1910.

—

URBAN CATALOGUE

. of .

Kinematograph Motion

Machines Picture

and Accessories.

The CHARLES URBAN TRADING Co., Ltd.,

KINEMATOGRAPH SPECIALISTS & FILM PUBLISHERS

Urbanora House, 89-91, Wardour Street,

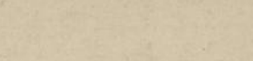
London, W.

Telephone—CENTRAL 3118. Telegrams—"BIOSCOPE, LONDON."

PRICE LIST. *1910.*

ALL PREVIOUS LISTS CANCELLED.

Urban Bioscopes, Cameras . and . Accessories.



Charles Urban Trading Co., Ltd.,

Kinematograph Specialists & Film Publishers,

THE HOME OF KINEMATOGRAPHY:

URBANORA HOUSE,
89-91, Wardour Street, London, W.

Telephone: Central 3118. Telegraphic Address: "Bioscope, London."

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

DISTRIBUTING BRANCHES IN EVERY COUNTRY.

Introductory. . .

SINCE the production of our last Price List, every branch of the Kinematograph industry has developed in sundry directions.

The appointments and mechanism of the Urban Cameras have been improved upon and perfected to such a degree that these instruments now meet every motion-picture requirement of the scientist, the traveller, the amateur and the professional photographer.

County Council Bye-Laws and Parliamentary action for safeguarding the public from scare dangers have spurred our inventive staff to efforts which have resulted in improvements hitherto undreamed of in the projecting plant, or bioscope proper.

Not only by such devices as our patent Fireproof Gate and aluminium safety spool boxes are the audiences now fully protected from panic—though an accident has NEVER occurred where an Urban Bioscope was used—but various other ideas for steady, brilliant, smooth and flickerless projection have been worked out and made practicable.

The Home of Kinematography—Urbanora House—opened two two ago, is fitted with the most up-to-date mechanical plant, installed at great expense. Everything is new, and every machine and tool for constructive use is of the latest invention, ensuring, under skilled supervision, and by the use of only the best material, results which have never in the history of Kinematography been hitherto attained.

Where bioscopes and motion-picture appliances are in use, therefore, the exhibitor, scientist, professor, lecturer or schoolmaster may safely calculate upon perfection in display and absolute safety in working, if each machine and appurtenance bears the recognised and registered Urban mark.

IMPORTANT NOTICE

The Revision of Prices and Terms notified herein take effect from the date of Publication of this List (April, 1910) and . . . .

All previous Quotations are Cancelled.

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

TERMS:

Cash with Order. Machines, Cameras and Accessories are not sent on approval.

TRANSIT:

All Goods are sent at Consignee's risk. Scrupulous care is taken in packing and we do not hold ourselves responsible for loss or damage in transit. *Customers must claim from Carriers.*

CASES and PACKING,

Charged at cost price, are not returnable.

DELIVERY:

At Urbanora House, 89-91, Wardour Street, London, W.

COLONIAL and FOREIGN ORDERS:

Remittance, payable in London, with full shipping instructions, must accompany every order.

BANKERS:

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

REASONS

FOR THE SUPERIORITY OF

URBAN APPARATUS

. . FOR . .

PHOTOGRAPHING,
PERFORATING, . . .
DEVELOPING, ...
PRINTING & . . . . .
PROJECTING. . . . .

BECAUSE . . .

The best Inventive Staff in the World is constantly engaged upon improvements in existing appliances, and in the production of new features of a labour, time and expense-saving character.

The most experienced and skilled mechanics in the Kinematographic art are engaged in the construction of URBAN Machines, which are made and tested upon the premises.

The URBAN Apparatus is absolutely correct to the Standard American Gauge.

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

The URBAN Bioscope was the first practical Kinematograph utilising the "Dog" or "Cam" movement.

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 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.

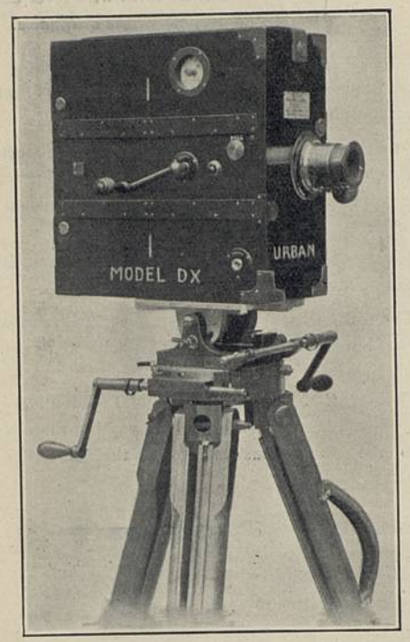
The Urban Bioscope Camera

. . . IS THE . . .

HANDIEST, MOST COMPACT

. . AND . .

EFFICENT MACHINE OBTAINABLE.



Model "Dx" 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 climates do not affect the smooth working, the accurate operation, or warp the case or mechanism of **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 Kinematographer.

Many important pictures have been secured with the **URBAN** Camera *(which is self-contained and always ready for 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 kinematograph camera.

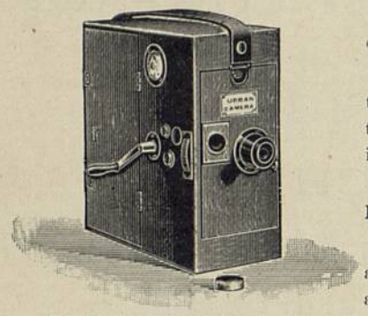
Urban Camera, Model "B."

. 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 Lens, full aperture F5·4. 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.

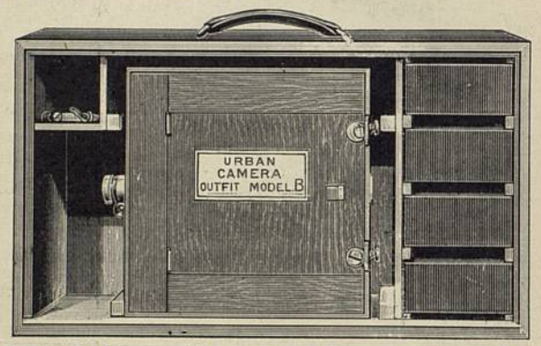
Automatic Film Punch for marking the Film between the incidents photographed, thus preventing the cutting of the Film in the wrong place when preparing it for development in the Dark Room.

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, Gunmetal 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.



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

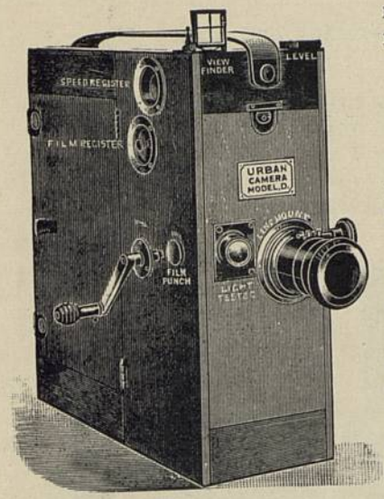
No one can afford to take an event or incident (which may only present itself once in a lifetime) and have it turn out a failure owing to the inefficiency of a cheaply built apparatus. The best is always the Cheapest.

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

Outfit Model "B" complete as above ...	Code Word: Bioac	£27	0 0
" " " with 2 Canvas leather-bound Cases " "	Biocan	£31	0 0
" " " with 2 All Sole Leather Cases, &c. " "	Biolet	£32	10 0

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

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 3 and 4 inch Voigtlander Collinear Objectives mounted in interchangeable tubes with nickelled 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.

