban Camera MODEL "D."

Latest perfect type Camera, as used by our Photographic Staff, and all important Film Manufacturers.

The Mechanism is on the same principle as Model "B." While the case is slightly larger, it is exceedingly light, all metal parts being of Aluminium, with steel bushings and bearings.

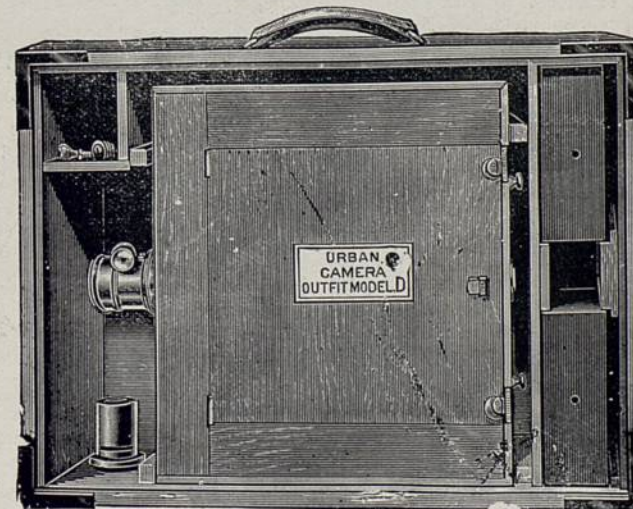
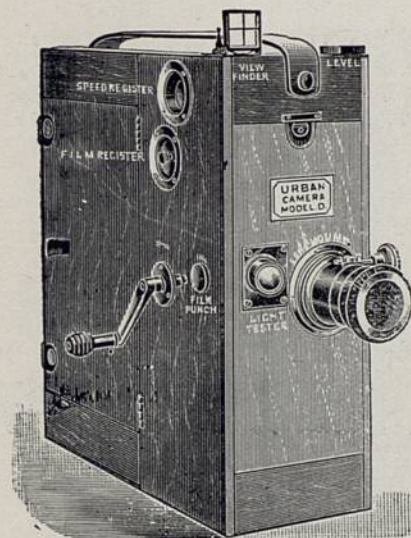
The Outfit is equipped with one each 2½ and 3½ Voigtlander Collinear Objectives mounted in interchangeable tubes with nicked rack and pinion mount.

The interchangeable Film Boxes, of which two extra are included, have a capacity of 350 feet of film each.

The Camera is further equipped with a Speed Indicator, Film Length Register, Spirit Level and View Finder.

The Entire Outfit, is contained in an Aluminium Corner-Bound Carrying Case, furnished with round leather handle and double lock and key.

This is the most perfect Camera Outfit on the Market.



CODE.

PRICES—Model "D" Camera.

PRICE.

"BIOBLAST."	Complete as above, with two Voigtlander Lenses	£35 0 0
"BIOBLASTING."	" " without Lenses or Mounts	£26 0 0
"BIOBLAT."	" " with two Canvas leather bound Carrying Cases for Camera and extra Film Boxes	£39 0 0
"BIOHIDE."	" " with two solid leather Carrying Cases	£42 0 0

URBAN CAMERAS

Models "Bx" and "Dx."

SPECIALLY CONSTRUCTED FOR TROPICAL CLIMATES AND HEAVY USE. - - - -

THESE Cameras are identical in fitting and in operation with Models "B" and "D," but with the addition of Oxydised Gun Metal Struts and Corners, the most recent improvements, which strengthen the case, prevent damage when in use and travelling, and greatly add to the appearance of the cameras.

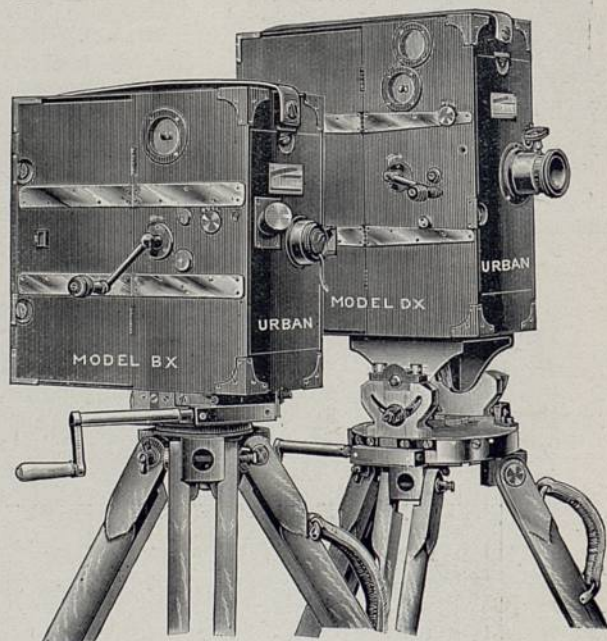
The Film Register, Speed Indicator, Handle Socket and Lens Jacket are also protected by circles of the same metal.

The Struts, being hinged in exact line with the hinges giving access to the Film Boxes, not only lend additional strength to the case, but effectually prevent the door being sprung by an accidental jar or knock.

Greater clamping power is afforded by the addition of two extratum buckles, top and bottom—a distinct improvement over previous types.

These Cameras are especially advantageous for use in moist and hot climates, where ordinary wooden cases are inclined to swell or warp.

Beautifully finished, in well-seasoned, highly-polished mahogany, Models "Bx" and "Dx" Cameras are elegant in design and of the highest class workmanship.

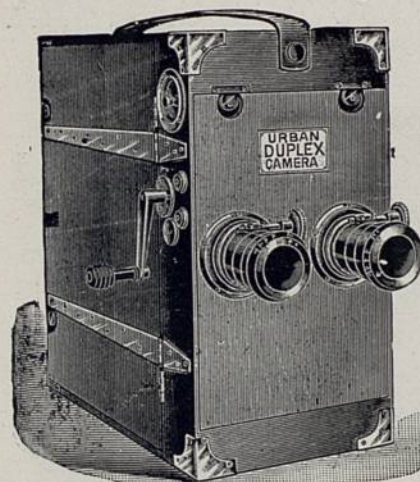


As fixed on the "Handy" Tripod. As fixed on "Maxim" Tripod.

OUTFIT MODEL "Bx," complete, with the improvements above mentioned	£34 0 0
Code Word "BIOMAC."	
" " " " with 2 Canvas Leather-bound Cases	37 10 0
Code Word "BIOMAN."	
" " " " with 2 ALL SOLE LEATHER Cases	39 0 0
Code Word, "BIOMAR."	
" " " " "Dx," complete, with the improvements above mentioned	45 0 0
Code Word "BIOMAT."	
" " " " with 2 Canvas Leather-bound Cases	48 10 0
Code Word "BIOMAV."	
" " " " with 2 ALL SOLE LEATHER Cases	50 0 0
Code Word "BIOMAS."	

The Urban "Duplex" Bioscope Camera.

TWO MODEL "D" CAMERAS IN ONE



Many Film Makers desiring to obtain two negatives of any important event or subject of exact duplicate are equipping themselves with this type instrument, which is operated by one person.

The precaution of taking two negatives of any important event, simultaneously from one point of view, has often repaid the operator by saving at least one of his negatives, which sometimes is lost, when only a single camera is employed, through some unforeseen failure of the mechanism, faulty film stock, careless developing and drying of negatives, &c.

A BEAUTIFULLY MADE & PERFECTLY BALANCED INSTRUMENT.

Supplied with two extra sets of Film Boxes each of 350 feet capacity.

One Set of specially matched Voigtlander Collinear Objective (either 3 or 4-inch focus—F 5.4) in interchangeable tube mountings with nicked lens-mount, rack and pinion adjustment.

THE CAMERA is further equipped with Focal Plane Shutter, Film Register, Spirit Level, Direct Focus Tubes, View Finder, &c., &c.

PRICE (as above) - - - **£45.**

Code Word: **BIOCOLI.**

Extra Set (2) Matched Voigtlander No. 1 Lenses 4-inch Tube Mountings (per set of two) (4-inch equivalent focus)	£10 10 0
Extra Set (2) Matched Voigtlander No. 30 Lenses 3-inch Tube Mountings (per set of two) (3-inch equivalent focus)	8 8 0

EXTRA PARTS OF "URBAN" CAMERA.

FILM BOXES for Model "B" Camera (cap. 150 feet film)	each	£0 12 0
" " " " "D" " " " 350	"	0 15 0
CARRYING CASE, Pine with Aluminium corners, locks and keys, &c., for Model "B" Outfit	"	1 15 0
1 SET OF 2 CARRYING CASES for Model "B" Camera, canvas, leather bound, with handle, shoulder straps, lock and key to each, &c.	"	5 0 0
DITTO, all sole leather (best quality)	"	7 10 0
CARRYING CASE, Pine with Aluminium corners, locks and keys, &c., for Model "D" Outfit	"	2 10 0
1 SET OF 2 CARRYING CASES for Model "D" Camera Outfit, sole leather, baize lined cases, with locks and keys, handle, shoulder straps, &c.	"	9 0 0
DITTO, canvas, leather bound	"	6 0 0
CARRYING CASE for Model "Duplex" Outfit	"	2 15 0
VIEW FINDERS (see illustration)	"	0 3 9
SPIRIT LEVELS (see illustration)	"	0 2 0
GROUND GLASS PRESSURE PLATES	"	0 2 6
COILED WIRE TAKE-UP BELTS	"	0 2 0
TUBE CORE FILM BOBBINS WITH SPRING CLIP	"	0 0 9
HANDLES for Model "B" or "D" Cameras	"	0 6 0

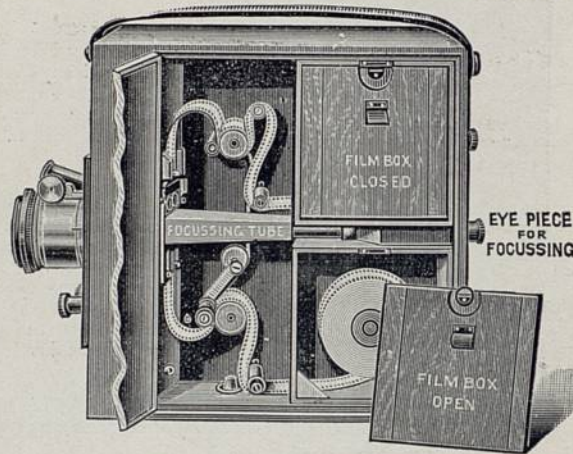
Instructions and Precautions to be observed in operating THE "URBAN" BIOSCOPE CAMERA

Load your film Boxes in a dark room by a safe ruby light. Place film roll over spindle after withdrawing wooden spool. Slip end of film under roller inside box, through slot, making certain that emulsion side of film is uppermost and faces the lens when run through the camera. Film as supplied is rolled with emulsion on the inner side which should thus protrude from the box in the proper manner. Make certain that film box cover is firmly closed and locked before leaving dark room. To prevent the end of the film from slipping back into the box, it is advisable to make several pleats or accordion folds in the end.

To Load the Camera, place box on the top division, and screw firmly into position. Then thread the camera mechanism as shown in illustration, not forgetting to leave a loop of about 1½ inches between the top and lower sprocket where the film passes through the gate. To open the gate push back the focussing tube, raise the gate spring catch, swing back the gate, clean the pressure glass, turn the handle until the movement pins protrude through their channels, insert the films over these pins, making certain that the aforementioned top and bottom loops are equal. Close the gate and push the focussing tube into its proper position. Pass the end of the film over the lower sprocket, making certain that the sprocket pegs engage the perforation accurately. Pass the end under the lower pulley and into the lower film box, then insert end under the brass clip of wooden spool. Turn the handle of the camera one or two revolutions to see that everything is working in order, then close and lock the lower film box.

To Focus.—The most certain manner of focussing is to view the object directly through the back of the film provided you have a good light sufficient for this purpose. The most satisfactory way, however, is to insert a short piece of Matt surface film (which answers the purpose of ground glass) in the film gate by temporarily removing the sensitised film, which can be pushed outside the closed gate during this operation. Put the focussing tube again into position, remove the metal cap or cartridge from the end of the eyepiece, and rack your lens either backwards or forwards, as may be necessary, until the image in view appears absolutely sharp. You now remove the Matt film, replace the coated film, insert cap in the eyepiece of the focussing tube, and push the latter gently into the camera as far as it will go.

Preparing to take the Picture.—While you are focussing you should, at the same time, find your view, and adjust your camera and tripod for position, always keeping in mind that the camera should be in a position absolutely level with the subject, unless the latter be taken from an elevation. Now set the film registering dial at Zero, so that, knowing the length of film available, you will always know how much you have in reserve for various exposures. See that your tripod is firmly fixed into the ground, and that the camera is tightly screwed to the top of the tripod, to prevent any oscillation. Immediately before commencing to take the view, judge your light, and arrange your stop diaphragm in lens accordingly. To judge the illumination on the film, you must now glance into the view finder tube to the right of the lens, by removing the cap, as in the focussing tube, which will assist you to form an estimate of the quality of the light which prevails at the time you are taking your photograph. You must use your individual judgment in this matter, as it is impossible for us to give any definite instructions on this point, adjusting the stops for a proper exposure being largely a matter of experience.



The revolving shutter can be adjusted by removing the front section of the camera case to which the lens is attached, the same adjustment being required in adjusting the shutter to its proper opening as in the case of manipulating the diaphragm or stop, this being strictly a matter of judgment and experience. The further object of the direct view finder is to enable you to adjust your camera speedily to any change of position for following pictures. **Always photograph your views with the sun directly at the back of the camera,** if possible. To take the picture with the sun facing the lens is certain to produce the most unsatisfactory result. The sun should directly illuminate the object you are photographing, which will assure your getting every detail, provided our previous instructions are complied with.

Taking the Picture.—Turn the handle evenly at the rate of two complete revolutions per second, which is equivalent to sixteen separate exposures or pictures, the minimum speed allowable to procure even movement of the objects photographed. A less speed than this would result in dislocated or jerky movements of the objects on the film when projected on the screen. **IMPORTANT:—A funeral procession (in order to assure natural motion) should be taken at precisely the same speed as a race or an express train.** Should your film box contain one 150-foot roll, and you consider you have done justice to your subject, after exposing 50 or 75 feet, as the case may be, and intend taking further subjects on the remaining 75 or 100 feet, it is advisable to punch a few holes in the film by pulling out the brass knob (marked film punch on the camera case) thus enabling those who have the development of the film in the dark room to cut it at the punched holes, as each distinct exposure should be separately developed. One can feel a punched hole in the dark, whereas any other mark is most difficult to discover.

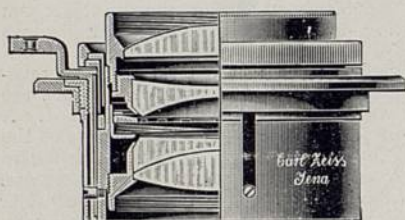
Reloading the Camera.—To reload for further exposures, after exhausting the film from the top box, remove the now filled box. Transfer the upper film box, which is now empty, into the lower section. Insert another filled box into the upper section, and repeat the operation as previously directed. All film boxes supplied with the camera are interchangeable.

DON'T FORGET

- To unscrew and remove your lens cap before starting operations.
- To replace focussing tube and view finder caps after using, otherwise you fog all the films you are exposing.
- To close all catches, thus assuring boxes being light tight before you leave the dark room and after loading and threading the camera.
- To oil the mechanism and revolving shutter bearings occasionally. This does not mean the sprocket drums or any surface with which the film is likely to come in contact.
- To clean the pressure glass, film gate and plate and the interior of the camera, as the slightest particle of accumulated dust will scratch the surface of the very sensitive film.
- To always have your film boxes properly screwed into position.
- To use the film with the emulsion side towards your lens when passing it through the camera.
- To replace lens cap when camera is not in use, thus preventing the lens from becoming scratched or dirty.
- To make certain, before turning the handle, that the object you intend photographing comes within range of the instrument, otherwise you are wasting film.
- To include as picturesque a background as possible, as this enhances the value of your picture.
- That, in case of accident to the wire film-take-up strap, the same must be replaced or repaired by removing the front section of the camera to which the lens is attached, and inserted over the pulley from this position.
- That the object of an animated picture camera is to take animation, and plenty of it: the more action there is in the picture, the more successful will be the subject.
- That too much sky is detrimental to the reproduction of an animated picture, just as too much foreground without action therein is equally objectionable.
- That the best results are to be obtained by refraining from placing the camera closer than about 20 feet from the nearest object that you wish to include in your view.
- That if you desire any further instructions with regard to any matter concerning animated photography, you may apply to us direct, and we shall be most pleased to give you every additional information.

Special Carl Zeiss Lenses

As supplied with URBAN CAMERA Models "B" and "D."



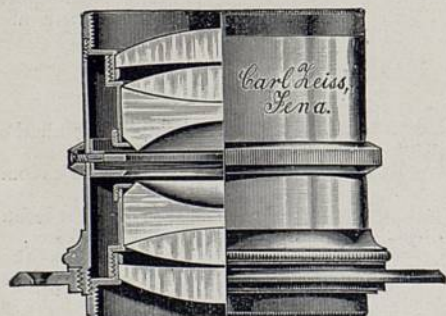
The "TESSAR"

1 6.3. SERIES II.b.

In Special Mount, with Iris Diaphragm.

A new rapid objective (F 6.3), adapted for all requirements of photography, strongly to be recommended whenever special importance is attached to uniform precision and sharpness from centre to margin, that is, in cases where the negative is subsequently to be greatly enlarged, or when the objective is to be used for reproductions as well as for enlargements.

No. 1a. 3-inch FOCUS. PRICE £5 5s.



THE .. "PLANAR"

SERIES Ia.

In Special Tube Mount, with Iris Diaphragm.

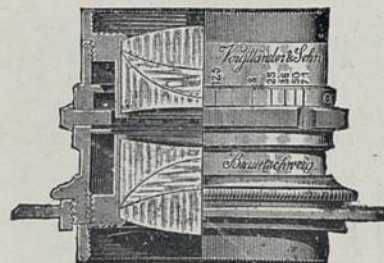
The Planar of Series Ia consists of four separate Lenses, and is constructed strictly symmetrically from Nos. 1 to 5 inclusive, which display their highest capacity in reduction and enlargement. The objectives of this series are particularly rapid, and they excel in yielding sharply defined pictures, in being anastigmatically well corrected, and in having a flat field of relatively large angular extent. The relative aperture varies from 1 3.6 to 1.5 and 1 6.3, the angle of view from 62 to 72 degrees.

In the capacity of a special objective, the smaller sizes of the Planar are eminently suitable for securing records of the consecutive motions of moving objects for enlargements and very small reductions, as well as for purposes of projection; the larger sizes can be strongly recommended for all kinds of reproduction processes.

No. 4.	FOCUS 3-inch.	£7 7s.
No. 5.	FOCUS 4-inch.	£7 7s.

NOTICE—If ZEISS LENSES are desired instead of VOIGTLANDER with MODEL "D" URBAN BIOSCOPE CAMERA, the difference in List Prices will be charged.

Voigtlander Collinear Lenses.



THE COLLINEAR LENS differs radically from the old style of Lenses and from the Lenses in common use to-day. It embodies a new principle—freedom from Astigmatism. It is the most perfect of modern anastigmats, representing Perfection of Type, Perfection of Physical Qualities, Perfection in the Manufacture.