PRICES—Model "D" Camera.

Code.			*Price* ∞
"Bioblast"	...	Complete as above, **with two Voigtlander Lenses**	**£36 10 0**
"Bioblat"	...	" " with **two Canvas leather** bound Carrying Cases for Camera and extra Film Boxes ...	**£41 0 0**
"Biohide"	...	" " with **two solid leather** Carrying Cases ...	**£44 0 0**

Urban Cameras, Models "Bx & 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 Oxydized 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.

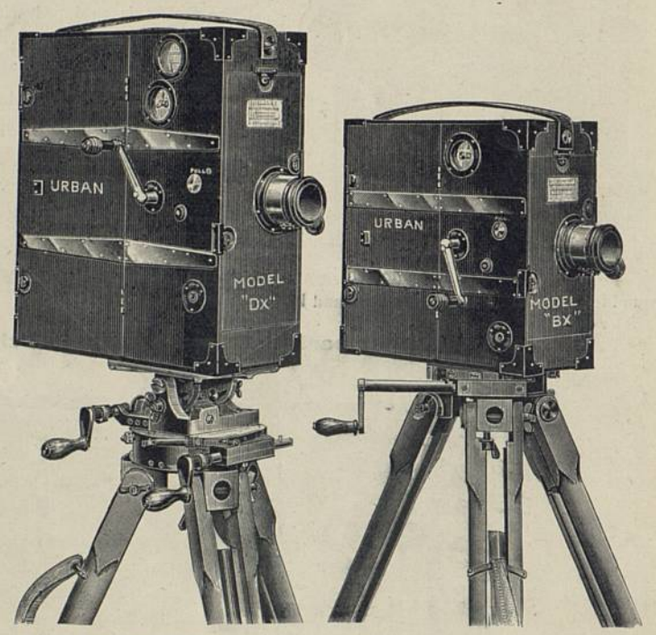
The Film Register, Speed Indicator, Handle Socket and Lens Jacket are also protected by circles of the same metal.

The Struts, being fixed 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 extra turn 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 "Maxim" Tripod. As fixed on the "Handy" Tripod.

Prices—Outfit Model "Bx."

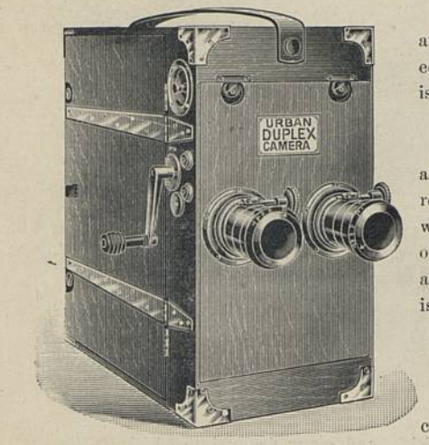
Code		Price
"BIOMAC"	Complete, with the Improvements above mentioned	£37 10 0
"BIOMAN"	Complete, with 2 canvas leather bound cases	41 0 0
"BIOMAR"	Complete, with 2 all-sole leather cases	42 10 0

Outfit Model "Dx."

"BIOMAT"	Complete, with the Improvements above mentioned	49 0 0
"BIOMAV"	Complete, with 2 canvas leather bound cases	53 0 0
"BIOMAS"	Complete, with 2 all-sole leather cases	56 0 0

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 duplication are equipping themselves with this type of 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 through some unforeseen failure of the mechanism, faulty film stock, careless developing and drying of negatives, etc, when only a *single* camera is employed.

A BEAUTIFULLY MADE AND PERFECTLY BALANCED INSTRUMENT.

Supplied with **two Sets of Film Boxes** each of 350ft. capacity.

One Set of specially matched Voigtlander Collinear Objective (either 3 or 4in. focus—F 5·4) in interchangeable tube mountings with nickelled lens-mount, rack and pinion adjustment.

The CAMERA is further equipped with **Focal Plane Shutter, Film Register, Spirit Level, Direct Focus Tubes, View Finder, etc., etc.**

PRICE *(as above)* - - - **£50.**

Code Word: "BIOCCOLI."

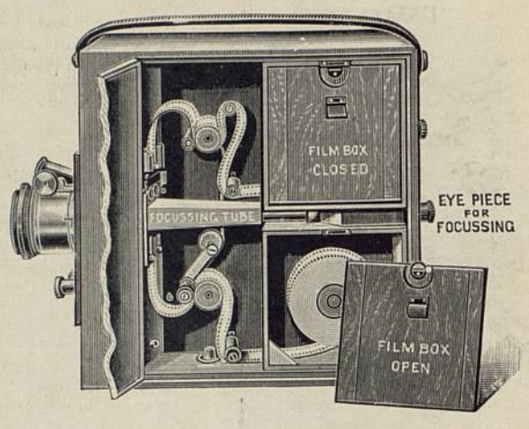
Extra Set (2) Matched Voigtlander No. 1 Lenses 4-inch Tube Mountings (per set of two) (4in. equivalent focus)	£10 10 0
Extra Set (2) Matched Voigtlander No. 00 Lenses 3in. Tube Mountings (per set of two) (3in. equivalent focus)	8 8 0

EXTRA PARTS OF "URBAN" CAMERA.

FILM BOXES for Model "B" Camera (cap. 150ft. film) ... ... each	£0 13 0
" " " "D" " (" 350ft. ") ... ... "	0 16 0
CARRYING CASE, Pine with Aluminium corners, locks and keys, etc., for Model "B" Outfit ... ... "	2 0 0
1 SET OF 2 CARRYING CASES for Model "B" Camera, canvas, leather bound, with handle, shoulder straps, lock and key to each, etc. ... ... "	4 10 0
DITTO, all-sole leather (best quality) ... ... "	7 10 0
CARRYING CASE, Pine with Aluminium corners, locks and keys, etc., for Model "D" Outfit ... ... "	2 15 0
1 SET OF 2 CARRYING CASES for Model "D" Camera Outfit, sole leather, baize lined, with locks and keys, handle, shoulder straps, etc. ... "	9 0 0
CANVAS CARRYING CASE for Four 300ft. Film Boxes ... ... "	2 0 0
SOLID LEATHER CASE " " " " ... ... "	3 10 0
CARRYING CASE for Model "Duplex" Outfit ... ... "	3 0 0
VIEW FINDERS ... ... "	0 3 9
SPIRIT LEVELS ... ... "	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 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 eye-piece, 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 eye-piece 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 the 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-feet 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.

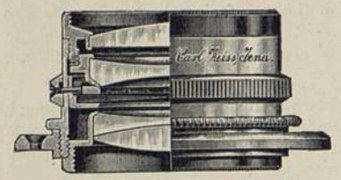
That too much sky is detrimental to the reproduction of an animated picture, just as too much foreground without action therein is equally objectionable.

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 further instruction with regard to any matter concerning animated photography, we shall be most pleased to furnish it

Special Carl Zeiss Lenses.

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



THE "TESSAR."

1 : 6·3. SERIES II.b.

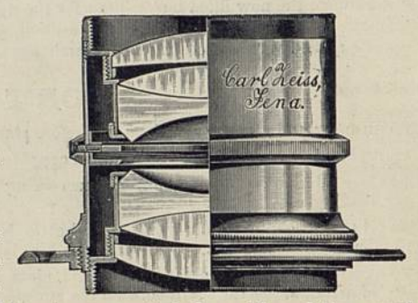
In Special Mount, with Iris Diaphragm.

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.

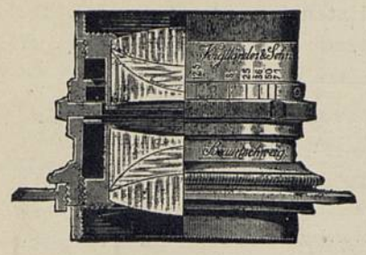
The Planar of Series Ia. consists of four separate Lenses, and is constructed strictly symmetrically from Nos. 1 to 5 inclusive, which display their highest capacity in reduction and enlargement. The objectives of this series are particularly rapid, and they excel in yielding sharply defined pictures, 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 those 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—2⅜-inch, equivalent focus F 5·4, without Rack and Pinion Adjustment	**4 10 0**
No 1—3½-inch " " " " " " "	**5 0 0**
No. 00—2⅜-inch, fitted with adjustable tube for interchangeable mount, as supplied with Urban Model "D" and "Duplex" Cameras	**5 5 0**
No. 1—3½-inch ditto	**6 0 0**

Handy Extension 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.

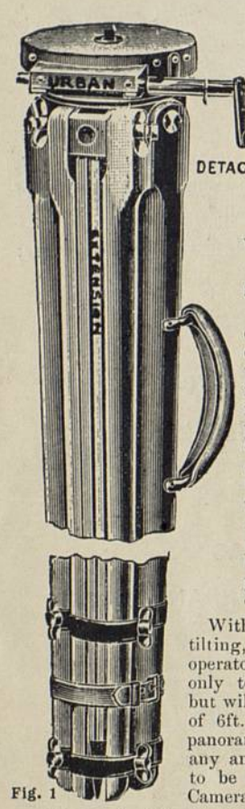


Fig. 1

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

The weight with Revolving Head is 12¾lbs.

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

The Stand is adjustable from a height of 43in up to 6ft. 6in.

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

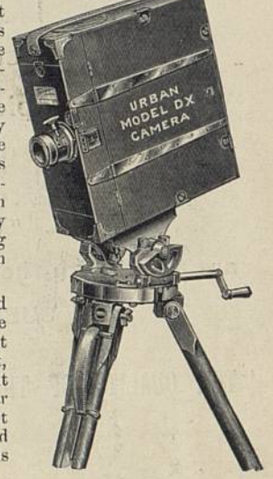
By several ingenious arrangements, no nut, screw or carrying handle can be lost.

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 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 the 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.



Showing angle attained by the "Maxim" Rotary Tripod—Fig. 2.

The entire tilting 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**

„ Tilting Table only **4 0 0**

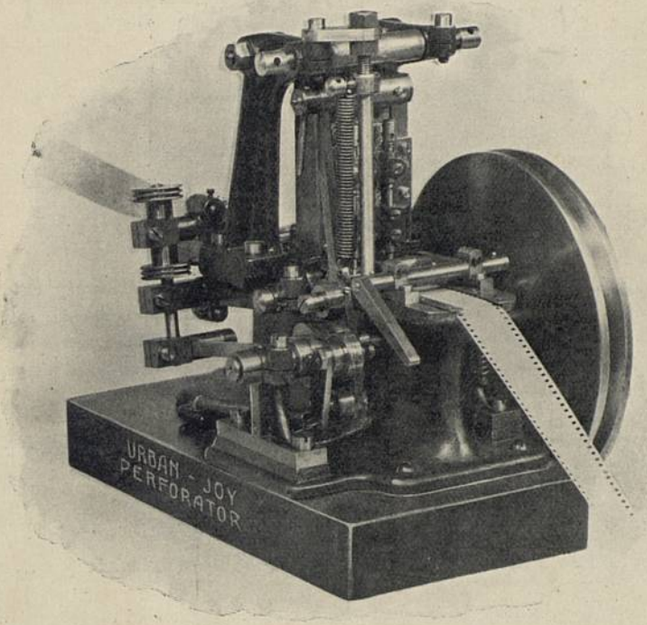
„ "Maxim" Rotary Tripod with Revolving Head & Tilting Table (Fig. 2) **11 0 0**

BEWARE OF INFERIOR IMITATIONS.

The Urban-Joy Film Perforator.

The usual machine, constructed to cut eight holes at one movement, invariably produces faulty results, as it is obvious that no means of adjustment can be obtained; hence the unsteadiness or flicker so common in most displays, which occasion unfavourable comment and unsatisfactory returns.

As it is generally considered to be almost a mechanical impossibility to produce two results which are scientifically and mathematically accurate, or exactly alike, the difficulty of producing eight holes of minutely equal dimensions is proportionately increased.



The Urban-Joy machine comes under what is known as the "Step-by-step" class, as distinct from the old rotary perforator.

Only two holes being simultaneously punched in the film, the perforations are made with absolute scientific accuracy, thus ensuring projection of the pictures on the screen, without the slightest flicker.

The principal characteristic of this machine is the ease and certainty by which minute adjustments can be obtained, the recognised standard of 64 holes to the foot being accepted as universal. It follows, therefore, that a perforator is necessary which can easily be adapted to meet the varying qualities and thicknesses of film.

The fine adjustment of the Urban-Joy Perforator is obtained by altering the fulcrum of a system of levers by which means the stroke can be varied to the millionth part of an inch.

The machine is easily threaded; no "leader" is required as is the case with the 8-hole punches, and it is so constructed that perforations can be made at any point of the film from the first inch, thus saving the waste of a leader. It is more often threaded, with equal facility, in absolute darkness than with the ordinary dark room light.

The punches and dies are easily detachable for sharpening or renewing purposes, and the cost of upkeep is necessarily smaller where one die is used than in the case of a machine which requires four. For an 8-hole machine, the upkeep for punches and dies is enormous by comparison, dies and punches for the Urban-Joy being one-twentieth of the cost of the 8-hole punch.

The Urban-Joy Perforator is constructed on true mechanical principles; that is to say, it does not work against friction caused by springs; consequently the parts run very freely and smoothly. It is fitted with a heavy balance wheel, which can be driven by a small motor of about $\frac{1}{10}$ h.p. The machine is compact, of solid construction, and occupies a small space. Over-all dimensions, including base and balance wheel:—

Height, 14 inches; Length, 14 inches; Width, 10½ inches.

Weight—Machine	46½ lbs.
,, Pulley	9½ ,,
Total weight	56 lbs.

A machine giving eight punches requires an upkeep at a tremendously exaggerated cost by comparison with a 2-hole punching machine. A machine cutting eight holes should last four times as long as a 2-hole. One punch in the 8-hole is displaced and all the others are upset. The consequent loss in cutting dies is considerably and immeasurably in excess, and the upkeep of the eight dies disqualifies the extra speed gain.

It is, consequently, more economical to use a 2-hole machine than an 8-hole going four times as fast with a chance of the works going wrong.

Die Plate and two Punches cost approximately ... 15s.

Eight-hole Die Plate and 16 Punches cost approximately ... £15.

The 8-die machine works four times as fast with inaccurate results, but the 2-die, slower in action, can be worked with more satisfactory effect at one-twentieth the cost.

The film is passed through the machine by the pendulum action of the punches, thus avoiding undue stram upon the material. When the punches are disengaged, the film is held in position by a clamp working in opposite synchronism to the action of the punches, and this clamp is provided with a hand lever to raise the same when the operator is threading tho machine.

Price of the Urban-Joy Film Perforator, complete, £50.

DIES for ditto	6s. each.
PUNCHES for ditto	10s. per pair.

Urban Film Measuring Machine.