The type of the Collinear is an ideal one. Not only does it embody all the corrections that a Lens of its kind should have, but it is planned and conducted on those lines which are considered the most desirable by Lens makers.

A Lens is anastigmatic when it will make a simultaneously sharp picture of vertical and horizontal lines crossing each other, or a perfectly sharp picture of concentric circles. This is the most difficult problem for the Lens maker, and in no lens is it so well solved as in the Collinear. The effect of anastigmatism is to make a picture sharp and brilliant, to give it snap and detail.

Collinear Lenses are rectilinear, because they are symmetrical; the front Lens exactly like the rear; in fact interchangeable.

The most suitable series of Objectives for Bioscopic Photographs are "Zeiss" and "Voigtlander" Lenses.

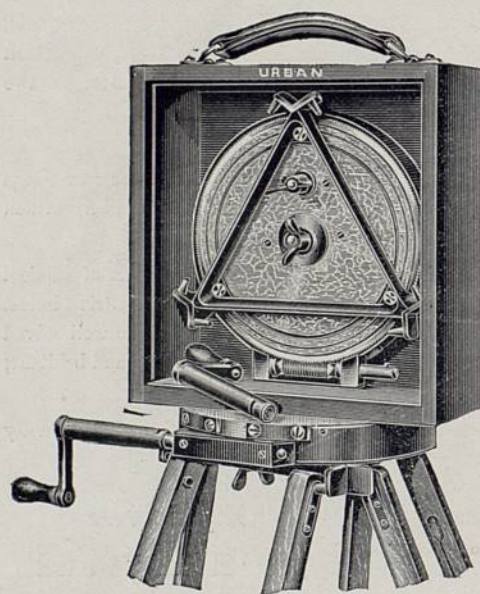
ALL "URBAN" BIOSCOPE CAMERAS are fitted with these admirable Lenses—ALL "URBAN" FILM SUBJECTS are procured thereby.

"THE QUALITY OF THE PHOTOGRAPH IS A GUARANTEE FOR THE LENS."

PRICES.

No. 00—2½-inch, equivalent focus F 5.4, with Mount, Rack and Pinion Adjustment	£5 5 0
No. 00—2½-inch, equivalent focus F 5.4, without Rack and Pinion Adjustment	4 10 0
No. 1—3½-inch " " " " " " " "	5 0 0
No. 00—2½-inch, fitted with adjustable tube for interchangeable mount, as supplied with Urban Model "D" and "Duplex" Cameras - net	5 5 0
No. 1—3½-inch Ditto " " " " " " " "	6 0 0

THE *Urban Rotary Tripod Head,*



FOR use in taking Panoramic Subjects, and in following the centre of interest to be photographed, as in Processions, Football Matches, Boat Races, &c., &c. It is solidly constructed of gun-metal, steel, and aluminium, and is so made that all "backlash" is taken up, and uneven motion avoided. When stationary views are desired, the gear device is clamped by means of a convenient thumb screw at the bottom of lower plate.

The Turn-table plate is cut to 300 threads to its circumference, thus assuring a slow, smooth and gradual motion.

PRICE, including the Carrying Case (as shown in the Illustration), which is equipped with leather handle, and lock and key (without Tripod) .. **£6s. 6d. 0d.**

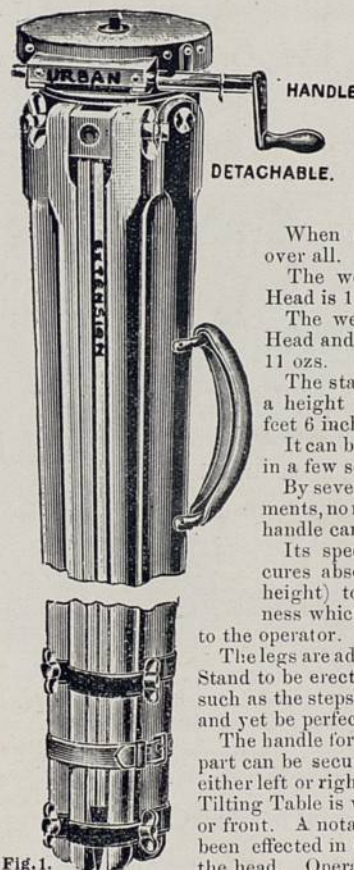
RIGID TRIPODS, with Triangular Heads:—

Length		Price	Leather-bound Canvas Carrying Case. Extra
2½ feet	...	£1 0 0	5s.
4½ "	...	1 2 6	10s.
5½ "	...	1 5 0	12s. 6d.
8 (3 section folding)	...	2 17 6	10s.

BEWARE OF INFERIOR IMITATIONS.

URBAN "HANDY" TRIPOD.

A combined Rotary and Rigid Extension Stand.



With Revolving Head, or Revolving Head and Tilting Table.

The Lightest Folding 6ft. Tripod Stand with Revolving Head ever made.

When closed ready for carrying, the length is 42 inches over all.

The weight with Revolving Head is 12½ lbs.

The weight with Revolving Head and Tilting Top is 15 lbs. 11 ozs.

The stand is adjustable from a height of 43 inches up to 6 feet 6 inches.

It can be set up or taken down in a few seconds.

By several ingenious arrangements, no nut, screw, or carrying handle can be lost.

Its special construction secures absolute rigidity (at any height) together with a lightness which will be a revelation to the operator.

The legs are adjustable, enabling the Stand to be erected on uneven ground, such as the steps of a Town Hall, etc., and yet be perfectly rigid.

The handle for turning the revolving part can be secured and worked from either left or right of the Camera. The Tilting Table is worked from the back or front. A notable improvement has been effected in the revolving part of the head. Operators often experience

Fig. 1.

great difficulty in getting the Camera trained on to the object quickly enough. This difficulty has been overcome by means of an arrangement which enables the worm on the Revolving Head to be instantly thrown out of gear. The head, with the Camera still securely fastened to it, may be moved in any direction, the worm being put into gear as quickly as it was thrown out, and ready for work again.

With the combined head, that is, revolving and tilting, a new power is put into the hands of an operator. For instance, it will enable him not only to follow a descending or ascending object, but will allow him to have his Camera at a height of 6ft. or more, and take a complete circular panoramic view, whilst the Camera is tilted at any angle. All the upright objects will be found to be still upright in the circle swept by his Camera.

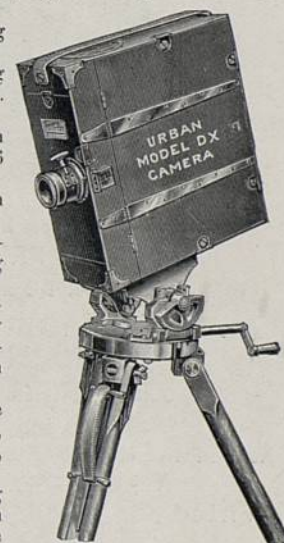
The entire tilting device is detachable. Purchasers of the Stand with the Revolving Head only, can add the Tilting Table at any time, and it can be fixed in position in a few seconds.

Price of "Handy" Tripod, with Revolving Head (as Fig. 1) **£7 0 0**

" "Maxim" Rotary Tripod, with Revolving Head, and Tilting Table (Fig. 2) ... **12 12 0**

" Protecting End Bags (set of 2) solid leather ends with Canvas Body and Straps, including wide Web Shoulder Strap extra ... **2 0 0**

Beware of Inferior Imitations.



Showing angle attained by the "Maxim" Rotary Tripod.

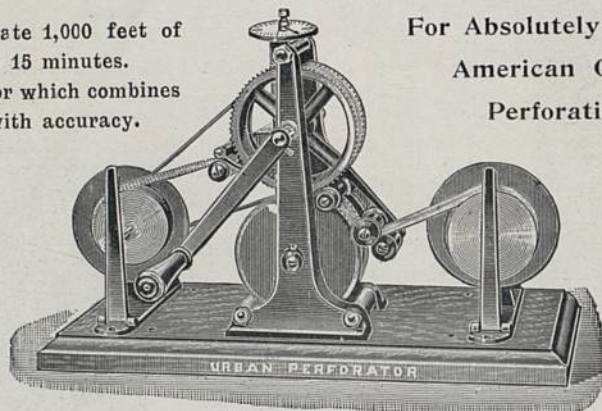
Fig. 2.

The Urban "Rotary" Film Perforator.

WITH FILM LENGTH MEASURING ATTACHMENT.

Will Perforate 1,000 feet of Film in 15 minutes.
A Perforator which combines speed with accuracy.

For Absolutely Standard American Gauge Perforation.



Made of the best Bell Metal and Scrubb's Steel Die and Punches.

PRICE (complete) - £14.

Extra Set Die and Punch Drums - - - £7 10s.

Urban "Step" Perforator.

Cutting one set of perforations (one hole each side) at a time.

The only reliable Standard Gauge Perforator.

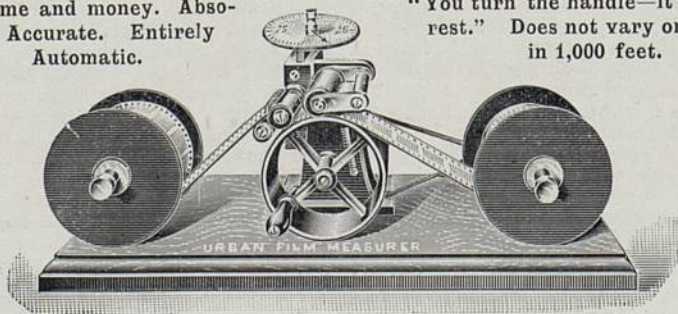
As used with all URBAN Film Subjects. Absolutely correct to Standard Gauge.
The most efficient and accurate Perforator on the Market.

Fitted for Hand or Motor Power. PRICE - £40.

URBAN FILM MEASURING MACHINE.

Saves time and money. Absolutely Accurate. Entirely Automatic.

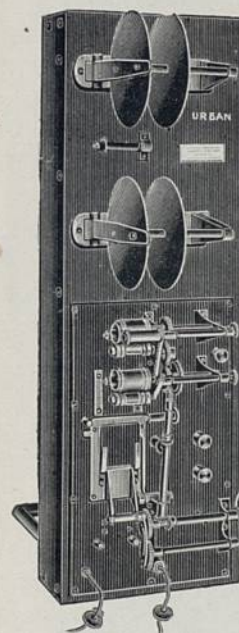
"You turn the handle—it does the rest." Does not vary one inch in 1,000 feet.



With capacity to measure up to 1,000 feet (or 300 metres). PRICE - £7 7s.

NOTE.—We supply these Measuring Machines to record either in feet or metres. When ordering, mention which is desired.

Urban Film Printing Machine.

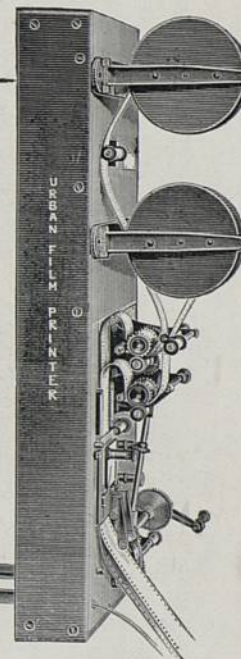


(Front View).

This is the most perfect, simple and accurate instrument on the market. The Film Actuating Movement is of the pin-clutch principle, as utilised in the Urban Cameras, which, for registration and consequent steadiness of the print when projected, has no equal. Every possible adjustment and contrivance desirable in an instrument, required by the practical film manufacturer, is embodied in this machine. Our own production of film subjects, which are all printed by means of this type instrument, testify to its superior merits. Fitted with quick adjusting electric light attachment.

The "Urban" Film Printer is now used by the principal British and Continental Film Makers.

PRICE, complete, £20.



(Side View).

FILM DEVELOPING FRAMES.

Spiral Pin Principle—Manufactured of Brass throughout.

SIZES—18 inches square by 2½ inches deep } Capacity 75 feet Film.	PRICE, each - - -	£1 12 6
„ 23 inches square by 2½ inches deep } Capacity 125 feet Film.	„ „ - - -	£2 0 0
„ 25 inches square. Capacity 165 feet Film „	„ „ - - -	£2 3 6

FILM DEVELOPING TROUGHS.

Made of three-quarter Oak, lead lined throughout, with Covers.

SIZES—19 inches square by 3½ inches deep	PRICE, each - - -	£2 0 0
„ 24 inches square by 3½ inches deep	„ „ - - -	£2 10 0
„ 26 inches square by 3½ inches deep	„ „ - - -	£3 3 0

Washing Tank, Zinc-lined, 27 inches by 27 inches, 4½ inches deep, £2 10s.

Taking, Developing and Printing from Customers' Negatives.

(All Films used are perforated to accurate Standard Gauge).

PRICES.	SKILLED OPERATOR AND SPECIAL APPARATUS, Sent out per day or part of a day (plus Operator's Expenses)...	£1
	SPECIAL SUBJECTS arranged by us (according to Scenery and Actors required), from ...	£1
	NEGATIVE FILM STOCK (perforated) ... per foot Net	2½d.
	DEVELOPING NEGATIVES (per 50 feet Lengths, minimum)	3s.
	PRINTING AND DEVELOPING POSITIVES from Customers' Negatives, Positive Stock supplied by us, perforated to Accurate Gauge Standard, per 50 feet Lengths (minimum charge) ...	12s.6d.

PHOTOGRAPHIC FILM STOCK.

(Negative or Positive).

Few realise the amount of care required in producing the bare film stock; the many operations which enter into its manufacture, and the fact that upon each and every one of these operations being conducted **just right**, the final results on the screen depend more than on anything else.

The first vital consideration in the manufacture of the film is the quality of the base; its purity, cleanliness, evenness and freedom from spots, joins and other imperfections. The base of the **Film Stock** we supply is of the **most expensive material and finest quality** used in the making of photographic film, while our facilities and processes are such that proper seasoning and freedom from shrinking, &c., may be relied on.

Of quite equal importance is the preparation of the photographic emulsions, negative and positive, upon this depending (with proper exposure and development) the clearness, brilliancy, contrast, detail and natural appearance of the pictures projected on the screen. The **Emulsions** are products resulting from years of study and experiment, and the most expert and experienced chemists are employed in their preparation. To this is due their remarkable keeping qualities and immunity from deterioration in hot climates.

Also of the utmost importance is the proper coating of the base with the emulsion, for which the makers possess the finest equipment and best facilities. Devised by the pioneers in coating and sensitising reliable materials for photographic purposes, constantly improved and brought to meet all up-to-date requirements, the film coating, winding, drying and cutting machinery at our works is doubtless the **most perfect in existence** for producing the best quality of film.

This film stock is used by the leading cinematographers in England and on the Continent. The makers have followed a conservative policy as regards placing their products anywhere and everywhere, preferring to build up the quality and reputation of **their Film** through their regular customers and exhibitors while the various types of apparatus were also being perfected, thus insuring proper treatment and manipulation of the film.

The results of the past year's manufacturing and trading have been so highly satisfactory, with such immunity from complaint, that we now solicit the patronage of **all users of film for exposure or projection in any sort of apparatus for animated photography**, feeling assured that, in its present high state of perfection, no failure can be traced to the film itself.

Furthermore, we are desirous of getting in touch with consumers and operators who, having distinctive ideas and methods, require film of different speed, size, consistency, or other modification, and, we are prepared to make **special emulsions and coatings** to meet such demands.

PRICES.	LUMIERE or EASTMAN NEGATIVE FILM, in Rolls of 165 feet (50 Metres) and 1½ inches wide, PERFORATED ... per foot Net	2½d.
	LUMIERE or EASTMAN POSITIVE FILM in Rolls of 150 feet, Standard width, PERFORATED ... per foot Net	2d.
	PERFORATING FILM STOCK, 2s. net per Roll, 150 feet.	

All Film Stock sold without Guarantee.

SPECIAL QUOTATIONS FOR LARGER QUANTITIES.



(COPYRIGHT)

A beautifully Coloured Slide of the above design

. . . supplied GRATIS to all users of the URBAN BIOSCOPE.

ESSENTIAL POINTS.

Free from Flicker. Absolutely Steady. Safety against Firing Films. Increased Illumination. Operating Simplified. Perfect Workmanship. Thoroughly Up-to-date. Superior to all others.

THE ONLY PERFECT MACHINE ON THE MARKET.

URBAN BIOSCOPE PROJECTOR.

MODEL "H."

Invented by Mr. Urban, is the latest and most efficient type of Animated Picture Machine on the market, being a vast improvement over former Bioscope models.

No form of Projector has achieved greater popularity, or afforded such satisfaction since the Animated Picture Machine first became a marketable article; nor has the steadiness of reproduction and lack of flicker of the **Urban Bioscope** been approached by any other form of bioscopic apparatus.

The success of former types of the Bioscope have carved a name for its inventor in all countries, its merits being universally recognized, so that it is unnecessary to enter into the detail of the **advantages of the modified form of the Urban Bioscope.**

An essential feature of the **Urban Bioscope** is in the cam movement patented in 1895, No. 24,457. This movement is considered by experts to be the only mechanically correct one for accentuating the pliable celluloid films and retaining steadiness in the picture projected. All manufacturers, dealers and users of imitations of the **Urban Bioscope** in Animated Picture Apparatus are infringing this patent and our rights.

The Urban Bioscope has become a by-word in the Life Motion Picture World, its superiority having been early recognized by Managers of the principal "Homes of Animated Photography."

The numerous Types of Picture Machines formerly used at hundreds of British, Continental and Colonial Theatres are now superseded by the machine invented by Mr. Charles Urban. These instruments have now been permanently installed, and their reproductions form the principal attractions wherever exhibited.

The foremost Amusement Resorts of the World having utilised the **Urban Bioscope** as a chief attraction, hundreds of Theatres, Music Halls, Educational Institutes, Exhibitions, Lecturers and Showmen in all countries, who "know a good thing when they see it," have followed suit. By untiring efforts in perfecting Bioscopic Apparatus and Accessories, and by searching the World over for novel Film Subjects—thus stimulating general interest in Animated Photography, and opening up new fields for the application of the invention—we have developed the Life Motion Picture Trade to its present healthy state.

Don't waste time, money, or energy in looking for a better Projector than the URBAN Bioscope.
IT DOES NOT EXIST!

This Catalogue contains reference to everything of a practical nature suitable for the use of every up-to-date Animated Picture Exhibitor.

That which you do not find referred to herein is not worth listing. . . .

Be on your Guard

One eminent firm publishes a statement to the effect that it has manufactured some 8,000 Animated Picture Instruments. Other firms have made similar "tall" statements. There are over thirty firms in Europe and America manufacturing various types of Picture Machines (of one sort or another).

By fairly accurate research we can only trace between 7,500 to 8,000 Animated Picture Machines of different makes in use the world over. Of this total number in use 2,200 are **URBAN Bioscopes**. Therefore, someone is misrepresenting facts, even allowing for some 5,000 machines of the different makes which have found their way to the scrap heap.

TO OUR COLONIAL CUSTOMERS.—Our attention has been directed to many advertisements, appearing in **Indian, South African and Australian Papers and Trade Journals** circulating in these countries, inserted by certain firms for purposes of misleading intending purchasers. All statements made regarding the vast output of machines and films, official selection of apparatus at Expositions, Gold Medals and Diplomas, etc., etc., want a lot of substantiation.