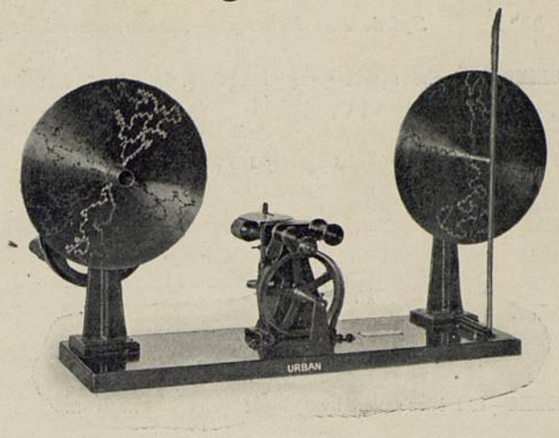
Saves time and money.

Absolutely Accurate.

Entirely Automatic.

"You turn the handle—
The Machine does the
rest."

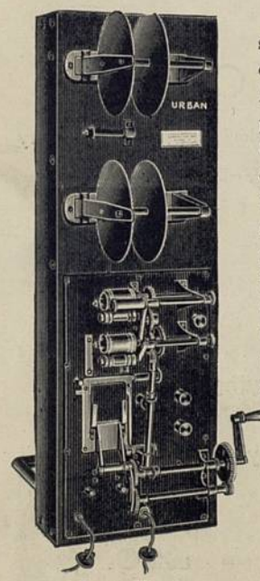
Does not vary one inch
in 1,000 feet.



With capacity to measure up to 1,000 feet (or 300 metres). **Price, £6.**

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

Urban Film Printing Machine.



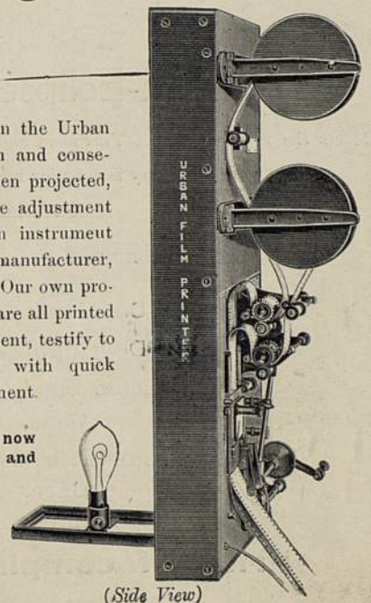
(Front View)

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**	**15** **0**
„ 23 „ 2½ „ „ 125 „	...	„	...	**£2**	**2** **0**
„ 25 „ Capacity 165 feet film	... ...	,	...	**£2**	**10** **0**

Film Developing Troughs.

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

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

Washing Tank, Zinc-lined,

27 inches by 27 inches, 4½ inches deep, - - - £2 15s.

Urban-Eclipse Developing Outfit.

Meets the requirements of Travellers and Explorers, as well as those who have use for a temporary or stationary installation requiring small space and readily transportable.

This Outfit consists of . . .

2 Developing Frames.
2 Developing Tanks (lead lined).
1 Zinc lined Washing Tank in Carrying Case.
1 Portable Drying Frame in Carrying Case.

Price of complete Outfit - - - £20.

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)	**21s.**
Special Subjects arranged by us (according to Scenery and Actors required) from	**21s.**
Negative Film Stock (perforated) ... ... per foot nett	**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 (minimum length, 50 feet) ... ... per foot	**3d.**

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, bad joints 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, etc., 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, brillancy, 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 winding, drying and cutting machinery at our works is doubtless the **most perfect in existence** for producing the best quality pictures.

This film stock is used by the leading kinematographers 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 assurred 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 1⅜ins. wide, **Perforated** ...	per foot nett	**2½d.**
Lumiere or Eastman Positive Film, in Rolls of 150ft., Standard width, **Perforated**	„	**2½d.**

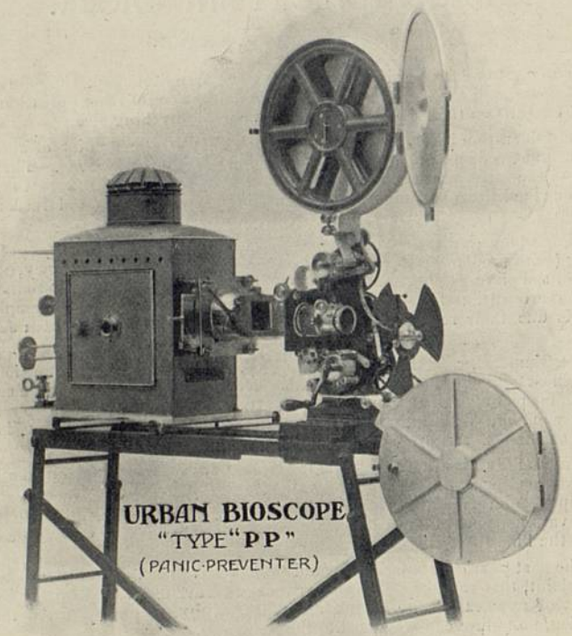
Perforating Film Stock ... 2s. nett per Roll, 150 feet.

ALL FILM STOCK SOLD WITHOUT GUARANTEE.

The New Urban "P.P." . . . . (Panic Preventor) Projector.

This machine may be termed the "last word" in projectors. The bioscopes which have made the Charles Urban Trading Company world-famous seemed already perfect, but, piling Pelion on Ossa, improvements have been added which in their turn will add popularity to its instruments.

While it is the proud—and reasonable—boast of this Company that an accident or panic has never been caused where its machines have been used, through falling into line with Parliamentary and County Council agitations and requirements, it has, by sundry devices which add little to the cost, further strengthened its position and its machines for fire or panic preventions, by means which secure even smoother working, which will gain the confidence of the whole trade. The appended blocks of the new projector, which define the additional movements and devices, have been carefully prepared, but the following notes and explanations may prove of interest.



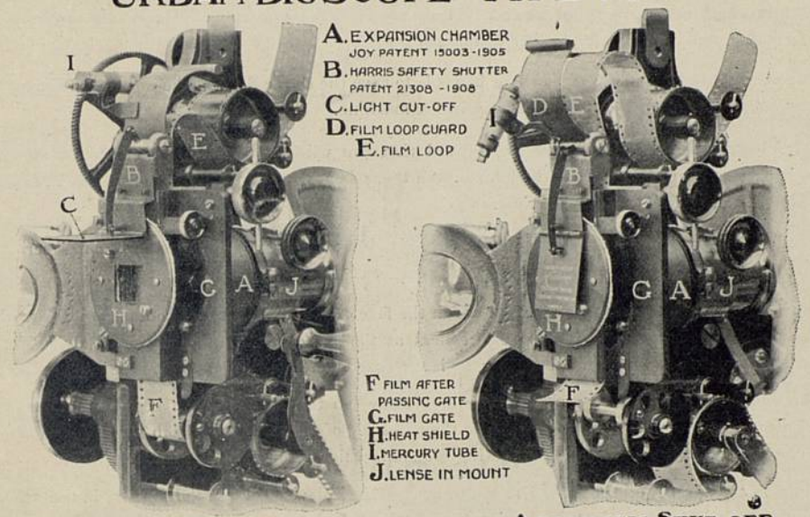
Smooth Working.—Total absence of vibration is brought about by the careful balancing of every revolving part, particularly the "Dog" and shutter shafts, to an extent not found in any other "Dog" machine. Some manufacturers claim this result, but the balance in most cases is not carefully made. In the Urban machine, the dog shaft is balanced to a grain, of which there are 480 to an ounce. It is essential that this balance should be even, and only by laying the dog shaft on carefully levelled knife edges (an engineering term), and also by accurately cut gears and sprockets can steadiness of projection be obtained.