Do not be misled by these Glaring Untruths!

The **Urban Bioscope**, Optical and Electrical Systems, and **Urban Film Subjects**, have successfully withstood six years' severe test at the **First Variety Theatre in the World (The Alhambra, London)**, and are still in Daily Use, not only at the Alhambra, but at hundreds of other Theatres and Halls the world over.

URBAN CAMERAS SECURED THE PICTURES,
. . . URBAN BIOSCOPES DISPLAY THEM.

In this connection, one of London's Leading Journals says:—

"Urbanora is of such value as an Educational Institution, as well as for its capacity to carry one into the extremes of the Empire, that its exclusion from the Alhambra would be well-nigh a calamity."

THE FIRST IN THE FIELD, THE URBAN BIOSCOPE STILL HOLDS THE FIRST PLACE, where Steadiness, Accuracy, and absence of Flicker are desired.

WHY do the principal Exhibitors prefer the URBAN Bioscope to any other?

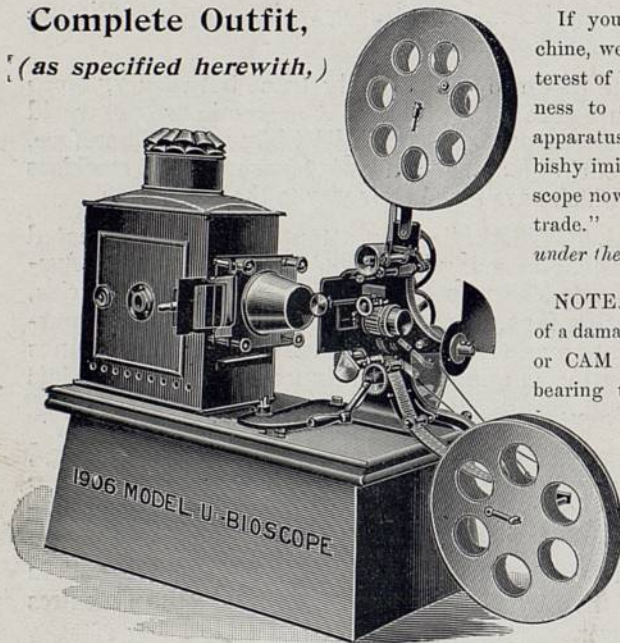
BECAUSE it is an honest and efficient Machine depending on its merits alone.

1906 MODEL "U" BIOSCOPE OUTFIT.

PRICE - - £15. Net to Everybody.

(NO DISCOUNT TO THE TRADE.)

Complete Outfit,
(as specified herewith,)



If you want a cheap-priced machine, we believe it to be in the interest of the Film Exhibition Business to supply you with a good apparatus, superior to the rubbishy imitations of the Urban Bioscope now offered by many "in the trade." *Every machine is licensed under the Demeny patent.*

NOTE.—You are running the risk of a damage claim by using a DOG or CAM Movement Machine not bearing this licence, the licence under this patent having been acquired by us exclusively.

We now offer you a safe and high-class Bioscope Outfit, at a price our competitors cannot touch.

The Outfit comprises:

The "U" Model Bioscope Mechanism (black enamel) built on the Urban Bioscope Model of best workmanship.

- Lense and Rackmount any focus required.
- Standard Russian Iron Lantern, best quality.
- 4-inch Meniscus Condenser in special cell.
- Highly-Polished Oak Base Board with swivel fitting.
- Automatic Film re-winding Gear, will take up 2,000 feet film.
- Two 12-inch Brass Reels.
- All-Metal Slide Carrier, &c., &c., &c.

PRICE, complete, £15 net.

Model "U" Mechanism.

WITH ONE LENS AND FILM TAKE UP ONLY.

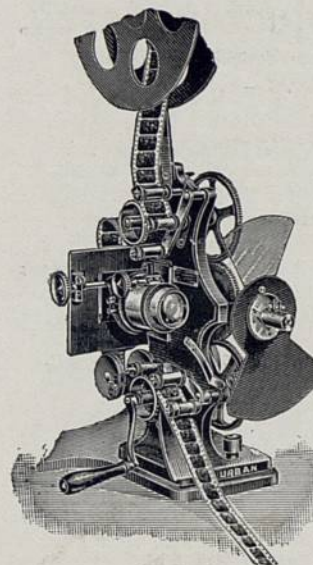
PRICE - - £10 10s. Strictly net to all.

THE "URBAN" BIOSCOPE MODEL "H."

(PATENTED)
(MECHANISM ONLY).

Fitted with one Cylindrical Objective (any focus) and Brass Mount (for interchangeable lenses) with Rack and Pinion Adjustment.

Fully protected under Demeny Patent,
No. 24,457.



Price (with 1 Lens (any focus) and mount) £17
Code Word: "BIODOT."

Price (without Lens and Mount) £16
Code Word: "BIODONT."

NOTE.—This is the same type mechanism as used by the ALHAMBRA, LONDON, and by the principal Theatres and Halls IN THE PROVINCES, COLONIES, and CONTINENTAL EUROPE, including 20 MOSS-STOLL EMPIRE THEATRES, WEST'S "OUR NAVY," &c., &c.

The Frame and Bearings are solid steel castings, finished in green enamel with gold striping. The shafts are stub steel; the gear and sprockets, film holder, eccentric and lens supports of highly-finished hard brass and bell metal, all accurately cut.

The Shutter is adjustable to the use of any focus objective, and is equipped with the translucent violet blade which eliminates all flicker.

The Objective furnished herewith is an "Urban" Special Cylinder Lens with brass lens mount, to fit any focus.

Fitted with extra interchangeable film trap Spring Plate and extra set of six springs.

Upper Film Reel Support, with tube and disc for use with single films (if so desired).

All metal parts are highly burnished, and the entire Machine is of handsome and business-like appearance.

Metal Asbestos-backed Cooling Plate, attached to back of Film-trap, absorbs all heat from lanterns and keeps the Film-trap cool.

Every "Urban" Machine is guaranteed. All the parts are most carefully made, accurately finished, and scientifically constructed.

As the success of the resulting pictures depends solely and entirely on the accuracy of the mechanism; it is very obvious that to obtain the best and most perfect results the most accurate instrument is essential.

"Urban" Bioscope Projector Parts.

When referring to any particular part of the Mechanism, designate such part by naming the Letter given to it, viz.: "Fig. 1—A."

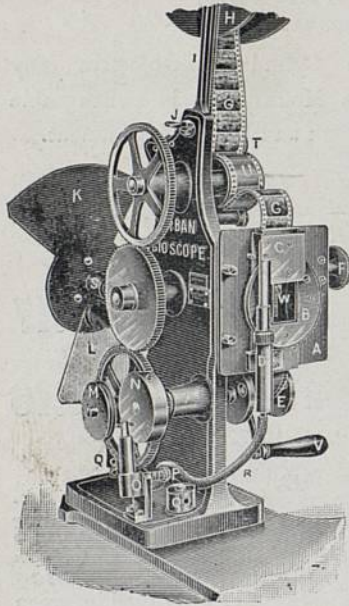


Figure 1.

DETAILED PORTIONS OF BIOSCOPE MECHANISM.

- A Main Film Trap Plate and Guide Rails
- B Film Trap Plate with Springs
- C The Bow Pressure Springs
- D The "Hump" which prevents Film Buckling
- E Light Cut-off Valve
- F Pneumatic Light Cut-off
- G Bow Spring Screws
- Eccentric Cam or Dog Movement (Patented)
- I Registration Adjustment Screw
- J Sight Guard to Lens Support
- K Adjustable Lens Mount Holder
- L Lens Mount with Rack and Pinion
- M Upper Sprocket Drum
- N Lower Sprocket Drum with Handle
- O Indiarubber Tubing for Light Cut-off

The "Urban" Bioscope is the most perfect
 Animated Picture Apparatus on the Market.

- A Film Trap Main Plate
- B Asbestos-Brass Cooling Shield
- C Pneumatic Shutter or Light Cut-off
- D Pneumatic Light Cut-off Valve
- E Eccentric Cam or Dog Movement (Patented)
- F Registration Adjustments Thumbscrew
- G Film Strip (threaded through machine)
- H Top Film Reel
- I Top Film Reel Support
- J Top Film Reel Support Clamp Screw
- K Opaque Revolving Shutter
- L Translucent Violet Shutter Blade
- M Film Take-up Pulley
- N Eccentric Shaft Balance Wheel
- O Pneumatic Light Cut-off Piston Valve
- P Piston Valve Air Pressure Adjustment
- Q Swivel Base Screws
- R Indiarubber Connecting Tube
- S Revolving Shutter Spindle
- T Vulcanite Upper Film Guide Roller
- U Upper Sprocket Drum
- V Handle for Turning Mechanism
- W Film Trap Light Aperture

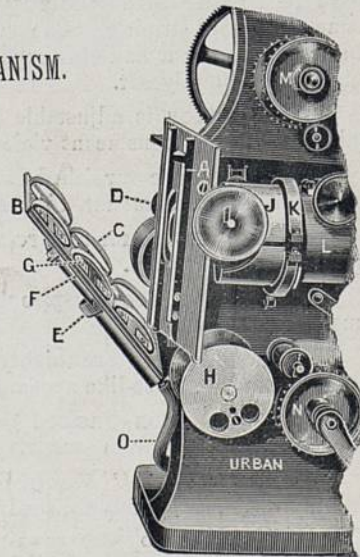


Figure 2.

NOTICE.—All Articles included with the following Bioscope Outfits, not desired, will be allowed for at 20 per cent. below their separate List Prices.

"The Urban" Bioscope Outfits:

A combined Bioscope and Optical Lantern Projector.

Outfit A (Electric) - Price £37 10 0
 Code Word "BIODOTOS."

Outfit B (Gas) - Price £35 0 0

With Bye Pass, Gwyer Jet and Special 1½ inch Limes and Rubber Tubing instead of Electrical Equipment.

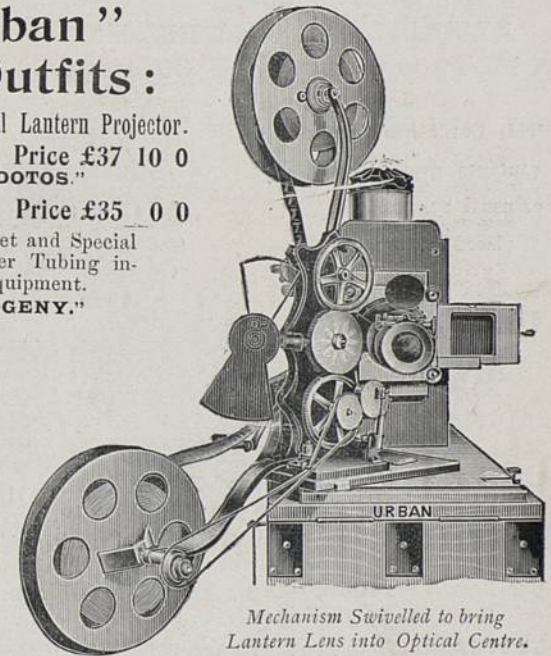
Code Word "BIOGENY."

The OUTFIT consists of
 "Urban" Bioscope Model "H"
 Mechanism.

One Set Special "Urban" Objectives (2, 2½, 3, 4 or 5-inch equivalent focus, in velvet lined leather-covered case) mounted in brass cylinders of one diameter, which slide into lens mount. Every exhibitor should provide himself with these different focus objectives, which he will find necessary for the various distances and sizes of pictures required.

- One highly-burnished Brass Lens Mount with Rack and Pinion adjustment.
- Hand Polished Oak Base, with brass plate swivel adjustment for the projection of ordinary lantern slides or announcements alternately with animated pictures.
- Russian Iron (special size) Lantern, dome top with brass double stage front and cone, fitted for both 4 and 4½ inch condensers.
- One 4-inch Double Convex and Meniscus Condenser in ventilating brass cell.
- Series "W" Urban Electric Arc Lamp, complete (for alternating or direct electric current).
- Brass extension O.G. Lens Flange, for attaching Lantern Lens to Mechanism.
- Automatic Film Re-winding Gear, will re-wind 2000 feet film.
- One Lantern Objective, fitted with Double Combination Achromatic Lenses, Rack, Pinion and Flasher, either focus desired (8, 9, 10 or 12 inch), also Extension Tube.
- Special Brass Alum or Glycerine Trough.
- All Metal Double Slide Carrier and Opaque Light Cut-off.
- Adjustable Rheostat (Kruppin Wire Coils) for alternating and direct current, with fuse block and adjusting lever (50 amperes, aluminium frame).
- Fifteen feet of Flexible Covered Wire (with Outfit B—12 feet India Rubber Tubing instead).
- Twenty-five Sets Special Carbons (with Outfit B—One dozen 1½-inch Limes instead).
- One Rapid Film Winder (nickel) separately mounted.
- One Improved Rapid Film Mender (accurate gauge).
- Bottle of Best Film Cement.
- Bottle Best Refined Oil and Zylonite Oil Can.
- Three 12-inch Spun Brass Reels (capacity 1200 feet each).
- Combination Travelling Case and Exhibition Stand, fitted with removable supports, adjustable tilting top and drawer, iron bound and strongly made, fitted with handles and double locks and keys.

Note.—Outfit B is equipped with the best GWYER JET (2000 candle power) the most powerful jet for Cinematograph projections on the market.



Mechanism Swivelled to bring
 Lantern Lens into Optical Centre.

The Urban Bioscope Outfit "C"

WITH THE URBAN-ELMENDORF . .

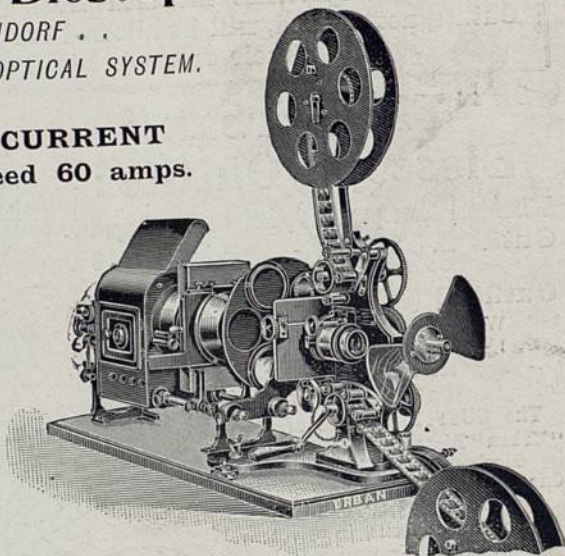
. . . OPTICAL SYSTEM.

FOR

**ALTERNATING CURRENT
ONLY, not to exceed 60 amps.**

This Outfit has many advantages over the former or usual system heretofore placed on the market.

**Once Adjusted:
Always in
Adjustment.**



The Outfit, consists of:—

URBAN BIOSCOPE MODEL "H" MECHANISM

One Set of Five Special Urban Cylindrical Lenses (2, 2½, 3, 4 and 5 inch focus), fitted in leather covered velvet lined case

One Brass Lens Mount with Rack and Pinion adjustment, and O.G. Flange

One Automatic Film Rewinding Gear and Coiled Steel Belt.

Three 12-inch Spun Brass Film Reels (capacity 1200 feet)

One Lantern Objective and Extension Tubes (for Lantern Announcement Slides), any focus desired (8, 9, 10, 12, 14, 16 and 18 inch)

Polished Oak Base Board with Metal Swivel and Adjustments

One Set (two) Body Rods and Supports with Screw Fittings

URBAN-ELMENDORF Electric Arc Lamp (see advantages described under "Arc Lamps")

NOTE.—This Lamp is built on a new principle, and is suitable for alternating current up to 60 amperes. By the arrangement of angle of carbons, the entire crater of light in point of upper carbon is utilised, thus increasing the candle power fully 40 per cent., and procuring a steady light

One Aluminium Rheostat (adjustable from 20 to 50 amperes)

25 pairs Carbons (top cored 9-inch, lower 5-inch)

Special Russian Iron Lantern with Ash Tray

One each 4 and 4½-inch "Pill Box" Condensers (Herschell Combination) and Flange

Brass Holder for Slide Carrier, Trough and Cone

All Metal Double Slide Carrier and Light Cut-off

Metal Alum or Cooling Trough

Spun Brass Light Cone

Tinting Disc and Adjustment (interchangeable for 4 various colours as desired) (20 different colours furnished)

Metal Grill or Film Fender

Rapid Film Winder (separately mounted)

Rapid Film Mender and Bottle Best Film Cement

One Bottle Best Refined Oil and Oil Can

15-foot Flexible Covered Wire

Combination Travelling Case and Exhibition Stand fitted with Detachable Supports, Adjustable Tilting Top, Drawer, &c, strongly made, iron bound, and equipped with handles, double locks and keys.

The above is one of the
most efficient Outfits
obtainable

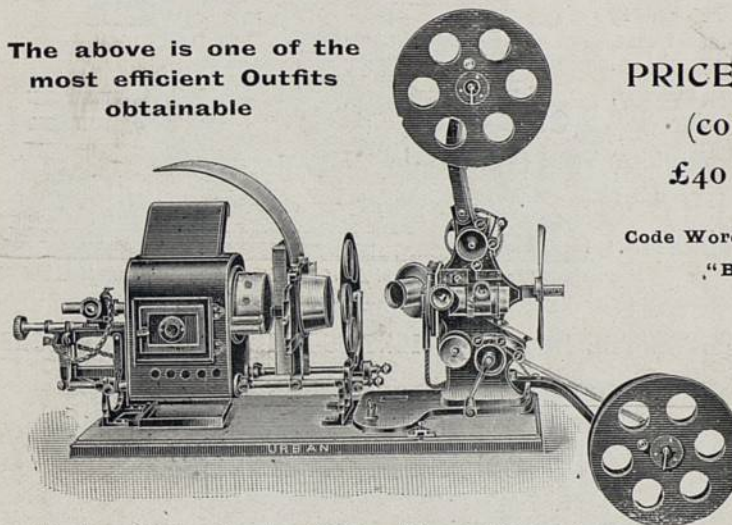
PRICE

(complete)

£40 0 0

Code Word—

"BIOGNOSE."



Side view of Urban Bioscope with Urban-Elmendorf Optical System.

The "Urban-Elmendorf" Optical System.

Suitable for any ANIMATED PICTURE APPARATUS.

A COMPLETE OPTICAL LANTERN.

Prices of Individual Parts.

Complete, including Universal Rods and Brackets with Thumb-screw Clamps, Lantern Body, one each 4 and 4½-inch Herschell "Pill box" Condensers and adjusting Flange Carrier and Trough Holder, with Light Cone and Ash Tray £4 15 0

EXTRAS. Polished Oak Base Board, with Metal Swivel for Bioscope Mechanisms	2 0 0
Urban-Elmendorf Arc Lamp, with Shield	4 0 0
All Metal Double Slide Carrier	0 15 0
Brass Alum or Cooling Tank	0 12 0
Interchangeable Colour Disc, with detachable Bracket Support	1 0 0
Gwyer Jet No. 2 with "C" Mechanical Tray	3 11 0
Locke's Patent Jet, with "C" Mechanical Tray	2 13 6
Film Fender, with set screws	0 10 0

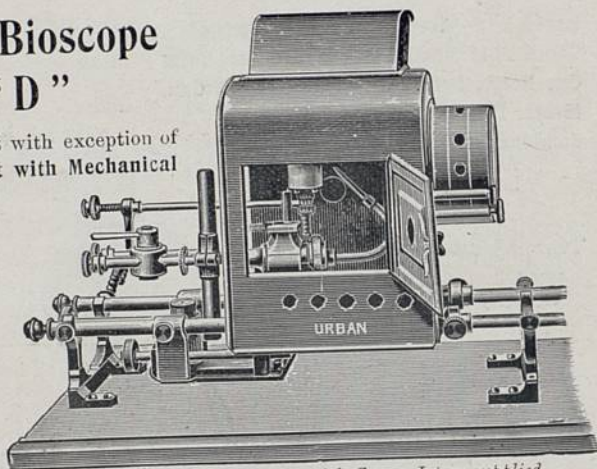
The Urban Bioscope Outfit "D"

Fitted as preceding Outfit with exception of most powerful Gwyer Jet with Mechanical Tray, 12-feet India-rubber Tubing and 12 Special 1½-inch Limes, instead of Urban-Elmen-dorf Arc Lamp, Rheostat, Carbons and Wire.

PRICE (complete)

£37 10 0

Code Word:
"BIOGRAFIA."



The U.-E. Optical Lantern with Gwyer Jet as supplied with Bioscope Outfit "D."

OUTFIT "D" IS THE MOST EFFICIENT FOR LIME-LIGHT PURPOSES.

"AN HONEST MACHINE."

The Urban Bioscope

... WINS IN EVERY COMPETITION.

AND IS USED IN PREFERENCE TO ALL
OTHER MAKES AT—

The Moss-Stoll Empires, (26 Theatres)

Hale's Tours of the World (all exhibits)

"West's Army and Navy" ,, ,,

Modern Marvel Company ,, ,,

The ALHAMBRA THEATRE, LONDON,

(Which produces the most perfect Picture Exhibit in the World).

*And by all the most prominent Exhibitors and Showmen
of Great Britain and Ireland*

(HENCE THEIR SUCCESS AND PROSPERITY).

2,000 URBAN BIOSCOPIES ALSO IN USE IN EVERY LAND.

The Urban 'Perfection' Outfit

The most Perfect Projector on the
World's Market. . . .

EVERY ACCESSORY

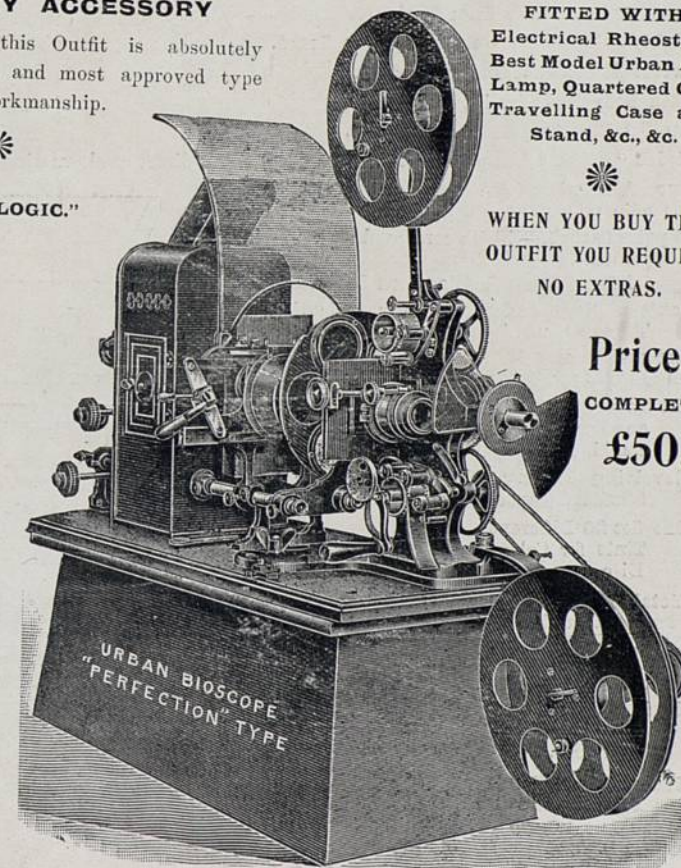
Included in this Outfit is absolutely
of the latest and most approved type
and workmanship.

Code Word:
"BIOLOGIC."

FITTED WITH
Electrical Rheostats,
Best Model Urban Arc
Lamp, Quartered Oak
Travelling Case and
Stand, &c., &c.

WHEN YOU BUY THIS
OUTFIT YOU REQUIRE
NO EXTRAS.

Price,
COMPLETE
£50.



EXTRA.

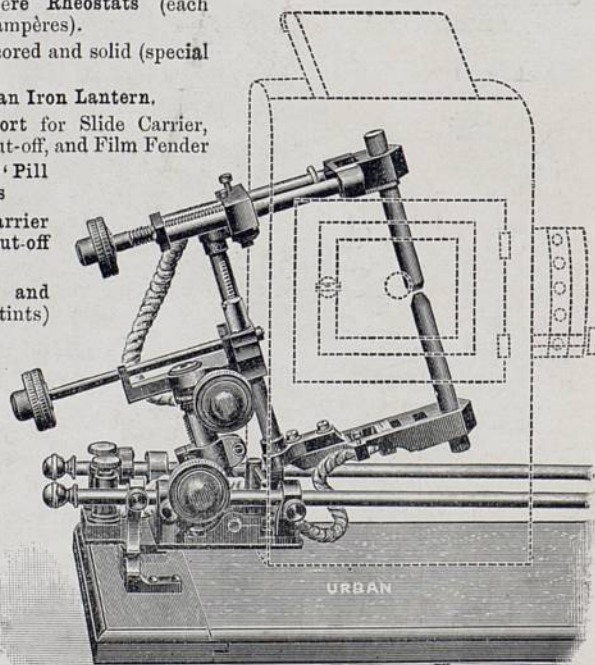
THE LIME LIGHT EQUIPMENT.

Adapted for use with Perfection Outfit, consisting of the most powerful Gwyer
Jet, and special Mechanical Tray (Model C) complete.

PRICE - - £4 10s.

The URBAN PERFECTION OUTFIT comprises:—

- Latest Model Urban Bioscope Mechanism.
- One Set (5) Cylindrical Lenses (2, 2½, 3, 4, and 5 inch focus).
- Rack Mount to fit all Lenses.
- O.G. Flange for Lantern Lens.
- Extension Tubes for any focus.
- Lantern Lens with Rack Adjustment (any focus) and Flasher.
- Automatic Film Re-winding Gear and steel Coil Belt.
- Three 12 inch Brass Film Reels.
- Highly polished Quartered Oak Base Board.
- Swivel Attachment and all fittings.
- Main Body Rods (polished brass).
- One Set Rod Supports and Fittings.
- Model "U" Arc Lamp (capacity 80 ampères) either direct or alternating current.
- Two Aluminium 50-ampère Rheostats (each adjustable 20 to 50 ampères).
- 25 pairs Carbons—6-inch cored and solid (special pointed).
- Special Brass Front Russian Iron Lantern.
- Lantern Stage and Support for Slide Carrier, Trough, Cone Light Cut-off, and Film Fender
- One each 4 and 4½ inch "Pill Box" type Condensers
- All Metal Double Slide Carrier and Curtain Light Cut-off combined.
- Revolving Tinting Disc and Standard (capacity 5 tints)
- One Set 20 Different Tints for Colour Disc.
- Metal Alum or Cooling Trough
- Metal Grill or Film Fender
- Rapid Film Winder (separately mounted).
- Film Mender & Bottle Film Cement
- Best Refined Oil and Oil Can
- 25 feet Flexible Covered Cable
- Combination Travelling Case and Exhibition Stand fitted with detachable supports, tilting top, drawer, etc. Made throughout of quartered Oak, very strong and durable, bound with iron corners and struts, and equipped with iron handles, double locks and keys, etc. Will outlast any five ordinary cases.



Model "U" Arc Lamp supplied with this Outfit only.

On Light.

TO THOSE ABOUT TO BECOME BIOSCOPISTS.

In producing the best effect of animated pictures upon the screen, a powerful light is the primary consideration. Owing to the scattered radiant (or rays) derived from oil, acetylene, or spirit burners, their use is very unsuitable for lantern work, and absolutely useless for the cinematograph. The stronger the radiant, the brighter and sharper the definition of animated pictures.

The various powers obtained from the different sources of light, according to photometric tests, are:—

4-wick Oil Lamp	...	...	...	...	80 to 100 c.p.
Acetylene Generators...	...	...	...	...	100 to 150 c.p.
Oxygen with ordinary house gas, used with blow-through jet	...	...	...	...	300 to 500 c.p.
Oxygen gas compressed in cylinders and used with mixing jet...	...	...	...	...	1,000 to 1,500 c.p.
Oxygen, with an independent Ether Saturator of good capacity, and used with a high-power mixing jet...	...	...	...	...	1,000 to 2,000 c.p.
The electric Arc light from	...	...	...	...	1,000 c.p. upwards.

The best and most concentrated radiant is derived from the electric arc, and most favourably from the arc of a direct current circuit, as it keeps the crater of the carbons in a more fixed position than if it were produced through an alternating current, which has a tendency to make the crater move round, and so cause the luminous point of light to travel also, necessitating frequent adjustment.

At various places of public entertainment it is not uncommon for some operators to use a most powerful current through hand-feed arc lamps, taking as much as 50 to 100 ampères for throwing a light at a great distance, and from 20 to 40 feet in diameter upon the screen.

Electric Light and its Management for Projecting Purposes.

In houses where the electric light is laid on, it is a simple matter to obtain the electric current for the arc light. In most cases, it is best to call in the local electrician to examine the wiring and see whether it be heavy enough to carry the amount of current required. If it is not, two wires should be joined somewhere near the main and brought in separately to the locality where the electric light would be used. This wire should be large enough to carry at least 25 amperes

A Rheostat or resistance is necessary in order to reduce the current to the desired amperage. When the current is 100 or 200 volts, our special Kruppin wire resistance as illustrated in this catalogue is most convenient, giving from 20 to 50 amperes by means of the adjustable sliding switch. When the voltage of the current is 200 volts, the resistance should be doubly as large in wire coils, and when purchasing a resistance it should be distinctly mentioned whether it is for a 100 or 200 volt circuit. Many corporations have a 230 voltage, which is less favourable for reducing the current. A transformer or coil is recommended to be inserted in the circuit with the resistance. This answers the purpose of reducing the current from 230 volts to 70 or 100 volts, thus making the current less unpleasant should a shock be met with. The size of the resistance necessary would be practically the same whether for alternating or direct current.

If it is alternating current, the carbons should be of equal diameter, and set in a vertical position. The most convenient size is about 16 or 18 millimetres. When the installation consists of a direct current, two carbons should be employed of different diameter, and set at an angle of 30 degrees. The best size for the carbons in this case is 13 millimetres for the lower one and 16 millimetres for the upper. The reason why uneven carbons are employed is that the negative pole will consume the carbon quicker than the positive, and by using uneven carbons, this difference of consumption is equalized. For increased amperage, proportionately larger sizes of carbon become essential.

A wall switch or plug should be fixed up, containing a safety fuse in porcelain mountings as well as two terminals, as shown by illustration. It is recommended that from this switch board flexible wire of best insulation should be used, of dimensions to carry 20 to 30 amperes with ease.

Before joining up to the switch board, (1) make your connections at the arc lamp, setting both the carbons apart, (2) insert the necessary resistance in accordance with the instructions given on the resistance, (3) join up the two wires to the switch board near the wall, (4) turn on the switch, (5) to create an arc light, turn the round milled head of the two carbon slides sharply to the left and back again to the right, by this means the carbons are brought into contact and separated again, thus creating the arc.

The most convenient arc lamp is the hand feed one, as it obviates any complication or liability to get out of order. The construction is so simple that the working suggests itself, and the regulating is performed by a mere turn of the screw at intervals, according to the distance of the carbons from each other. Another advantage arising from the use of the hand feed lamp is that, at the time of projecting, a more powerful current can be used to get the best effect, and when not in use the current can be reduced. This cannot be done with an automatically fed arc lamp. The **Urban Arc Lamp** meets every requirement of the operator, and is simplicity itself. Through its universal adjustment, the light can be centred in a few seconds.

After using the arc lamp the greatest care must be taken to switch off at the wall before disconnecting or removing any parts of the apparatus.

Electric light is, however, still unobtainable in some places. The only substitute for electric light has, up to the present, been found in the oxy-hydrogen light. Oxygen mixed with hydrogen will, next to the electric, yield the most powerful light.

THE "URBAN" ELECTRIC ARC LAMP.

"Simplicity, Efficiency, Perfection."

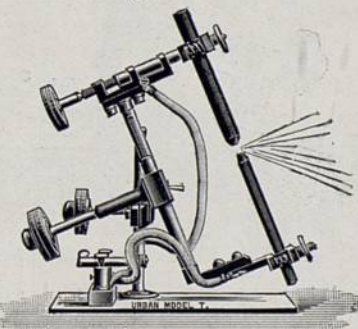


Urban Lamp Model "S."

liable to derangement, especially when carried from place to place, and when once out of order only an experienced electrician can humour it back again into a due sense of its duties and responsibilities.

In general principle the Lamp is simplicity itself, for it consists merely of two carbon holders, supported at the ends of a pair of racked guide rods actuated by one pinion between them. The pinion is not operated directly, but by means of a worm-wheel gear, which gives to the carbon-holders the peculiar motion characteristic of this Lamp. The slow motion ensures great steadiness of the light. (The Lamp is constructed to carry carbon rods of equal length, but of such relative diameter as to burn at exactly equal rates, and this arrangement is found to yield the steadiest and most efficient light.)

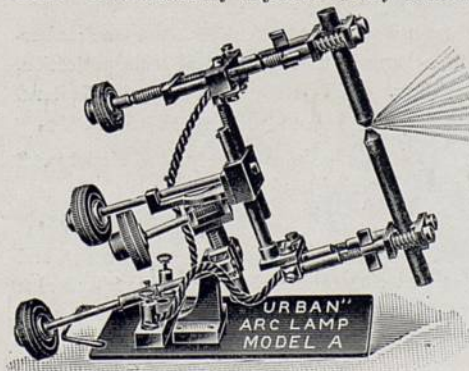
Special provision is made in the upper carbon holders by means of which the positive carbon may be set a certain distance behind the negative, so that the "crater" forms towards the front, and all the light is projected through the lenses. This necessary adjustment may be accurately



Urban Lamp Model "T."

made while the Lamp is actually burning, and the effect on the screen duly observed; and re-adjustments may, with equal facility, be made from time to time, if any inequality in the carbon rods render them necessary.

Every necessary movement is mechanically provided for in this Lamp. The light centre may be raised or lowered, or shifted from side to side, accurately to centre it in the optical axis of the lens system, and keep it there should inaccuracies in the carbons cause it slightly to alter its position. Every possible requirement of the lanternist has been anticipated and provided for. It will carry carbons of various sizes to 30 m/m, and is applicable to the alternating current as well as to the continuous.



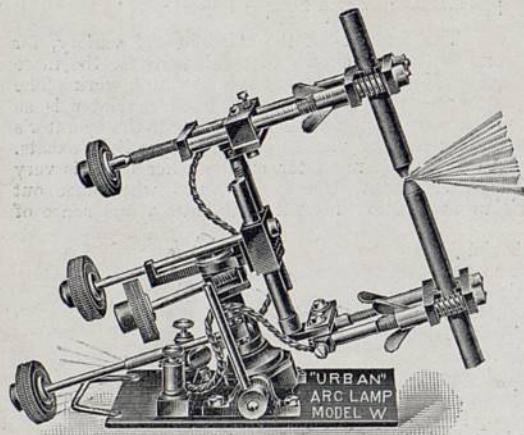
Urban Lamp Model "A."

As the upper and lower carbon holding arms are insulated with mica at the arm junction block, to which the electrical connection is made direct, no other portion of the Lamp is charged with the current, and it can therefore be freely handled without the least danger to the operator.

The Carbon Clamp Screws operate on the projecting arm rods **behind the Carbons**, and therefore remaining practically cool, they are not liable to be burned and corroded as in the case of Arc Lamps with Carbon Clamp screws on the front of the arm rods.

These Lamps are noted for their excellent workmanship and high finish.

SPECIAL FEATURES OF THE ... URBAN ARC LAMP.



Model "W"—Angle for Direct Current.

Being neither automatic nor semi-automatic, the lamp is entirely under the control of the Operator, giving a continuous and steady light.

Durability and first-class workmanship at a moderate price.

Immense Current Capacity (in the larger sizes) without risk of over-heating.

... PRICES ...

URBAN ARC LAMP, MODEL "S," tested for use on direct current to 20 amperes; alternating current to 35 amperes. This type lamp is used for optical slide projection, amateur Cinematographs and stage lighting. Will fit any ordinary optical lantern.

Price £2 5s.

URBAN ARC LAMP, MODEL "T." This type is similar in every respect to Model "S," with the addition of a hand feed raising and lowering device.

Price £2 15s.

URBAN ARC LAMP, MODEL "A." This type embodies all necessary adjustments, and is the most practical lamp for lanternists and cinematographers using direct current to 30 amperes; alternating current to 50 amperes. Will fit any ordinary optical lantern.

Price £3 5s.

An improved slow feeding movement, ensuring perfect steadiness of the light.

A fine Adjustment for the backward displacement of the positive carbon.

A rapid movement for separating the Carbon holder when retrimming, etc.

A universal Centring Movement, combining in the one instrument all the advantages (without the disadvantages) of a separate centering table.

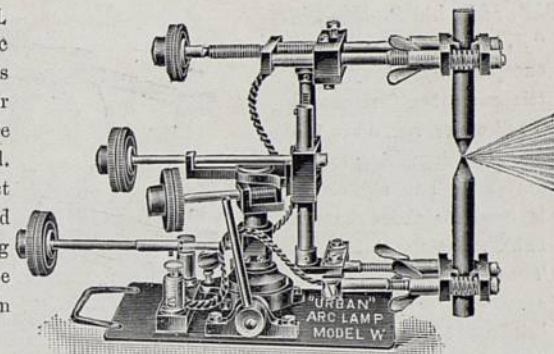
Great Portability, enabling the smaller sized lamps to be used in all ordinary lime-light lanterns.

Special adaptability for use with widely varying currents and voltages, either alternating or direct.

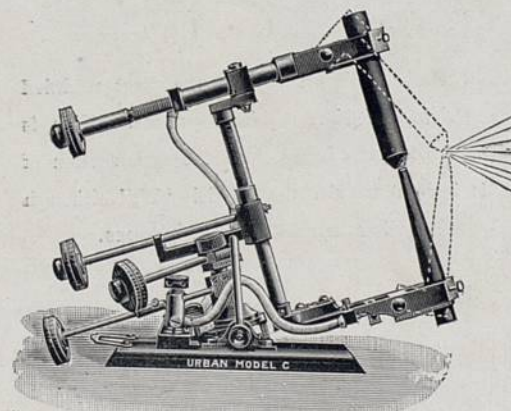
URBAN ARC LAMP, MODEL

"W." The popular Arc Lamp for cinematographers and for all projecting or lighting purposes where heavy currents are utilized. Tested for use with direct current to 50 amperes, and 70 amperes alternating current. This is the type lamp supplied with Urban Bioscope Outfit "A."