To take the strain of the winder off the film, the bottom sprocket is provided with a looping device, which absolutely prevents any pressure or strain upon the perforation holes, thus prolonging the life of the film, which would ordinarily suffer from increased strain in re-winding.

Masking Device.—In the ordinary fixed gate, to give an equal registration to the film, it is necessary to expose three times the surface to the light. But, by means of the Urban device, only one picture is exposed to the rays, so that when the optical centre of the film is found, the rays of the lamp can be concentrated into a space no larger than the one picture, thereby saving about 40 per cent. of light which would otherwise be wasted.

The masking of the film in the machine is obtained by a rising and falling gate covering two pictures, so that no matter where the position of the film is on the sprocket, registration can immediately be secured by turning the milled head. This rising and falling gate is adopted with the view of exposing as small a portion of the film as possible to the rays of the arc lamp.

ANTI·FIRING·DEVICE
URBAN·BIOSCOPE·TYPE·P.P



POSITION OF DEVICE WITH FILM INTACT.

AUTOMATIC SHUT-OFF WHEN FILM BREAKS.

Fire Prevention Scheme. In conjunction with the rising and falling gate are two devices for the prevention of film firing. The first is the Urban-Joy Patent (15,003, 1905). In the event of the film firing, this device prevents the spread of fire above or below the exposure hole. The perforations themselves remain intact, so that the film is not severed, and, therefore, the exhibition can proceed without the slightest panic, and without anyone but the operator being any the wiser, or any the worse! This is brought about by constructing the rising and falling gate into what is practically a fire-proof box. When the film is in position, the only outlet is through the exposure hole nearest to the lamp, the other side of the exposure hole being contained in a tube which also holds the lens, thus forming an air-tight chamber on one side of the film. Should the film ignite in the exposure hole, the air contained in the chamber ("A") is suddenly heated and consequently expands, thereby discharging the products of combustion through the exposure hole ("H"). Inside the gate small longitudinal bars exactly above and below the exposure hole are provided, which effectually prevent "fire creep" along the film,

The Harris Safety Shutter is the second device, which lends additional safety during display. The object of this invention is automatically to shut off the light should the film break below the gate also to stop the electric motor, should one be used for driving the projecting machine.

The device ("B") holds a semi-circular flap ("D"), which is connected by a small lever to flap ("C"). This semi-circular flap ("D") is adjusted to be in position over the loop of the film ("E"), so that, when working under normal conditions, the loop ("E") does not actually touch or come into contact with the loop ("D"), but on the film breaking at "F," loop "E" suddenly enlarges and pushes up the flap "D" to a vertical position, which, in turn, closes the door "C."

The mercury tube "I" contains about half an ounce of mercury with an electric contact at either end, its object being to change the centre of gravity of flap "D"; also to cut off the current supply to the motor. In the setting, the tube "I" is horizontal, thus connecting the two electric contacts at either end, but on its being canted by the raising of the loop "D," the weight of mercury suddenly flows to the lower end, thus giving weight to retain the flap "D" in a vertical position and effectually breaking the motor circuit.

Aluminium Fire-proof Spool Boxes.—These are carefully constructed to meet the requirements of the London County Council, and other Municipal bodies.

The primary and chief object of these boxes is to save the entire film, in the event of a fire arising from any cause, except about one foot already in the machine.

Careful and prolonged experiment has proved that fire will not pass along a film where egress or ingress is by means of a narrow slit or channel. In these boxes such a slit of about an inch in depth is provided as outlet and inlet to the interiors.

Here a difficulty occurs in most spool boxes of this class: the surface of the film becomes scratched by contact with the four rollers placed one at each corner of the aperture.

In the Urban boxes, the rollers against which the face of the film comes in contact are hollowed, so that the picture side is untouched. The two rollers at the back of the film, or the celluloid side, are solid, which prevents the film from buckling, as is the case where all the four rollers are hollowed.

The film slit in this box is open to the operator's side, so that the film can be slid in or out of the box at any part of the picture, thus preventing the necessity of re-winding to reach the end. When the box is closed, the slit is covered by an extra lug of metal, which forms part of the cover.

Thus, in the absence of either the Urban-Joy or the Harris device, should the film fire in the machine from any cause whatever, it is only possible for about 18 inches not enclosed in the spool boxes to be burned, in which case the connection of the unfired parts causes only a few seconds' delay before the display is resumed.

The Urban Spool Boxes are substantially cast in aluminium with hinged doors, and are accurately turned inside to receive the film spools. They are highly finished in natural colour, and it is impossible for fire to penetrate the boxes.

It will, in conclusion, therefore, at once be apparent that the new Urban P.P. Projector is absolutely fire-proof, "fool" proof, and panic proof. Unless of *malice prepense*—intentional and wilful—an accident is impossible. The Harris device automatically takes charge in the event of the film breaking; but if fire *should* occur, the Urban-Joy expansion chamber prevents the combustion of more than one picture, and even then the perforations remain intact. In the extremely improbable event of both these devices failing, the aluminium spool boxes, with which the projector is fitted, would, under any circumstances, prevent more than one foot of film from firing.

URBAN BIOSCOPE PROJECTOR PARTS.

When ordering any particular part of the mechanism it is only necessary to quote the designating letter — as **"Fig 1—A."**

A—Raising and Lowering Gate.

B—Swing Gate.

C—Lens Clip.

D—Lens Jacket.

E—Eccentric Dog or Cam (patented).

F—Masking Pinion.

G—Bottom or Main Sprocket.

H—Top Film Spool.

I—Top Arm.

J—Body Casting.

K—Cut-off Shutter.

L—Anti-Flicker Shutter.

M—Turning Handle.

N—Fly Wheel.

O, P—Top Sprocket Rollers.

Q—Bottom Arm.

R—Expansion Chamber.

S—Shutter Boss.

T—Bottom Sprocket Roller.

U—Top Sprocket.

V—Bottom Sprocket Roller.

W—Relief Loop Roller.

X, Y—Film Tension Springs.

Z—Sprocket Spring.

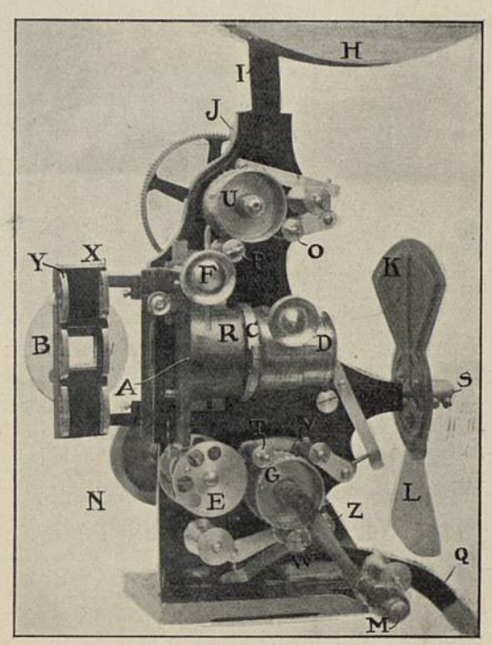


Figure 1.

DETAILED PORTIONS OF URBAN BIOSCOPE PROJECTOR MECHANISM.