Price £4.



Model "W"—Position for Alternating Current.



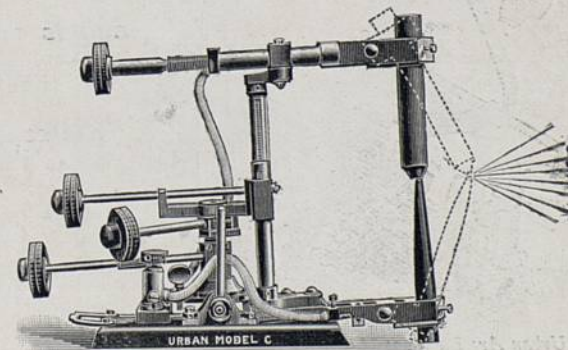
Model "C"—Angles for Direct Current.

Urban Arc Lamp Model "C."

This Type is without doubt the most adaptable Lamp for any, and all, Electric Currents to 100 Amperes.

This Lamp is of heavier build than Model "W," but not so heavy as Model "X." The Carbon Holder of each arm extension is jointed in order to allow adjustment of the Carbons to every possible angle; suitable for either alternating or direct currents.

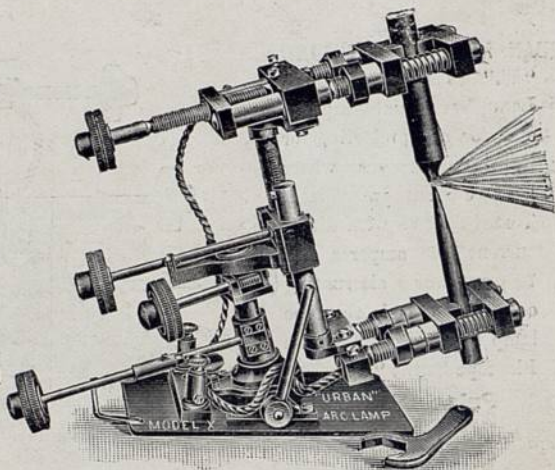
Price £5.



Model "C" Angles for Alternating Current.

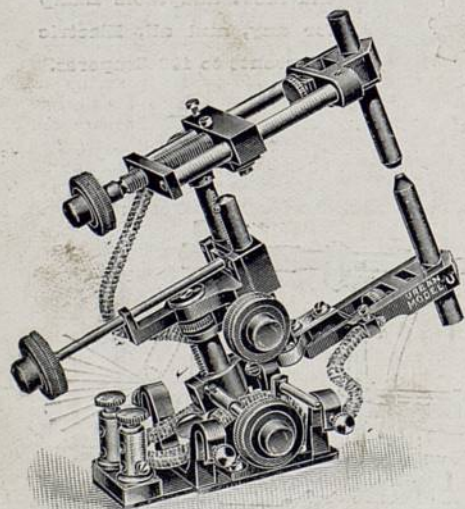
URBAN ARC LAMP, MODEL, "X." A special lamp for exceptionally heavy electric currents. Guaranteed for direct current up to 100 amperes, alternating to 120 amperes. This style lamp is used for the Urbanora exhibits at the Alhambra Theatre, London, and accounts for the great brilliancy of the large sized pictures on the screen.

Price (with wrench) **£6.**



Urban Arc Lamp Model "X."

URBAN ARC LAMP MODEL, "U." A specially designed type of the most modified Arc Lamp, used only with the Urban-Elmendorf Optical systems. This is perhaps the most perfect type of hand-feed Arc Lamp, into the construction of which many improvements enter. It is built heavier than Model "W," although lighter than Model "X." Suitable for use on direct current up to 80 amperes.



The Urban Arc Lamp, "U," as supplied with "Perfection Outfit."

**THIS TYPE IS NOT
MADE FOR ORDINARY
LANTERNS,**

**and is only supplied with
the "Perfection"**

Bioscope Outfit.

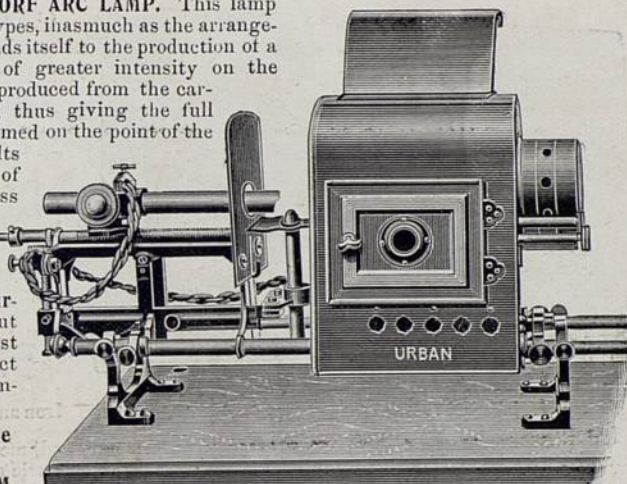
Price £6.50



The URBAN-ELMENDORF ARC LAMP. This lamp differs from our other types, inasmuch as the arrangement of the carbons lends itself to the production of a perfectly white light of greater intensity on the screen, the arc being produced from the carbons at right angles, thus giving the full benefit of the crater formed on the point of the top carbon, which results in greater efficiency of candle-power with less amperage of current. This Lamp is especially recommended for use with alternating current to 60 amperes, but will not produce the best of results with a direct current of greater amperage than 20.

**Only supplied with the
URBAN-ELMENDORF
OPTICAL SYSTEM.**

Price, £5 5s.



The Urban-Elmendorf Electric Arc Lamp as supplied with Bioscope Outfit "C."

Urban "Home" Electric Outfit.

**With Incandescent Lamp
Plug to fit any socket.**

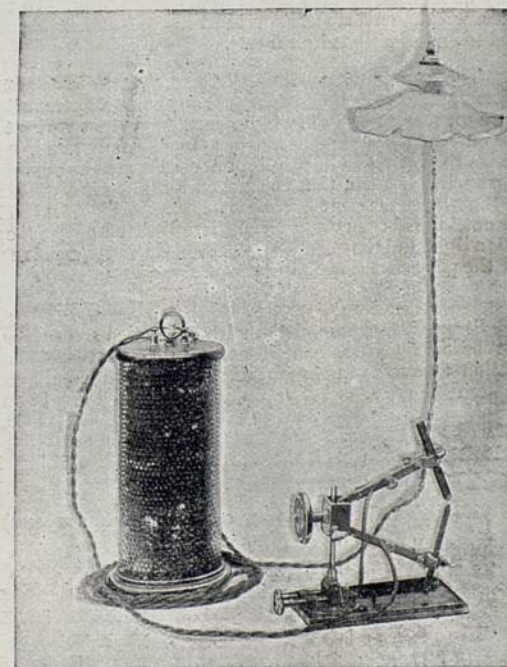
Heretofore the main drawback of utilizing Motion Pictures in the home has been due to the fact that the ordinary wiring of a private building was not suitable to carry the amperage of current necessary to feed the professional types of Arc Lamps.

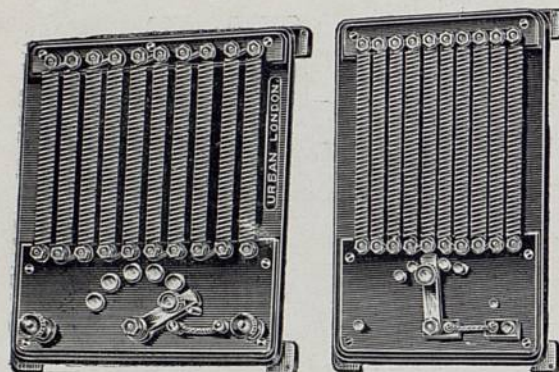
This drawback has been overcome in the **Urban Home Outfit** as shown in this illustration.

The lamp will take pencil carbons and give a sufficiently bright illumination from 5 amperes for pictures 6 feet across. The rheostat is of the stationary type, and can be used on either 50 or 100 volt circuits.

**Price, Arc Lamp, Rheostat,
Cord and Socket Plug,**

£3 10s.





No. D 34.

No. C 33.

"URBAN" . . . ADJUSTABLE . . . ARC-LAMP . . . RESISTANCES.

For regulating Current for Arc Lamps in Lanterns, Projectors or Cinematographs, producing Stage Effects, Dynamo Regulating and Testing.

The Circular Switch
Pattern.

Iron and Aluminium Frames

A Rheostat or Electrical Resistance, is a necessary adjunct of the outfit of a lanternist who depends for his light upon electricity, for the electric current must be controlled in its flow through the lamp, or it would become utterly unmanageable. For the lanternist who moves from place to place, and consequently encounters electric supply systems of varying voltages, the resistance should be variable, in order to reduce the voltage and adjust it to exactly the required extent. Further than that, it is found of great advantage to be able to control the intensity of the light to suit the particular work which the lantern or cinematograph is called upon to perform. The Rheostat under consideration has been specially designed for the use of lanternists, and while it is particularly light and portable, it combines in the one instrument all the advantages which can usually only be secured by means of various accessories. In this instrument the current resisting wire, which converts the surplus voltage into heat, is strung in a number of spirals from end to end of a light iron frame.

The lugs to which these wires are attached are mounted on slate insulators at top and bottom, and are connected with the contact "buttons" by strips of heavy copper. The mere movement of the switch over this contact varies the length of wire through which the current must pass on its way to the lamp, and, consequently, alters the voltage and varies the intensity of the light according to the operator's wishes. The arrangement of these wires is such, that cooling currents of air circulate freely between and around them, so that the instrument never becomes unduly heated. The regulating lever acts as a switch for cutting off the current, and there is fitted also a "cut-out" for the insertion of a fuse. It is a light and thoroughly well-made Rheostat, and is a wonderfully convenient instrument for the purpose for which it was designed.

SPECIFICATION.

Strong iron frame, fitted with enamelled slate slabs, Spiral of special alloy, which does not become brittle, spaced apart to prevent accidental short-circuiting, and of ample section to avoid the overheating which commonly occurs in cheaply-made resistances. Pattern C has 20, and D 28, spirals, connected two in parallel. The switch is substantial, and fitted with adjustment to take up wear, and has six contacts in C and eight in D, and an "off" position; fuse-terminals are provided. The iron frames are stove enamelled and picked out in gold, the aluminium pattern being left bright. Lugs are drilled for screwing to wall.

PRICE—Urban Resistance Type C 33 (15 to 40 amperes) Iron frame ... £3 3 0
" " " " Aluminium frame ... 3 5 0
" " " D 34 (20 to 50 amperes) Iron frame ... 3 10 0
" " " " Aluminium frame ... 3 15 0

FOR HIGH VOLTAGES AND HEAVY CURRENTS.

The most satisfactory results for High Voltages will be obtained by using two or three of Type C 33 or D 34 in series. For Heavy Currents use them in parallel.

250 VOLT RHEOSTAT.—A recent type of an efficient Rheostat designed especially for the cinematograph exhibitor who requires a reliable resistance coil to suit all currents and voltages (from 50 to 200 volts direct current to 70 amperes, and from 50 to 250 volts alternating current to 100 amperes). Built of Krupp wire coils, mounted on a square upright iron ventilating frame with insulated slate top, copper contact lugs and brass lever adjustment, with metal hinged cover to set and lock over top when travelling or not in use.

PRICE - - - £9 0 0

Special Resistance to order to any requirements. Frames re-wired with the above special wire at short notice.



250 Volt Rheostat.

PORTABLE ARC LAMP RHEOSTATS.

Specially designed for Lanternists and Cinematograph Exhibitors, to meet the need for a Resistance which will not overheat or break.

Made in two patterns:—A, for 100 or 110-volt supply, B, for joining in Series with A for use on 200 or 220 volts, thus obviating the frequent carrying of unnecessary weight. To hang on wall or stand on floor, singly or bolted together.

SPECIFICATION.

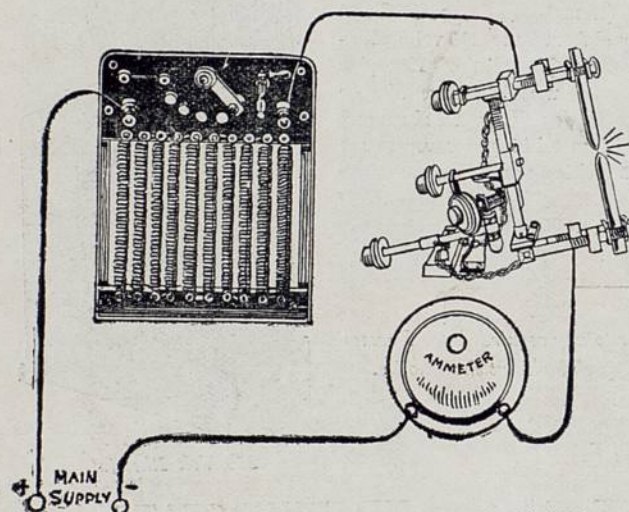
Coils wound with a special alloy which does not become brittle, the spirals having ample dimensions, and not liable to short circuit. Slates enamelled, and bedded in box-castings to prevent accidental breakage; rigid polished brass frame, and brass connectors bronzed, polished, and engraved with current capacity. The whole well finished and of handsome appearance, solidly constructed for hard wear.

STOCK PATTERNS.

A. — For 100 Volt supply.			B.—To be added to A. for 200 volts.		
List No.	To carry.	Prices.	List No.	To carry	Prices.
1	7 amps.	£ 10 0	11	7 amps.	£ 2 5 0
2	10 "	1 10 0	12	10 "	2 5 0
3	15 "	1 10 0	13	15 "	2 7 6
4	20 "	1 12 6	14	20 "	2 10 0
5	25 "	1 12 6	15	25 "	2 10 0
6	30 "	1 15 0	16	30 "	2 12 6
7	40 "	1 17 6	17	40 "	2 15 0
Overall Sizes, 10 by 2 by 12 inches. Weight, 7 to 10 lbs. Absorbing 50 volts.			Overall Sizes, 10 by 3 by 12 inches. Weight, 9½ to 14 lbs. Absorbing 100 volts.		

Other sizes to order. Perforated Metal Shields for either size, 5s. extra.

Diagram of Connections.



SPECIAL AMMETER.

SMALL SIZE CENTRAL STATION TYPE.

For showing at a glance the current in amperes passing through the lamp at any moment. This instrument shows in an instant whether the lamp requires "feeding," and is in various ways a great boon to the operator. It is beautifully made, and is absolutely accurate. 5-inch dial. Any desired reading may be had. The following scales are kept in stock.

PRICE.

10 to 20 AMPERES	...	...	...	...	2 4 0
10 to 50 "	...	...	...	...	2 6 0
20 to 100 "	...	...	...	...	2 7 6

NOTE.—Ammeters must be connected in *series*, so that the main current passes through the ammeter on its way to the lamp (see diagram). Our special instruments differ from others in being equally adapted for either alternating or continuous current.

FLEXIBLE WIRE.

Cotton and Indiarubber Covered, to carry up to 30 amperes.

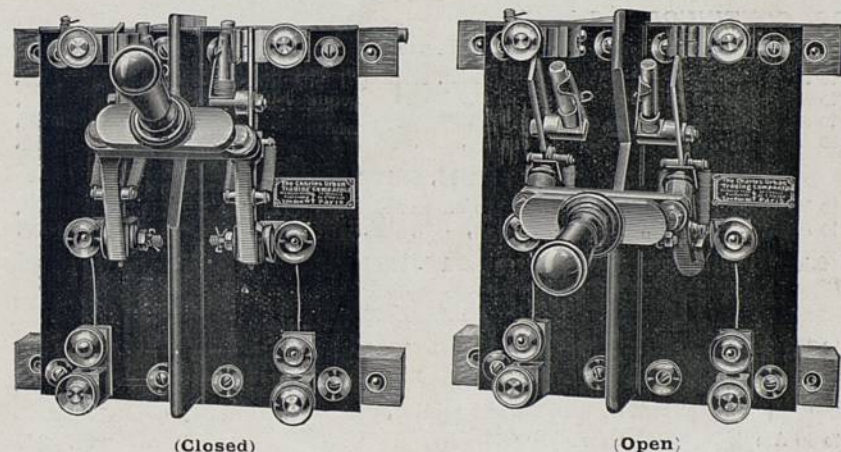
Price, per Yard, 2s.

Price of Larger Sizes on Application.

Urban "Lighting" Switch.

The most Efficient Double-pole Carbon Spring Cut-off.

NEW TYPE (Verity's Patent).



This Spring Contact Quick Break Knife Switch has been designed and patented to meet the demand for a solid or single-blade knife switch of simple construction. It combines all the advantages of the knife switch, with the addition of spring contact jaws of novel type. These offer unique facilities for examination and cleaning of contact surfaces, thus removing some of the objections to current-carrying hinges.

The particular construction facilitates mounting in accurate alignment and secures perfect contact with the minimum amount of grinding.

The blades and jaws are of different materials, which makes for good contact, and when neglected will not seize. The blow on the handle and consequent noise due to quick break is minimised by a rubber buffer, thus making the switch particularly suitable for theatre work.

Blade and Jaws are ground into intimate contact. **Block** accurately pinned from front after adjustment. **Slab**, best quality slate, square edges, enamelled on front and edges. **Corner Screws** fitted with insulating bushes. **Bridge**, best hard fibre, blade holes brass bushed or seated. **Battens** teak, ends project for fixing. **Finished**, polished and lacquered, handle levers black enamelled.

Price - - £2 12s. 6d.

There are few things of greater importance than the quality of the carbon rods used in Arc Lamps for projection purposes, especially where such immense currents are used as it is customary to employ in modern cinematograph work. We have specially made for us by the best firm of carbon makers, and we keep always in stock, the following sizes of carbon rods. These are of various lengths, from 5 inches, and each rod is nicely pointed ready for use. They will be found to give a beautifully steady and silent light, without spluttering or shifting of the arc.

5-inch lengths, pointed end (in packages of 25 Carbons each).

10 to 15 Amperes	(10 m/m. solid and 13 m/m. cored)	per 25 pairs	...	...	3s.	9d.
15 to 25 "	(12 " " "	" " " "	...	...	4s.	6d.
25 to 35 "	(13 " " "	" " " "	...	...	5s.	6d.
35 to 45 "	(14 " " "	" " " "	...	...	7s.	6d.

6-inch lengths Cored Carbon pointed, Solid Carbon tapered to fine point.

40 to 50 Ampères (16 m/m. solid and 22 m/m. cored) per 25 pairs	...	...	10s.	0d.
50 to 70 " (18 " " 25 " " " " "	...	...	15s.	0d.

9-inch length for Cored Carbon (top) and 5-inch length for Solid Carbon (bottom).

(Those are the most economical lengths for use with the "Urban Elmendorf"
Electric Arc Lamp.

10 to 20 Ampères (12 m/m. solid and 16 m/m. core.) per 25 pairs	7s. 6d.
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5-inch lengths, with one end pointed.

20 to 30	Ampères (13 m/m. cored) per 25 pairs	4s.	6d.
30 to 45	" (16 " " "	...	...	...	...	5s.	6d.
35 to 50	" (18 " " "	...	...	...	...	7s.	0d.
60 to 80	" (20 " " "	...	...	...	...	8s.	6d.