When ordering any part of the mechanism it is only necessary to quote the designating letter — as **"Fig. 2—B."**

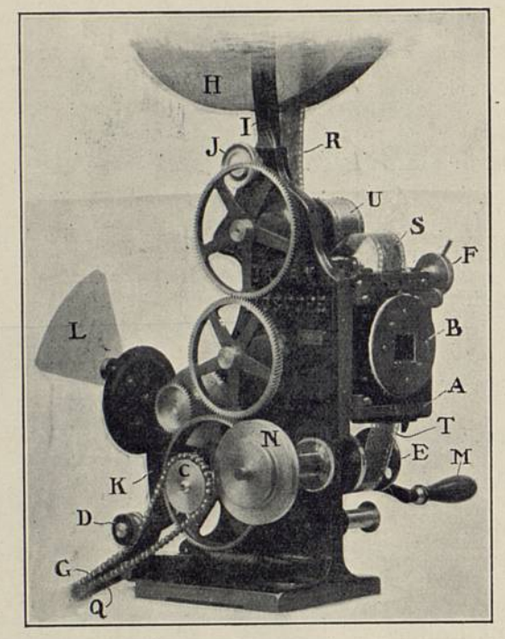


Figure 2.

A—Raising and Lowering Gate.
B—Asbestos Shield.
C—Winding-up Sprocket Chain Wheel.
D—"Idle" for Winding-up Chain Pulley.
E—Eccentric Dog.
F—Masking Pinions.
G—Winding-up Chain.
H—Top Film Spool.
I—Top Arm.
J—Top Arm Grip Nut,
K—Cut-off Shutter.
L—Anti-Flicker Shutter.
M—Turning Handle.
N—Motor Driving Wheel.
Q—Bottom Arm.
R, S, T—Film in Position.
U—Top Sprocket.

The New Urban "P.P." (Panic Proof) Projector Outfit.

Illustrated on page 20. Described on pages 20—24.

THE COMPLETE OUTFIT INCLUDES:

URBAN BIOSCOPE, MODEL "K," fitted with

Aluminium Fireproof Spool Boxes (Top and Bottom).

Automatic Take-up.

Spool Tension Clutch.

URBAN-JOY FIREPROOF GATE.

Harris Patent Safety Shutter.

Special Urban Objective (any focus) and brass mount with rack and pinion adjustment.

Aluminium Bioscope and Lantern Bases.

Russian Iron Lantern, special size. Dome top, with brass double stage front and cone fitted for both 4in. and 4½in. condensers.

Double Convex Meniscus Condenser in ventilating cells.

Urban Arc Lamp for exceptionally heavy current, up to 100 amperes direct, or 120 amperes alternating.

Side Brass Extension Flange for attaching lantern lens to mechanism.

Lantern Objective, fitted with double combination achromatic lenses, rack, pinion and flasher, any focus desired, from 8ins. to 16ins.

All-Metal Double Slide Carrier.

Urban Curtain Light Cut-off.

Two Adjustable Rheostats (each 50 amperes), aluminium frames, Kruppen wire coils, for alternating and direct currects, with fuse blocks and adjusting levers

Twenty-five feet of Flexible Covered Cable.

Twenty-five Pairs of Special Carbons.

Rapid Film Winder (nickelled).

Three Spun Brass Reels.

Bottle of Film Cement, bottle of Refined Oil and Zylonite Oil Can.

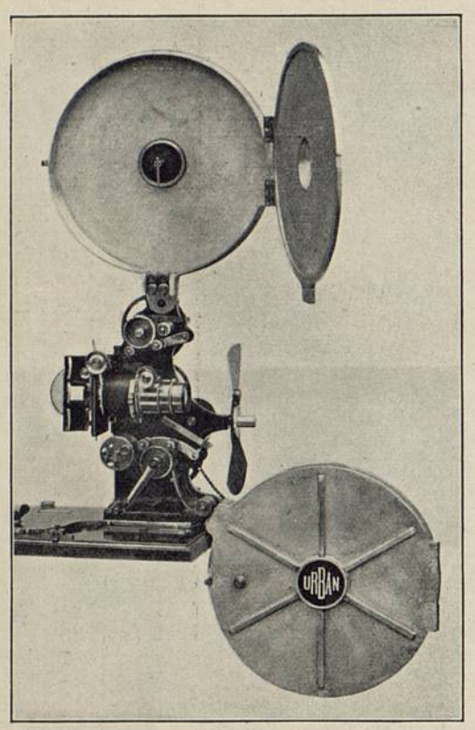
Adjustable Iron Stand with Runners, adaptable for use with Bioscope and Lantern.

Small piece of film after three intentional firings in the Urban-Joy Gate.

Price of the New "P.P." Projector Outfit, as above, £50.

Urban Bioscope, Latest Model, "K."

For Description, see pages 20—24.



MECHANISM

FITTED WITH THE

Urban-Joy Patent Fireproof Gate,

Take-up Chain,

Chain Tension Clutch,

ONE PAIR (top and bottom)

Aluminum Fireproof Boxes,

complying with the L.C.C. Regulations,

ONE LENS (any focus) and MOUNT.

Price, complete = = = £26.

CODE WORD ... ... "BIOSAFE."

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 and are in Daily Use at hundreds of other Theatres and Halls the world over.

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

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

Automatic Safety Appliances:

CAN BE FITTED TO MOST STANDARD PROJECTORS. . .

THE URBAN-JOY SAFETY DEVICE

FOR THE PREVENTION OF FILM FIRING.

Alarm Impossible! Safety Assured! No Risk! No Fire! No Danger!

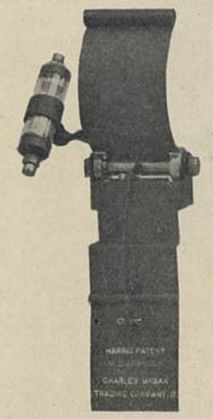
The illustration shows the effect of explosion subsequent to exposure of film to the heat of an arc lamp of 30 amperes for the space of one minute to each picture. It will be noticed that the picture only is destroyed, the perforations remaining intact, so that the display is not interfered with, and the performance is not delayed. No member of the audience is any the wiser, or any the worse. *See page* 21.

PRICE, including Fitting ... ... £3 15s.

"URBAN" ALUMINIUM FIRE-PROOF SPOOL BOXES.

SAFE—SIMPLE—EFFECTIVE—RIGID. No Scratching or Buckling of Film.

Carefully constructed to meet every County Council requirement. Should the film fire from any cause whatever, it is only possible for about 18 inches not enclosed in the box to be burned.



Harris Safety Shutter. Closed. For motor-driven Projectors.

As fixed on Model "K" Projector, page 26.

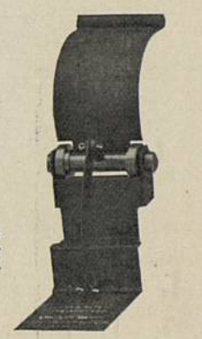
PRICE, per pair ... £5 10s.

THE HARRIS SAFETY SHUTTER.

Lends additional safety by automatically shutting off the light should the film break below the gate; also by stopping the electric motor. Easily affixed to either hand or motor driven projectors. *See pages* 21 *and* 22.

PRICE, for use with hand-driven machine ... 21s.

,, for use with motor-driven projector ... 25s.



Harris Safety Shutter Open. For hand-driven Projector.

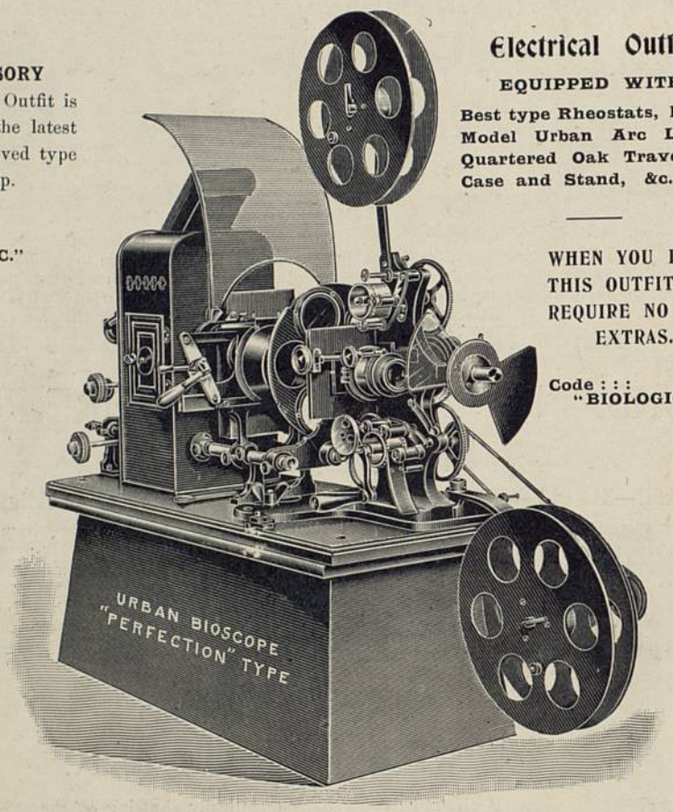
The URBAN "PERFECTION" OUTFIT.

Especially constructed for the Projection of every class of Picture in any Climate.

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

Code Word,
"BIOLOGIC."

Price,
COMPLETE,
£50.



Electrical Outfit

EQUIPPED WITH

Best type Rheostats, latest Model Urban Arc Lamp, Quartered Oak Travelling Case and Stand, &c., &c.

WHEN YOU BUY . THIS OUTFIT YOU REQUIRE NO . . EXTRAS.

Code : : : "BIOLOGIC."

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.

Special Urban Cylindrical Lens (any focus).

Rack Mount to fit all Lenses.

O.G. Flange for Lantern Lens.

Lantern Lens with Rack Adjustment (any focus) and Flasher.

Automatic Film Re-winding Gear and Steel Coil Belt.

Three 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 amperes) either direct or alternating current.

Aluminium 50-ampere Rheostat (adjustable 20 to 50 amperes).

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.

"Pill Box" Type Condenser.

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.

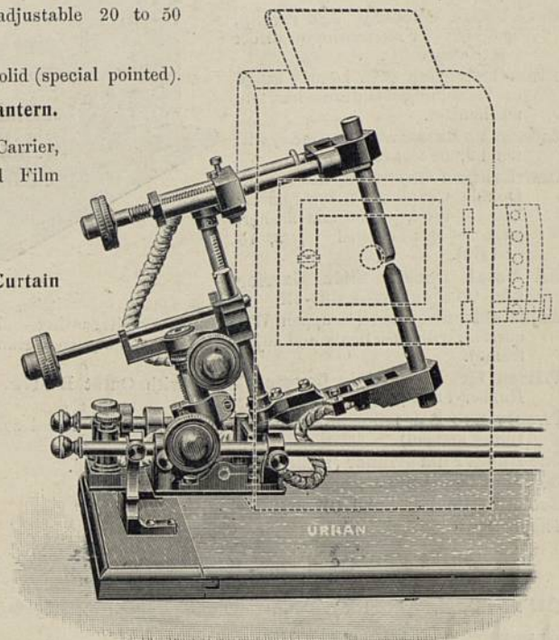
Metal Grill or Film Fender.

Rapid Film Winder (separately mounted).

Bottle Film Cement.

Best Refined Oil and Oil Can.

25 feet Flexible Covered Cable.



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

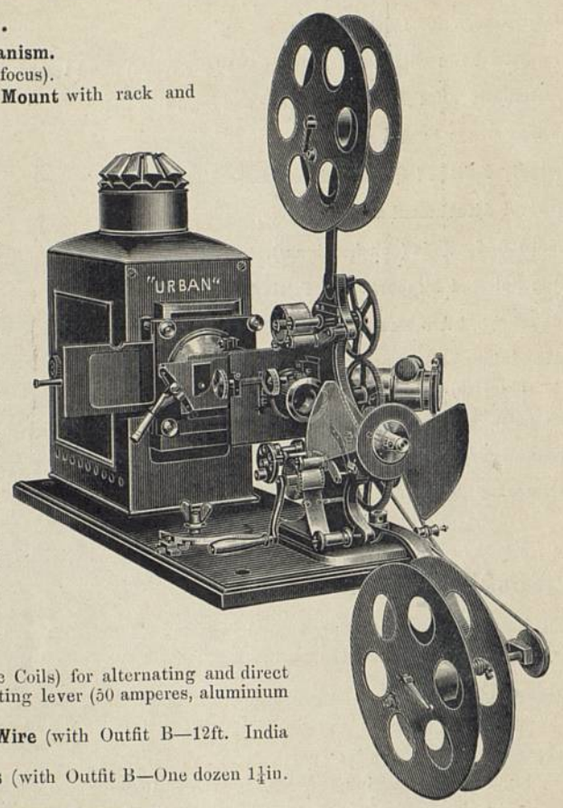
Combination Travelling Case and Exhibition Stand fitted with detachable supports, tilting top, drawer, etc. **Made throughout of quartered Oak**, very strong and durable, bound with iron corners and struts, and equipped with iron handles, double locks and keys, etc. **Will outlast any five ordinary cases.**

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

The Urban Bioscope Outfits.

A combined Bioscope and Optical Lantern Projector.

The OUTFIT consists of . .



Urban Bioscope, Model "H" Mechanism.
One Special Urban Objective (any focus).
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 4in. and 4¼in. condensers.
One 4in. Double Convex and Meniscus Condenser in ventilating brass cell.
One 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 Take-up Gear, will wind 2,000 feet of film.
One Lantern Objective, fitted with Double Combination Achromatic Lenses, rack, pinion and flasher, either focus desired (8, 9, 10 or 12in).
All Metal Double Slide Carrier and Opaque Light Cut-off.
Adjustable Rheostat (Kruppen 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—12ft. India Rubber Tubing instead).
Twenty-five Pairs Special Carbons (with Outfit B—One dozen 1¼in. Limes instead).
One Rapid Film Winder (nickelled), separately mounted.
Bottle of Best Film Cement.
Bottle of Best Refined Oil and Xylonite Oil Can.
Three Spun Brass Reels

NOTE.—Outfit B is equipped with the best GWYER JET (2,000 candle power), the most powerful jet for Kinematograph projections on the market.

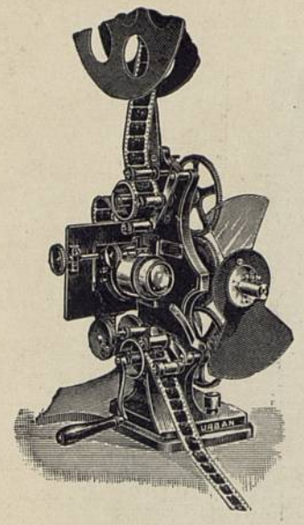
OUTFIT A (Electric) ... **Code Word "BIODOTOS."** ... **Price £37 10s.**

OUTFIT B (Gas) With Bye-pass, Gwyer Jet and Special 1¼in. Limes and Rubber Tubing instead of Electrical Equipment. **Code Word "BIOGENY." Price £35**

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. **Price £3 10s.**

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 - £18 10s.