6-inch length.

60 to 74 Amperes	(22	"	"	"	...	...	...	...	...	10s.	0d.
80 to 100	"	(25	"	"	"	...	...	...	...	12s.	6d.

9-inch lengths for tops and 5-inch lengths for bottom Carbon.

(These are the most economical lengths for use with the "Urban-Elmendorf"
Electric Arc Lamp.)

[illegible]

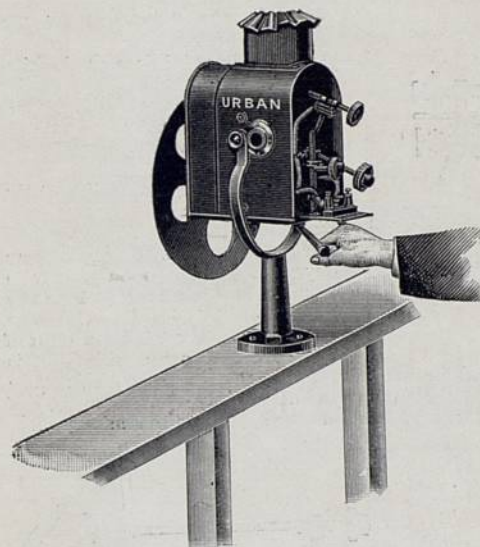
IMPORTANT. There are many qualities of Carbons.

Do not confuse our prices with those quoted by many of our Competitors for an inferior grade

You want the Finest Grade Carbon obtainable in order to produce a brilliant and steady Light for Cinematograph Projections.

The above quotations are based on the very finest quality Carbons, of the famous "Mull" and "Sieman" Manufacture.

Special Quotations for Quantities.



This Lantern is constructed to meet all requirements of properly lighting the stage from the wings.

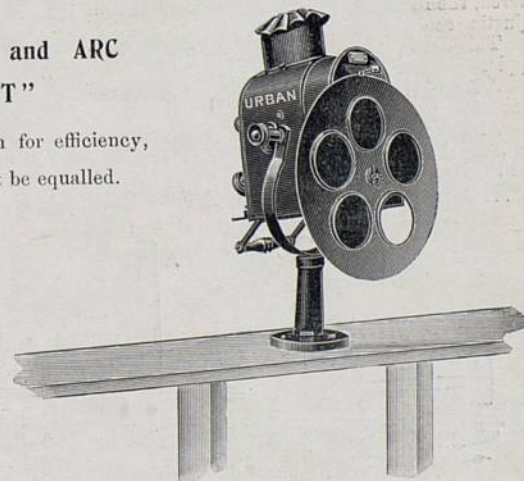
The Lantern is of the best Russian Iron, Solid Brass front, swivelled on forked wrought iron support, which in turn swings loosely in cast iron support, to enable the operator to direct and follow with light rays any moving stage article or illuminate any or all parts of a scene.

The Revolving Colour Disc has a capacity of four tints and one open "white light." The tinted gelatine

s held in position by two glass discs in each opening, and can be quickly changed to suit the requirements of the set of scenes, as twenty different ints are supplied with the lantern.

A 6-inch CONDENSER and ARC LAMP MODEL "T"

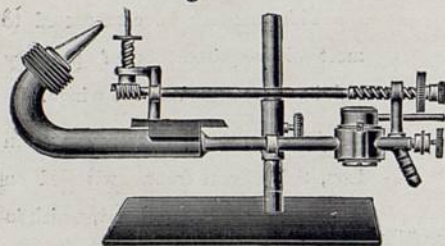
Complete the equipment, which for efficiency, compactness, and price cannot be equalled.



Can be screwed to any railing, support or shelf. For "flood" lighting, remove the colour disc, which is held in position by a chained pin, and can be placed in or out of position in the fraction of a second.

PRICE (complete) - - £6 Strictly nett.

"Gwyer" Limelight Jet.



Improved "Gwyer" No. 2.
Best Jet for Bioscope projections.

We claim for the "Gwyer" Jet the following advantages:—

- 1.—A light of great brilliancy and whiteness, of more than 2,000 candle power; a light not hitherto produced by any other jet.
- 2.—Greater steadiness and ease of manipulation.
- 3.—Perfect silence of combustion at the highest power.
- 4.—Extreme economy. The "GWYER" Jet will work satisfactorily with an oxygen consumption, varying from 2 cubic feet per hour to 10 cubic feet.

Approximately giving a light of 2,000 candle power, this Jet is designed for Cinematograph Lanterns, and for use with condensers of short focus. The standard pattern is provided with cut-off tap and screw adjustment valves. The body of the Jet is made in two pieces only, so that the risk of leakage is reduced to a minimum.

The screw valves are now cast in one piece with the back portion of the Jet, so that there is no risk of the valves becoming unscrewed. No solder is necessary, so that, should the jet become hot, it will not part.

A cut-off tap is provided, which reduces the gases in succession, leaving only a small hydrogen by-pass flame.

This is a great convenience if the light is not required during an interval in a lecture.

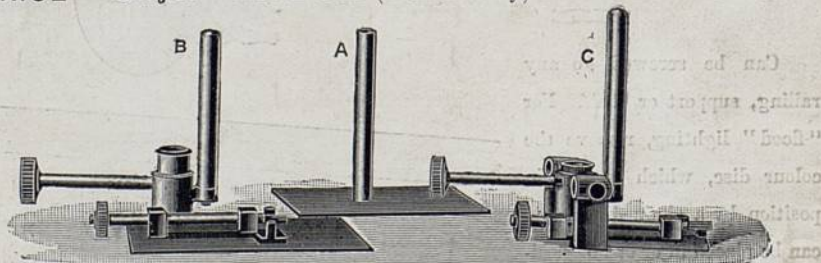
As the position of the valve screws is not altered, the light can be at once obtained without adjusting the mixture.

This Jet is sent out fitted with a $\frac{1}{8}$ in. bore nipple.

A lime $1\frac{1}{4}$ in. diameter is the best size to use to obtain a powerful light.

All the "GWYER" JETS are now sent with the improved clips and trays. These trays can be easily cut to fit any lantern. The advantage of our tray is the reduction of vibration through its great stability.

PRICE—"Gwyer" No. 2 Jet (without tray) - - £3 8s. 6d.



Mechanical Jet Tray.

The pillar to which the lamp or jet is clamped has both vertical and horizontal movement by means of the thumbscrews. This Tray offers great advantages over the older style, and with its aid the necessary mechanical adjustments of the light are effected quietly, accurately, and with a minimum of trouble.

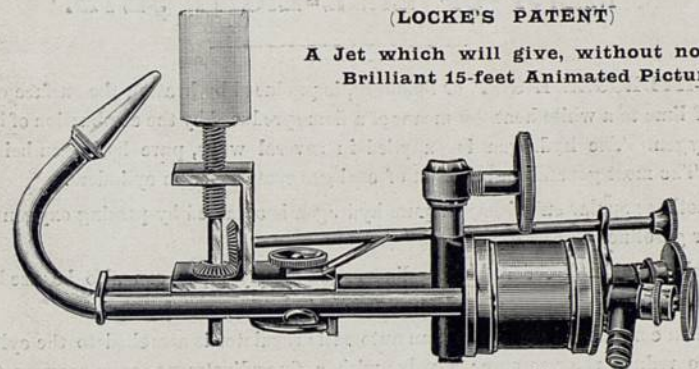
A ...	ORDINARY TRAY with heavy pillar (fit any Lantern)	...	...	PRICE	2s.
B ...	MECHANICAL TRAY (fit any Lantern)	...	...		18s. 6d.
C ...	" " for U.-E. Optical System	...	...		£1 1s. 0d.

Jets of less power can be supplied at proportionate prices. Particulars on application.

HIGH POWER LIMELIGHT JET.

(LOCKE'S PATENT)

A Jet which will give, without noise, a Brilliant 15-foot Animated Picture



The special feature of this jet is the provision of a mixing chamber of new design, which is placed next to the inlet valves and connected to a long delivery tube, through which the mixed gases pass. By this means, very perfect mixing is obtained, and the delivery tube being bent to an easy curve, there is no obstruction to the smooth flow of the gases. The jet is so designed as to be perfectly balanced and not liable to vibrate by the movement of any projector, thus ensuring exceptional steadiness in the pictures. An extra strong pillar with clip for the Jet is also supplied when required for use in animated picture projectors. Each Jet is carefully tested and finally adjusted by the inventor, who will give a certificate as to its candle power and performance in use.

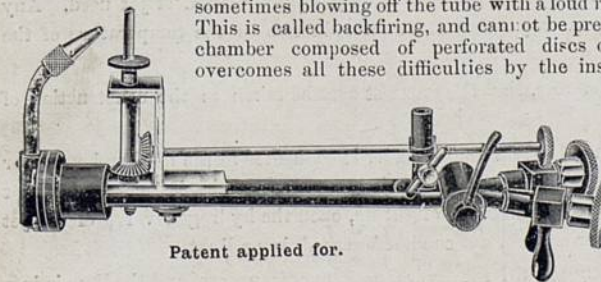
LOCKE JET, complete with screw-down valves for lantern

"B" MECHANICAL TRAY, with all adjustments, including massive steel pillar

Price,
£3 3 0
Complete.

KAMM'S PATENT MIXING JET.

When Limelight Jets are used with carburettors or saturators, there is a possibility of a certain amount of oxygen passing through with the hydrogen, especially when the carburettor or saturator is nearly empty. This mixture of gas is apt to ignite in the tube, sometimes blowing off the tube with a loud report which is objectionable. This is called backfiring, and cannot be prevented entirely by a mixing chamber composed of perforated discs or gauze. The above jet overcomes all these difficulties by the insertion of a valve between



Patent applied for.

the mixing chamber and the nozzle of the jet. As soon as a suction action takes place, or a tendency of the flame to fire back down the nozzle, a ball valve drops and closes the passages in front of the mixing chamber. This simple method is very effective and never fails.

The jet is made of the very best material and the greatest care is taken in its manufacture. It is provided with a by-pass, and a novel adjustment for the lime by the aid of one milled nut only. The fast travelling screw which supports the lime is constructed on a new principle, and it cannot wedge or work stiff as the heat from the lime increases. There is no packing to get lost or corrode, all parts being fitted with ground metal surfaces. It is hard soldered throughout, and will wear a lifetime with ordinary wear and tear. The nozzle is made of a special metal which stands a high degree of heat, and will not cinder or char. Price, complete, £2 10 0.

PRACTICAL INSTRUCTION IN THE MANAGEMENT OF LIME-LIGHT JETS.

OXY-HYDROGEN LIGHT, or limelight, is produced by heating the surface of a piece of lime to a white heat, by means of a flame produced by the combustion of hydrogen and oxygen. The hydrogen is supplied in several ways, pure hydrogen being rarely used. The most general form is that of coal gas compressed in cylinders.

Another popular substitute for pure hydrogen is obtained by passing oxygen through ether or gasoline.

Coal gas taken direct from the ordinary gas supply pipes can also be used without compressing.

When compressed gas is used, an automatic regulator is attached to the cylinder, in order to reduce the pressure; a valve with a fine adjustment screw answers the same purpose, but in a much less perfect manner. Oxygen is now generally obtained from cylinders in the same way as coal gas. If coal gas and oxygen are mixed in certain proportions, an explosion takes place if ignited. Neither coal gas nor hydrogen will explode if unmixed, or if there is an excess of either oxygen or coal gas beyond the explosive proportion. Should this mixture occur with our apparatus, the result can only be a startling detonation, and no danger can be experienced.

To prevent any risk of startling an audience, the operator has only to see that the proportion of coal gas is too large to allow an explosive mixture to be formed.

If the operator keeps this explanation in mind, he will be able to manage his light with the greatest certainty.

When oxygen and coal gas are supplied from two cylinders, the burner used is called a mixed jet. This has a chamber into which two gases are placed for mixing, before being passed out at the nipple where they are burnt.

The temperature of the flame varies considerably with the kind of jet used. Any disturbance of the gases in their passage causes a reduction in the temperature of the flame.

It is very essential, therefore, that the greatest care be taken in the construction of the jet and in its design.

To set up the apparatus, the hydrogen cylinder is connected to the left-hand valve or cap of the jet, and the oxygen to the right. Both the valves of the jet should be kept shut till the cylinder valves are opened. To light up, open the hydrogen valve of the jet and allow the gas to blow through for a second before applying a light.

Then turn on a little oxygen till the hydrogen flame disappears, and the lime is in a state of white incandescence. Then more hydrogen can be turned on, and a further supply of oxygen. This operation may be continued until the flame slightly roars. When this effect is produced, slightly reduce first the oxygen, and then the hydrogen, until the flame is silent.

A little experimenting with the proportion of the gases will soon enable the operator to get the mixture that will produce the hottest flame.

As all parts of the flame are not equally hot, you must adjust your lime to bring it into the hottest part.

Attend carefully to the distance of the lime from the nipple of the jet, and do not forget that, the more gas you turn on, the greater the distance must be between the lime and the nipple, or you will get a black spot on centre of lime instead of a bright one. This is done after you have adjusted your taps by working the lime backwards and forwards until you have the light at its best. Roughly speaking, for a low pressure, about $\frac{1}{2}$ inch will be sufficient, gradually increasing the distance to $\frac{3}{8}$ or $\frac{1}{4}$ inch, as you open the jet taps more and more to increase the light.

For the most powerful light, rack the lime up until the jet plays almost upon the bottom of the lime cylinder, which should be rendered incandescent right up to the top; and where it is imperative to maintain light for a long time at the utmost power, it will be preferable to move the lime with the tongs and invert it, rather than lower the level very much, so that no portion of its incandescent spot may be sacrificed.

For the greatest light, use large limes of medium hardness, but when only a moderate light with extreme economy of gas is required, it will be far better to use a medium size lime: very large hard limes do not yield such a rich light with a very low pressure of gas as a moderately hard medium sized lime. The limes must be turned frequently when used with full pressure of gas, and when working the jet at its utmost power. The smaller the bore of the nipple, the quicker the pitting of the lime.

Do not forget to rime out the hole in the lime until it will drop easily upon the pin; if the limes are forced down slightly upon the jet pin, the expansion of the pin when heated must crack or burst into the lime.

If the jet becomes unduly hot, combustion is probably taking place inside the mixing chamber, or in the tubes of the jet. This is generally caused through a leak in the jet, or in the tubes leading to the jet.

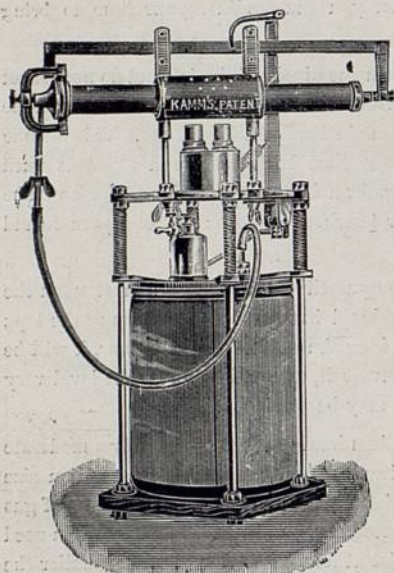
Keep the nipple of the jet clean. If you find the flame roars when only a little gas is being used, it is probably due to some foreign substance getting into the bore of the nipple.

There is danger of melting the end of the nipple if it is allowed to touch the lime. Platinum tips are sometimes inserted in the end of the nipples, but this arrangement reduces the efficiency. Unless the nipple is allowed to get too near the lime, it may be used for any length of time without deterioration.

As oxygen has no smell, it may be easily wasted. Great care, therefore, must be taken in attaching the regulator and tubes. Test after attaching, by means of a piece of brown paper made red hot, but not in flame. The incandescent portion will glow brightly if it comes in contact with escaping oxygen.

If, after turning on more gas, the light is unsatisfactory, or even diminishes, the compressed coal gas is at fault, and is coating the lime. If you have a Pendant Saturator, it may be charged and the coal gas passed through it. This will enable you to get the full amount of light. If you have not a saturator handy, you can only reduce the pressure of gas and put on a new lime.

An excess of hydrogen is indicated by flame round the lime. Such a flame means excessive heating of the lantern, and should be avoided;



Kamm's Oxygen Generator and Carburator have been invented with the object of providing cinematographers and lanternists generally with the means of producing their oxygen and hydrogen as they require it. There are various kinds of apparatus already in the market, but they are unsuitable, for several reasons, for cinematograph work. It is well-known that the light required for this kind of work must be more powerful than for ordinary lantern projecting purposes, and should be from 1,000 to 2,000 candle power.

This power of light is more generally produced by weights placed upon the reservoir containing the generated oxygen gas. In many cases, some gallons of water are used to procure the necessary pressure, which is a messy and inconvenient proceeding.

It will be clearly seen that this method has many disadvantages, especially when entertainments are given in friends' houses, or at a place of public entertainment, where it is difficult to procure the necessary weights.

Kamm's Generator has none of these disadvantages, as no weight is depended upon. By means of specially-constructed springs, a continual pressure, which can be varied from 100 to 200 lbs. is kept upon the gas. The weight is thus reduced to a minimum, and the apparatus—which does not weigh more than 25-lbs.—may be stored in a comparatively small box. The usual water tank, also, which is generally loaded with weights upon the container, is entirely discarded.

Kamm's Generator is a perfect machine, entirely reliable, and automatic. The oxygen is made by heating cakes made of Chlorate of Potash and Oxide of Manganese, which is the most convenient method, as any number of the cakes may be made and stored away for future use. For cinematograph work, two pounds of these cakes are sufficient to produce a most powerful light lasting for one hour; and for ordinary lantern slides, only half this quantity is consumed by simply lighting one burner instead of two.

The following are some **advantages** of a **generator**:—

It is much cheaper than gas bought in cylinders.

There is no carriage to pay on full and empty cylinders, and the gas can be used to the very last inch.

Then again, if an operator living any distance from the oxygen works should run out of gas, he has to order it and wait for its arrival, whereas with his own generator he has the means of preparing the gas in five minutes.

The advantages to colonists are self-evident, as this is very often the only means they have of procuring oxygen gas.

No water whatever is required for this apparatus, either for producing pressure or for purifying the gas. The gas is purified by means of a special purifier attached to the top of the container, containing soda lime powder, which delivers the gas absolutely pure, and it may be used for medical purposes if required.

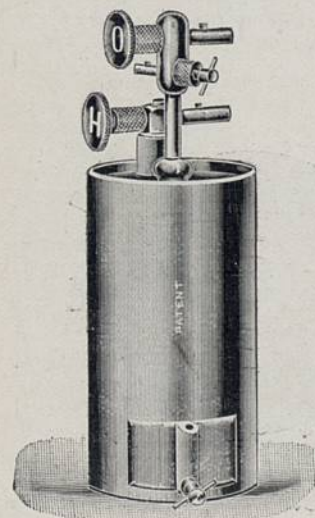
The whole apparatus for producing oxygen and hydrogen is very simple, as a glance at the illustration will show.

It consists of:—

- (1) **a retort** containing some cakes, which is heated by being suspended over a methylated spirit lamp;
- (2) **a container**, to hold the gas as it is made, in which the pressure is produced by springs, and which is provided with a safety valve; and
- (3) **a carburator** for producing the hydrogen.

The action of the generator may be explained as follows:—

The retort is filled with cakes, and the methylated spirit lamp lit. The heat causes the cakes to give off oxygen, which passes into the container, making it rise, and tilting the steel lever back. As this gas is used, and the container begins to descend, the steel lever before mentioned is pulled forward by a spring, bringing the retort forward with it and thus exposing more cakes to the heat of the spirit flame. In this way more gas is generated before the whole of the first is consumed. This consumption of gas by the jet, and the production of new gas, are beautifully balanced, and continue until the whole of the cakes in the retort have been exhausted. Another retort may then be placed in position, and the lecture or performance need not be interrupted.



The Carburator for producing hydrogen gas.

The Carburator is a small brass cylinder containing a compressed sponge in which 10 ounces of ether can be saturated. The oxygen gas is conducted from the container to the Carburator, and there, by pressure, causes the ether to give off hydrogen. From the Carburator, both gases are conducted to the jet by means of rubber tubes.

Firing back and other inconveniences experienced in so-called saturators, are entirely obviated, as there are valves to prevent this. With ordinary precaution it is as safe as any ordinary household appliance, such as a cooking stove or paraffin lamp.

In the event of ether not being obtainable, this carburator will work very well with either methylated spirit, benzine, naphtha, or petrol. Supplied in Box, 8 by 4½ inches.

PRICES.

THE KAMM GENERATOR	-	-	-	-	£11	0	0
THE KAMM CARBURATOR	-	-	-	-	2	10	0
EXTRA SPIRIT LAMP	-	-	-	-	0	9	0
OXYGEN CAKES	-	-	per lb. 1/-;	12 lbs.	0	11	0
SODA LIME POWDER	-	-	-	per lb.	0	2	0

Full Instructions and Appliance for making Oxygen Cakes given with each apparatus.

The Pendant Saturator.



Patent.

The new design introduced in the Autumn of 1903, has the following important improvements:—

By rushing gas through at high pressure, it is impossible to lift ether into the jet.

No explosion in the tubes can enter the saturator through the safety chambers.

No rebound of ether into the cylinder tube can take place when the pressure is suddenly removed from the saturator.

The Pendant Saturator is designed to work with any lantern, and with any jet for mixed gases; there is no necessity for cutting the lantern, as the saturator hangs outside. Every one of these saturators is tested before it is sent out, and its perfection is guaranteed.

Full Instructions are sent with each Pendant Saturator.

Price—No. 2 Pendant Saturator ... £2 10s.

Size, packed—13in. by 7 in. by 4 in.

Weight, packed, 7 lbs.

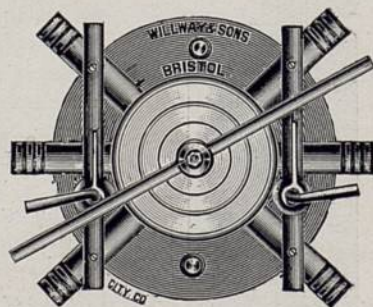
This Saturator is suitable for use with jets of any power.

DISSOLVERS FOR LIME-LIGHT.

An accurately cut and carefully finished Dissolver, guaranteed to work with jets of $\frac{1}{8}$ inch bore and a saturator. The plug is hollow and of large diameter, giving ample distance between the gas ways.

4 OR 6 WAY DISSOLVER.

Price - 12s. 6d.



BEST HARD LIMES.

Owing to the difficulty experienced by many of our customers in getting Limes that will stand the intense heat of the GWYER JETS, we have been for some time selecting and making Limes. These are made from a special and carefully selected Stone, and will, we believe, be found superior to any now on the market.

They are made in the following sizes:—

1 inch diameter, packed 12 in a tin.	Price per Tin	-	-	2s. 3d.
1½ " " " 6 " " " "	" " "	-	-	2s. 3d.

Limes can be sent by Parcel Post to Operators abroad.

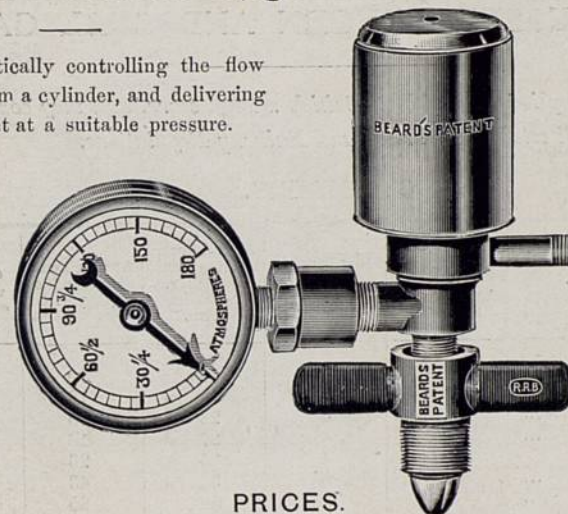
Best Red India Rubber Tubing.

For connecting Limelight Jets to Gas Apparatus. Price, per yard, 1s.

Brass Junctions, for joining Indiarubber Tubing, 4d. each.

Beard's Patent Regulators and Gauges.

For automatically controlling the flow of gas from a cylinder, and delivering it to the jet at a suitable pressure.



PRICES.

Regulator only...	each	£1 1 0
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This regulates automatically the flow of gas from the cylinder, ensuring the same pressure when the cylinder is nearly empty as when it was full. Separate Regulators must be used for Oxygen and Hydrogen.

Regulator with branch for gauge	"	1 6 0
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Pressure Gauge only	"	1 10 0
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The same adjustment valve as shown above, but arranged to take a pressure gauge, so that the operator can watch how the gas is being burnt. Specify if for Oxygen or Hydrogen.

Regulator and Gauge in one, as shown	"	2 15 0
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This is the most convenient and the safest form of Regulator and Gauge combined. The operator can watch the consumption of gas during the progress of the exhibition, and work his light accordingly. Specify if for Oxygen or Hydrogen.

Branch for coupling Regulator and gauge to cylinder	"	0 4 9
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Fine Adjustment Valve	"	0 7 0
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" " " for gauge	"	0 8 6
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Gas Sundries and Accessories.

Folding Lever Gas Key	Price	1s. 6d.
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Tee Key for Gas Cylinders	"	1s. 3d.
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Combination Gas Cylinder Key	"	2s. 6d.
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Nipples for Lime Jets	"	2s. 0d.
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Complete Lime Pins and Screw	"	2s. 3d.
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Table and Lime Pin only	"	1s. 3d.
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Steel Lime Tongs	"	2s. 0d.
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Brass Lime Tongs and Borer	"	1s. 6d.
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Safety Stout Iron Retort with screw top, arm and	"	9s. 0d.
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safety valve, for making Oxygen Gas	"	15s. 0d.
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Lead Generators for making Hydrogen Gas	"	3s. 6d.
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Brass Purifier Tube (will fit any bottle)	"	
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SEAMLESS STEEL CYLINDERS FOR COMPRESSED OXYGEN AND COAL GAS.

All Cylinders supplied are of best British manufacture, and they comply with all established Trade and Railway Regulations.

CYLINDERS.

Type of Cylinder.	* Cubic Contents in feet at Atmospheric Pressure.	Approximate external diameter in inches.	Approximate Length overall in inches, including valve.	Approximate weight in lbs. (empty.)	Price of Cylinders with valve (empty).
					s. d.
Seamless ...	6	4	14	10	26 6
ditto ...	10	4	19	13	28 0
ditto ...	12	4	23	15	29 6
ditto ...	15	4	27	18	31 0
ditto ...	20	4	35	23	33 0
ditto ...	40	5½	36	43	49 6
ditto ...	60	5½	50	65	59 6
ditto ...	60	7	32	66	68 0
Lap-welded ...	60	5½	52	67	59 6
Seamless ...	80	7	41	85	79 6
Lap-welded ...	80	5½	68	85	64 0
Seamless ...	100	7	49	103	93 0
Lap-welded ...	100	5½	82	103	71 6

* All Cylinders are filled to 120 atmospheres pressure.

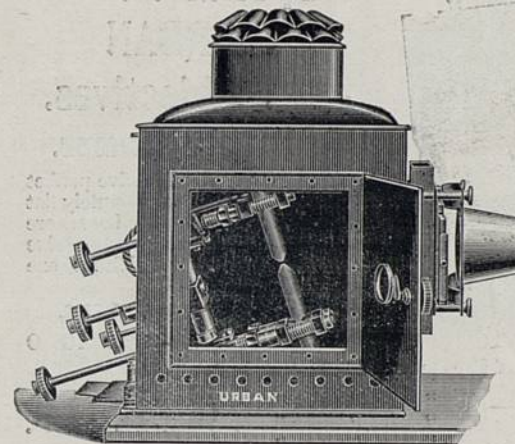
COMPRESSED GASES.

Oxygen.		Coal Gas (Hydrogen).	
Price per Cubic Foot.		Price per Cubic Foot.	
Quantities of less than 20 feet	4d.	Quantities of less than 20 feet	3½d.
Quantities of 20 feet, and less than 60 feet ...	3d.	Quantities of 20 feet, and less than 60 feet ...	2½d.
Quantities of 60 feet and upwards...	2½d.	Quantities of 60 feet and upwards ...	2d.

HEMP COVERS AND WOODEN BOXES FOR CYLINDERS.

Size of Cylinder.	6 ft.	10 ft.	12 ft.	15 ft.	20 ft.	40 ft.	60 ft.	80 ft.	100 ft.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Hemp Covers ...	3 6	4 0	4 6	5 0	5 6	7 6	9 9	13 0	16 0
Wooden Boxes...	1 6	1 6	1 6	2 0	2 6	3 0	4 0	5 0	5 0

Russian Iron Bioscope Lantern.



Lantern as supplied with Bioscope Outfits A and B.

This Lantern is of extra large size, to admit of the "Urban" Arc Lamps (all models) and Calcium Jets, with plenty of Room to re-trim and adjust the Lamps without removing same from Lantern. Made of the best Russian Iron, with ornamental Brass Combination Slide, Alum-Trough Stage and Conical Tube. It is strengthened throughout with steel rods, and is fitted with 4-inch Herschell Condenser in ventilating brass cell. The large door at side is fitted with fibre knob and brass-bound electric black glass sight holes on both sides of Lantern. A sliding rod is fitted in top of Lantern for a Curtain to shut off any back lights. With its ornamental Rose top, it presents a handsome appearance.

The grooved rail, with screw clamps for lamp tray, admits of a large tray being used. Free ventilation of Air. No charring or warping of wood casing. Wood does not enter into the construction of this Lantern, which is made of the best of metals throughout. Fitted for use of both 4 and 4½ inch condensers.

PRICE with 4-inch Herschell Condenser, Complete - £2 10 0

The U.-E. Lantern Body with "Pill Box" Condensers

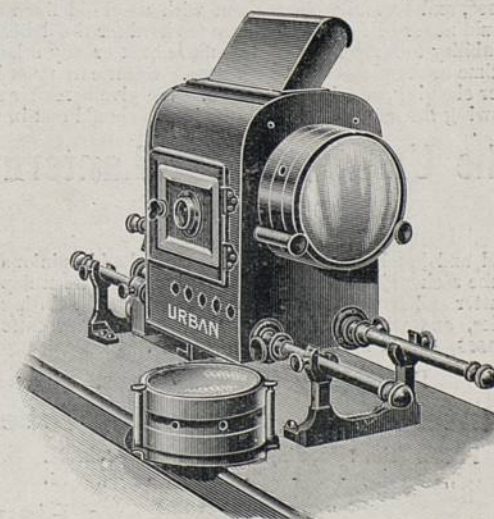
This Lantern is made to admit of use with the "Urban-Elmendorf" Electric Arc Lamp, or the Gwyer or Locke Jets. It is constructed to allow the Condensers being placed outside the Lantern, thus giving more ventilation and causing less breakage of lenses.

The Lantern front is arranged to take the 4 and 4½ inch condensers which can be instantly removed and replaced in case a lens cracks.

The 4-inch Meniscus Condenser produces the best light for Animated Picture purposes, while the 4½ inch is most suitable for lantern slides (covering 3¼ by 3¼).

PRICE—Complete, with 1 set P.B.

Condensers, Universal Rods and Support Brackets - £3 10s.





Special . . URBAN Objectives.

DARLOT LENSES.

Guaranteed to give perfect definition and an absolutely flat field. The following Lenses are all mounted in the same size brass tubes, and will fit into one rack mount:—

SPECIAL 1½in. FOCUS,
Aperture f. 2. - £1 10 0

2in. FOCUS, Aperture f. 2.	Price of Lens mounted in brass tubes
2½in. " " f. 3.	" " " "
3in. " " f. 3.	" " " "
4in. " " f. 3.	" " " "
5in. " " f. 3.	" " " "
6in. " " f. 3.	" " " "

} £1 1s. each.

Price of Rack Mount and Adaptor to carry any of the Lenses - 8s. 6d.

NOTE.—The size of the Picture on the screen depends on the distance between the lens and the screen as well as on the focus of the lens.

Complete Set of Special Urban Cylindrical Lenses.

Of 2, 2½, 3, 4, and 5-inch focus, with Interchangeable Mount with Rack and Pinion Adjustment, encased in silk and velvet-lined leather covered box.

Price - £6 0 0

There are cheaper Objectives on the Market. Don't spoil your exhibit by using them!

REMARK.—We advise our customers to unscrew, from time to time, the optics of our lenses, and carefully clean them with a soft old linen or cotton cloth (leather or flannel should never be used, as both are too hard for the delicate surfaces of the lenses, rendering a liability to scratch them) to remove dust or any other foreign matter which, from time to time accumulates on the surfaces. Great care must be exercised in replacing the lenses after cleaning, as originally found. We give hereafter a complete description and diagram showing the manner in which the lenses should rest in the mount.

The Urban Optical Lantern Objective.

Bold and handsome brass mount with double pinions to the rack adjustment, fitted to registered pattern flap shutter and slot for inserting coloured films for tinting slides, and with Double Combination Achromatic Lenses, 8 to 12 inches equivalent focus.

Price (any focus) - 15s.

Lantern Lens Lengthening Tube

PRICE (1in, 1½in, 2in) - each, 2s.
" (4in) - " 3s.

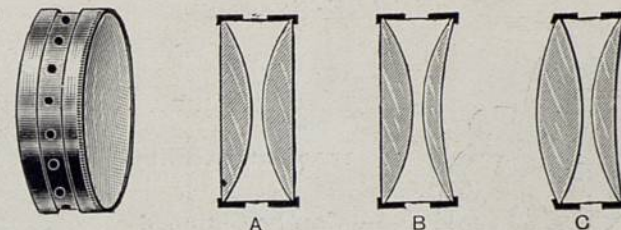
O.G. Lens Flange.

For attaching to Bioscope when using Lantern Lens.
PRICE - 7s. 6d.



CONDENSERS ("Pill-Box" Cells).

The advantage of the "Pill-Box" Condenser Cell, over all other cells of the screw cap variety, lies in the fact that the cover flange which holds each lens to the cell "gives" according to the expansion of the glass by the heat, thus obviating the frequent cracking of condenser lenses. Should a lens crack, it can be instantly replaced by slipping off and on the lid of the cell, instead of stripping the threaded screw of the usual cell—especially when one is in a hurry. The "Pill-Box" Condenser is made of light spun brass, nickel polished, and is perforated around the centre for ventilation between glasses. The Lenses are of the double convex and Meniscus type, a combination giving the very best possible results.

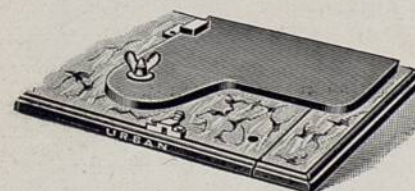


Either A. B. or C. Combination supplied at the following Prices.

4-inch diameter "P.B." Condenser	"C" Combination	Price, complete
4 " " Bi-Convex Lens (Front Glass)	" " "	10 0
4 " " " (Back Glass)	" " "	3 0
4 " " Meniscus " (Back Glass)	" " "	4 6
4 " " " " " " " "	" " "	3 3
Special Heavy Condenser, complete	" " "	5 0
		18 0

NOTE.—The Condenser Lenses herein listed will fit Cells of any type of like diameter.

Brass Swivel Oak Base.



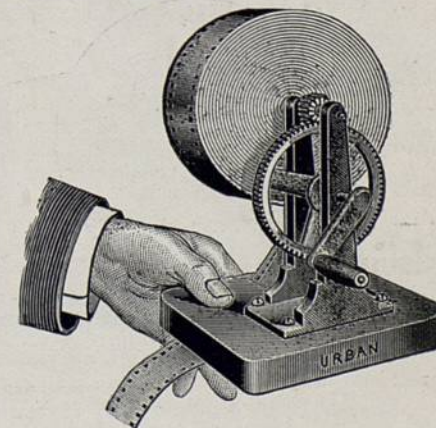
Made of well-seasoned teak, oil finished and hand polished. It consists of the under base, grooved and cross grained to prevent warping. The swivel sliding attachment is centred with brass bushing to preserve the adjustment, and is made of cast brass plate for mounting the mechanism. It is fitted with large burr thumb-screws for instantaneous adjustments of the double movement.

All bolts and Wing Screws are of steel and brass, highly finished. The Base is further supplied with a Russian Iron adjusting lantern tray. Dimensions, 12 by 28 inches. (Not sold in sections.) Price (complete) - £2 0 0

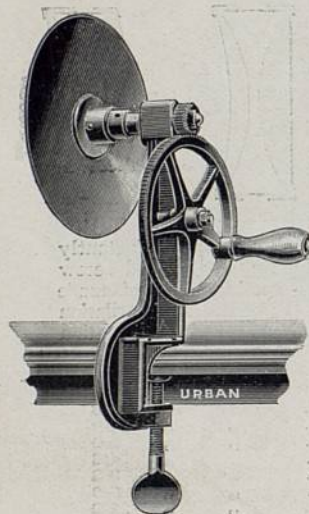
Nickelled Rapid Film Winders.

This highly geared Winder saves a wonderful amount of time, as 50 feet Films can be re-wound in three seconds. The Film is passed through a velvet-lined guide in the mahogany mounting, which prevents the scratching or marking of Films likely to occur when handled in any other way. Will wind Films up to 300 feet length.

PRICE (complete) - 13s.



Large Rapid Film Winders

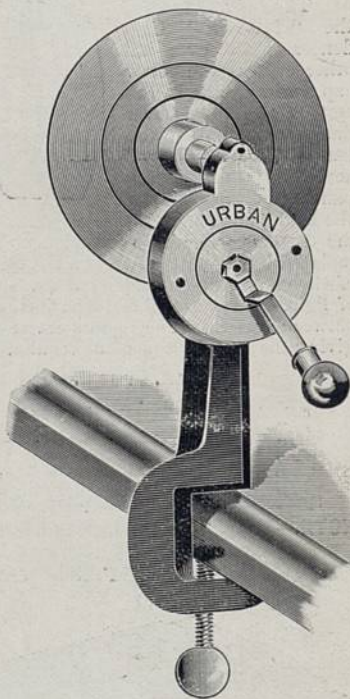


Type No. 1 Winder,

Price 15s.

Will Wind
1000 feet of Film.
Can be Clamped
to any Table or
Projecting
Stand

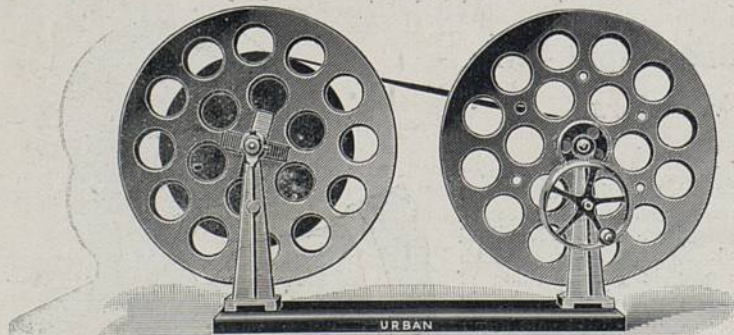
High Gear.



Type No. 2 Winder with Shield
Gear Protector,

Price £1 0 0.

Rapid Geared Reel Winders



A great boon to exhibitors, enabling them rapidly to rewind their film after each projection.
Will take Reels up to 15 inches diameter (capacity 1,500 feet Film).

Price £2 0 0

Bioscope "Graphitine."

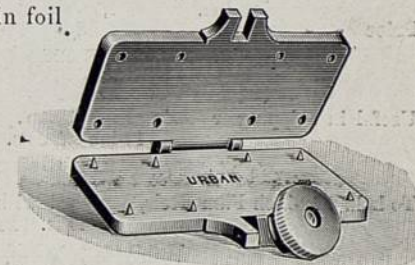
A solid lubricant for the tread of wheels. Makes the machine practically noiseless, reduces "grid" to a minimum, and thus lessens wear and tear.

Price 6d. per stick wrapped in tin foil.

Film Mender.

For American Gauge Perforated Films, which can be rapidly and accurately joined, should they become torn or broken. It is in hinged sections, with screw Clamp and solid base, and is invaluable to the Operator.

Price (nickel plated) 11s.



"Urban" Film Cement.

Specially prepared. Always ready. Makes strong and perfect joints, without drawing or wrinkling the film. Supplied in bottles with stopped corks, and camel hair brush.

Price per Bottle, 6d.; per dozen Bottles, 5s.



Metal Water or Cooling Trough.

The use of this device prevents the injuring or firing of inflammable celluloid films by the concentrated heat rays of the Lantern. The case is made of brass, and holds one pint of distilled water or alum solution. The transparent discs are of specially perfect thin plate glass, which are so mounted in the case, that there is absolutely no leakage.

A 25 part formaline solution with distilled water is most effective in reducing the heat-rays before reaching the film.

Price 11s.

Bioscope Automatic Re-winding Gear.

This attachment is quickly adjusted to the Bioscope frame by means of a thumb screw, and will take film reels up to 12-inch diameter (capacity 1,500 feet). It fills a long-felt want, in the fact that it winds the Films as regularly at the ending of the strip as it does at the beginning. No plucking or undue tension of Film, which is the fault of the majority of similar appliances, as the diameter on the reel increases. The improved shape reel stop allows of the Spools being placed and taken off almost instantaneously.

Price (complete) with Gear Pulley and Belt, 15s

EXTRA TWISTED RAW-HIDE OR COILED STEEL WIRE BELTS, 1s. 6d. each.

Coloured Advertising Lithographs.

These posters are 17 inches by 42 inches in size, main design in six colours, showing audience in Theatre viewing Bioscope Exhibit. The Screen portion varies to 25 different designs of occurrences, and general views, viz.: "Fire Turn-out," Express Train, R. R. Smash-up, Yacht Races, War pictures, &c., &c.

Price, each 6d., per 100, £2.

QUOTATIONS MADE FOR SPECIAL ADVERTISING POSTERS, from the above size, to 24 sheet in two to six Colours.

Apply for Illustrated Poster Catalogue of Special
Copyright Posters illustrating Urban Film Subjects.



SOLID BRASS FILM REELS.

Beautifully made disc spools, perforated for lightness; very strong and durable.

	7 $\frac{1}{2}$ -inch.	10-inch.	11-inch.	12-inch.	14-inch.
Capacity about	600 feet.	1,000 feet.	1,250 feet.	1,500 feet.	2,000 feet.
Price - -	7/6	9/6	11/6	13/-	22/-

URBAN REELS ALWAYS RETAIN THEIR SHAPE.

CARRYING CASE FOR FILM REELS.

Useful in shipping or storing Film Spools. Fitted with sliding end and screw—will take 12-inch Spools. Price 4/6 each.

SOLID LEATHER REEL CASE.

To hold 3 12-inch Film Reels, equipped with leather handles, straps, buckles and spring lock. Price £1 1s.

BIOSCOPE SCREENS.

A good lantern screen is of the highest importance to the beauty and effectiveness of the projected picture. There is nothing to equal a well-made whitewashed screen, which must be perfectly opaque, and should be mounted on a roller for convenience in travelling.

Portable screens, made of strong canvas, whitewashed, and mounted on lath at top, and stout roller at bottom, complete, with cords and pulley, and dust proof cover.

Calico or linen screens must be used where it is impossible to carry about a long roller, and these may be used for projecting through (i.e., projector behind the sheet) where necessary. These are fitted with brass eyelets.

The following Prices are subject to Market fluctuation.

	Calico.	Linen.	Opaque, on Roller.
	£ s. d.	£ s. d.	£ s. d.
9 feet square	0 7 6	0 14 0	1 1 0
10 "	0 10 6	1 2 0	1 10 0
12 "	0 14 0	1 10 0	2 6 6
14 "	1 0 0	2 0 0	3 6 6
16 "	1 2 6	2 10 0	4 6 6
18 "	1 7 6	3 3 0	5 6 6
20 "	1 12 6	4 4 0	
24 "	2 10 0	5 5 0	
30 "	3 10 0	7 0 0	

A Ready Reference Table of Distances for Cinematograph Lenses.

FOCUS OF LENS.

Distance between Cinematograph and Screen.	2 in.		2½ in.		3 in.		4 in.		5 in.		6 in.	
	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
10 feet	5	0	4	0	3	4	2	8	2	0	1	4
12 "	6	0	4	9	4	0	3	0	2	6	1	8
15 "	7	6	6	0	5	0	3	8	3	0	2	0
20 "	10	0	8	0	6	8	5	0	4	6	3	4
25 "	12	6	10	0	8	4	6	0	5	6	3	8
30 "	15	0	12	0	10	0	7	0	5	10	4	0
35 "	17	6	14	0	11	8	8	8	6	2	4	8
40 "	20	0	16	0	13	4	9	8	7	8	5	10
45 "	22	6	18	0	15	0	11	0	9	2	7	0
50 "	25	0	20	0	16	9	11	9	10	0	7	8
75 "	37	6	30	0	25	1	17	6	15	0	11	4
100 "	49	6	40	0	33	5	23	9	20	0	15	0
150 "	73	6	60	0	50	1	35	9	30	0	22	4

Bioscope Combination Travelling Case and Exhibition Stand.

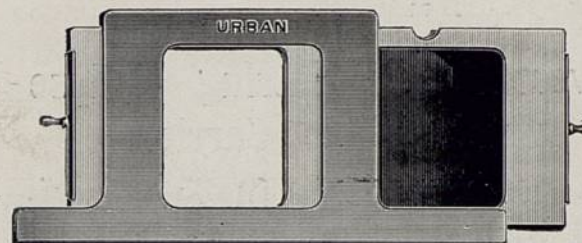
With Tilting Top and Screw Adjustment.

This is the most convenient form of Travelling Case, as it is so fitted that the supports or legs can be instantly detached by means of thumb-screws.

The BIOSCOPE is simply placed into the Case, which is arranged so that no further packing is necessary to ensure safe transportation of the instrument. Room for all appliances is also provided, and the entire outfit can be taken apart and packed in less than five minutes. With tilting top and adjustments, lock and key, &c., &c.

White Wood. Price £3 10s.

Quartered Oak. Price £5.



All Metal Double Slide Carriers.

Manufactured of solid brass and hard copper of best workmanship. Will not burn, char, or break, and will stand any amount of heat. Outlasts a score of wooden carriers. Price 15s.

Urban Curtain Light Cut-off.

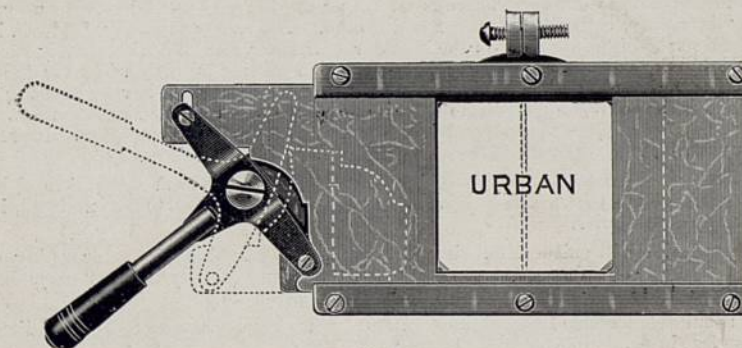


Fig. 1.

Another innovation in Light Cut-offs, producing a new effect in the gradual illumination of the projected picture or slide announcement with a gradual Curtain Cut-off (being equal from both sides).

Manufactured of solid brass, copper and steel. Will fit any standard Urban Lantern Cones by means of a clamp ring operated by a screw.

Fig. 1 shows the device, open aperture; dotted lines show same closed.

Fig. 2 shows the device attached to Lantern Cone.

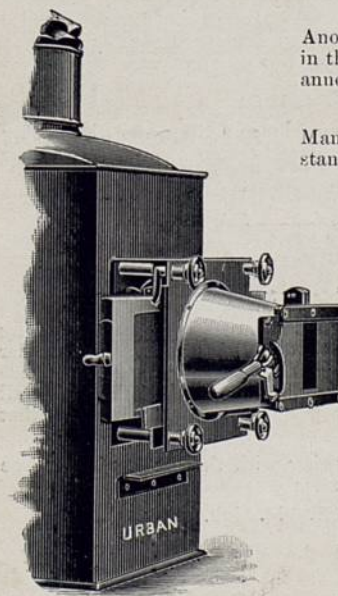


Fig. 2

Price (with Cone Clamp Ring) ... 1 1 0

„ fitted to Metal Slide Carrier, as supplied with Urban Bioscope "Perfection" Outfit, and Urban-Elmendorf "C" and "D" Outfits ... 1 15 0



Beard's Universal Self-Centring Eclipse Single Lantern Slide Carrier.

The best method of producing Dissolving View Effects with a Single Lantern.

Price ... 12s. 6d. each.

The advantages of this Carrier are that the slides are inserted and withdrawn from the same side of the Lantern. There is no finger marking, as the slide needs only to be held by the corner, between the finger and thumb. The slide can easily be placed in the frame and pushed into position by the plunger or runner, and the slide already shown is removed by the withdrawing of the plunger. The carrier is then ready for the next slide. The action of passing one slide before the one being shown is very pleasing in its effect, and is the nearest approach to dissolving yet obtained with a single lantern. The ease and comfort it gives to the operator has earned for it a great reputation. It prevents the usual white disc when the slides are withdrawn from the Lantern.

A better and more efficient way of passing slides (any size from $4\frac{1}{4}$ by $3\frac{1}{4}$ to $3\frac{1}{4}$ by $3\frac{1}{4}$) in and out of the Lantern, irrespective of the sizes of the slides to be exhibited, is also provided by this Carrier.

The Carrier will suit all existing Lanterns. No reaching across, or lifting out of groove the used slide, for by one movement of the runner (simply drawing out), the used slide is brought to the same side, ready to be taken away.

It is suitable for any Lantern or Lanterns, with condensers up to $4\frac{1}{2}$ inch diameter, and also for single, double, or triple Lanterns.

By this Carrier one operator can exhibit any number of slides required.

METAL FACED, as described above. Instead of the frame being entirely of Wood it is faced with brass (thus reducing the thickness), and is most suitable for Electric Light Lanterns, or those Lanterns having narrow stages.

Price ... 15s. each.

SOLID METAL FRAME made in Aluminium and brass fittings, the whole being rivetted and screwed together (no solder used).

Price ... 25s. each.

Portable Iron Operating Enclosures.

In Halls licensed by The London County Council and some few other Governing bodies, animated pictures are only allowed to be exhibited from within an iron chamber constructed according to the specifications of these Bodies and of the Fire Brigade Authorities. We have made a speciality of these boxes, so that, while they meet all requirements of the Licensing Authorities, are yet so portable and easily handled, that they are no great encumbrance to the operator.

All the parts are numbered, and are fastened together with thumbscrews. Anyone can easily erect or pull down these houses in a few minutes.

Size when set up ready for use, 4 ft. 6 in. square, 6 ft. 6 in. high.

PRICE ... £5 10 0.

Or 6 ft. 6 in. by 4 ft. 6 in. square, 6 ft. 6 in. high.

PRICE ... £6 10 0.

Cinematograph Difficulties, . . . and How to Deal with Them.

No matter how perfect a well-made machine may prove, it is a delicate instrument at best, and requires delicate treatment. Many operators do not realize these truisms, especially when the apparatus happens to be the property of others, and they handle their machines with small show of tenderness.

Not only must a good machine be well balanced and well made, but it must be so constructed that a minimum number of accidents to its parts shall result from a maximum use and constant jars in transit from place to place. A poor machine is too expensive a luxury to receive our consideration.

A good cinematograph is the cheapest, for it is constructed in all its complex parts to resist the wear and tear caused by running at a high rate of speed day after day, week in and week out. But, by virtue of superior construction, gently handled, it will, with care and attention, repay its original cost time and again.

Many of its troubles are simple, and may be avoided by the exercise of a little forethought and an occasional examination of the machine, to detect and renew worn parts, and adjust those requiring perhaps no more than a touch to set them right.

While it is impossible for any machine entirely to resist the ravages of time and constant use, many of the annoyances are so simple and so easily remedied, that a few hints as to their treatment may not be out of place.

New machine damaged in transit. Do not tinker. Return it at once for inspection and re-adjustment.

Stiff mechanism. Well oil the running parts with special lubricating oil, and so prevent overheating.

A discoloured disc. Clean your condenser lenses with soft tissue paper or chamois leather.

Ragged Edged Disc. See if the mask be truly cut. Remove dust accumulations from the mask.

"Ghost." Adjust the shutter by setting it correctly. See that it is large enough to cover the movement of the film.

Scratched Films; Unsteady Pictures. Scrape the bow springs before each display, and rub over them a very little vaseline. The trouble is caused by dust on bow springs or runners.

Imperfect definition of objective. See that the lenses, after cleaning, are accurately replaced.

Unsteady pictures. Clear all runners and springs of dust. See that the gate springs press evenly on the film. Inspect the spindles, bottom sprocket, pinion, and teeth of the driving wheel to detect wear or looseness. If the parts are worn, send them to be overhauled.

Film out of centre. Equalise the tension of the springs if the film is out of centre in the gate, to ensure an equal pressure. Set the gate true with the sprocket wheels if it is not in alignment.

Broken film. Caused by too much tension on the gate springs, or else by a bad join. Carefully scrape off the emulsion at one end and use the cement sparingly.

Broken Perforations. The "Dog," or the "Dog" roller is not true, but unevenly strikes the film. Adjust, so that they strike accurately.

Pictures run up the screen. This is caused by the slipping of the film on the bottom sprocket wheel. Tighten the roller spring on the bottom sprocket.

Faulty action of top sprocket. Film runs off the top sprocket. See that the guide roller and spool are in complete alignment. If the roller spring acting against the top sprocket is too weak, replace it. In the case of a much-used film, make a loop between the two rollers of the top sprocket. The trouble is sometimes caused by a badly perforated or shrunken film.

Unsatisfactory action of the take-up spool. If the spring band has stretched, cut a piece out and rejoin. If the spool bow spring has weakened, replace it by a new one.

Top spool jerky. Lubricate the disc on the tension spring.

Announcement Slides (All one uniform size, 3½ by 3¼ inches).

Special Coloured Design Slides	... from 3s. 6d. up to £3 3s. 0d. net.
Black Ground, White Letters Announcement Slide	... 2s. 0d. each
" " Coloured " " " "	... 2s. 6d. "

Note—The use of these slides for announcing each subject on the screen before the animated scene is projected certainly enhances the value of an exhibit. The letters **ONLY** appear on the screen, and give a sharp, clear and pleasing effect. The colouring is done by a new process, so that it is impossible to detect any irregularities or streakiness in the tints, all of which are brilliant.

Black Spacing.

Few of the minor details connected with a cinematograph exhibition are so essential to good results as black spacing inserted between the various films on a spool. We keep a good stock of accurately spaced dense black film of different registrations.

PRICE:

In various lengths (not less than 1 foot),

Per foot - - 2d.

Sundry Supplies and Bioscope Parts.

Set of 6 Bow Steel Film Trap Springs with screws	... per set	5 0
(single Springs)	... each	1 0
Refitting Steel Guides (with hump) in film trap	... ..	18 0
Support for Top Reel with Thumb Screw	... ..	10 0
Brass or Vulcanite Eccentric Roller with metal bearings and steel Spindle	... ..	2 6
Brass or Vulcanite Rollers (grooved or flanged)	... ..	1 0
Bevel Steel Gear Wheel for Shutter Shaft	... ..	4 0
Eccentric Shaft with steel gear wheel	... ..	5 0
Bioscope Handles	... ..	2 6
Screws (various sizes)	... .. each	3
Extra Film Traps complete for Urban Bioscope	... ..	2 10 0
Extra Shutter (Opaque Blade) with fittings	... ..	5 0
Translucent Violet Shutter Blade	... .. each	3
O. G. Flange to fit Lantern Lens	... .. each	7 6
Film Take-up with Steel Coil Belt	... ..	15 0
Gut or Wire Coil Belts for take-up	... ..	1 6
Clutch Take-up Springs with fittings	... ..	2 6
Spanner for Model "X" Urban Lamp	... ..	2 6
Asbestos Covered Wire Leads for Arc Lamps	... .. per pair	2 6
"Screw-in" Handles for Reels (when re-winding Film)	... ..	0 6
Automatic Light Cut-off Gear, complete	... ..	1 1 0

REPAIRS TO BIOSCOPE PROJECTORS, CAMERAS, ARC LAMPS, LIME JETS, AND ALL ACCESSORIES AT REASONABLE PRICES, AND IN THE SHORTEST TIME.

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"WE PUT THE WORLD BEFORE YOU."

Urban Film Subjects

An Enormous Selection specially contributed by our own
Experts in every quarter of the Globe.

NAVAL	MILITARY	MARINE
SPECTACULAR	PANORAMIC	ZOOLOGICAL
SCIENTIFIC	EDUCATIONAL	INDUSTRIAL
FOOTBALL	WRESTLING	ATHLETICS
HORSE RACES	BALLOON RACES	MOTOR RACES
AQUATICS	BOXING	HUNTING
DRAMATIC	COMIC	MAGICAL
HUMOROUS	FANTASTICAL	ALLEGORICAL
ICE SPORTS	PASTIMES	RAILWAYS

And every Event of Sporting and General Interest.

Headquarters for every Animated Picture Requisite.

Charles Urban Trading Co., Ltd.

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TELEPHONE 3118 CENTRAL.

“Urban”

. . SPELLS . .

High Standard

. . AND . .

Perfection.