(With 1 Lens (any focus) and Mount.)

Code Word—"BIODOT."

NOTE.—This is the same type mechanism as used by the PALACE THEATRE, LONDON, and by the principal Theatres and Halls IN THE PROVINCES, COLONIES, and CONTINENTAL EUROPE, including TWENTY MOSS-STOLL EMPIRE THEATRES, WESTS' "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).

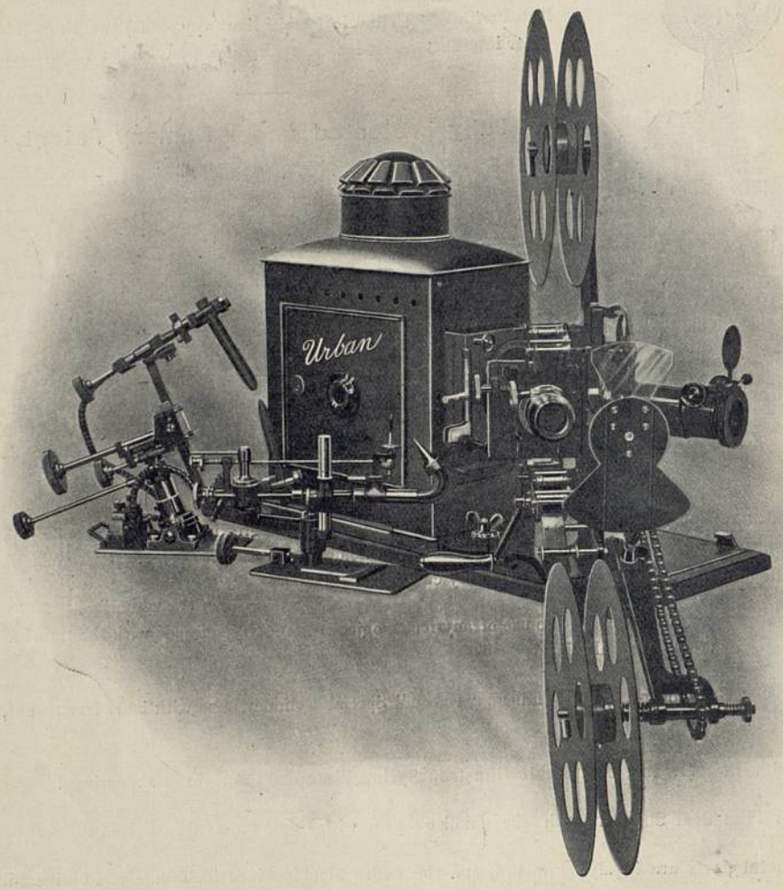
All metal parts are highly burnished, and the entire Machine is of handsome and business-like appearance.

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.

The Cheapest Bioscope.



Steady, Substantial, Beautifully Finished and of Superior Workmanship.

. . THIS OUTFIT INCLUDES . .

Projector, 2 Lenses, Lantern and Condenser, Arc Lamp (40 amperes)—or Mechanical Tray and No. 2 Gwyer Jet instead of Arc Lamp—Take-up, Swivel Baseboard and 2 Reels.

PRICE (complete) = = £21 nett.

CASH WITH ORDER.

Case and Packing extra. **Delivery at Urbanora House.**

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 kinematograph. 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...	1000 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, which 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 190 amperes for throwing a light to 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 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 the current be alternating, 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.

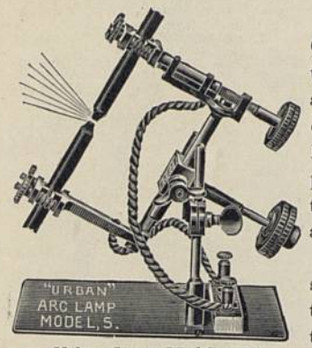
The most convenient arc lamp is the hand feed one, as it obviates any complication or liability to get out of order. The construction is so simple that the working suggests itself, and the regulating is performed by a mere turn of the screw at intervals, according to the distance of the carbons from 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 oxy-hydrogen. Oxygen mixed with hydrogen will, next to the electric, yield the most powerful light.

The "Urban" Electric Arc Lamp.

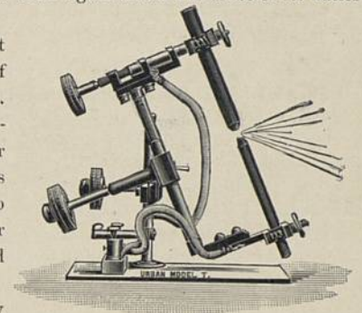
"SIMPLICITY, EFFICIENCY, PERFECTION."



Urban Lamp Model "S."

The Electrical Arc Lamp for Optical Projection, invented by Mr. C. Urban, has for many years withstood the strongest tests, and established a reputation for itself strictly through its merits. It is acknowledged by lanternists and electricians alike to be the most efficient and best hand-fed Arc Lamp that has yet been produced. Possibly it owes this distinction to one fact: that it is the outcome of practical experience of a bioscopist and electrician. It was designed, therefore, purely from the Kinematographist's point of view, and is a thoroughly practical instrument in every way.

The Lamp is of the "hand-feed" variety, for experience has shown that this is by far the more preferable for Lantern or Kinematograph work. The attention required by a good hand regulator is so trifling as to add practically nothing to the operator's duties; certainly not so much as a limelight exacts. An automatic regulator, on the other hand, is very 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.



Urban Lamp Model "T."

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 characteristics 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 at 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 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 renders 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.

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.

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

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

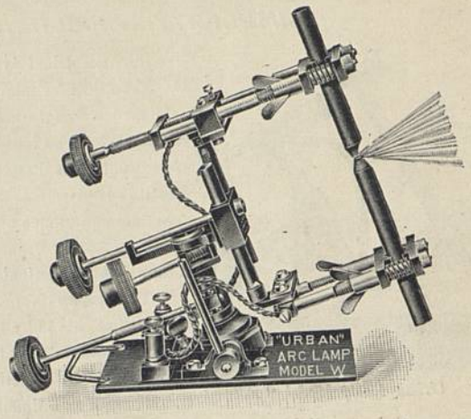
A rapid movement for separating the Carbon holder when retrimming, etc.

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

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

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

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



Model "W"—Angle for Direct Current.

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 kinematographs and stage lighting. Will fit any ordinary optical lantern ... ... **Price £2 8s.**

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.**

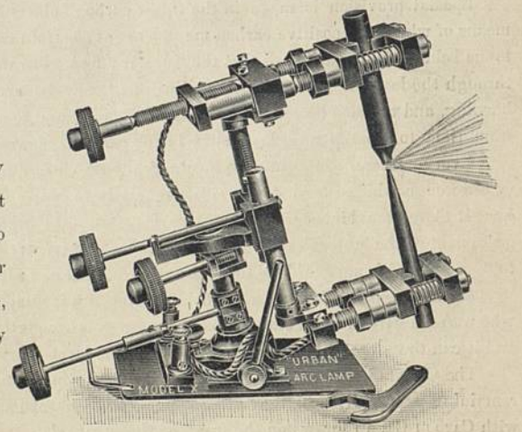
URBAN ARC LAMP, MODEL "A." This type embodies all necessary adjustments, and is the most practical lamp for lanternists and kinematographers using direct current to 30 amperes; alternating current to 50 amperes. Will fit any ordinary optical lantern ... ... **Price £3 7s.**

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 Palace 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."

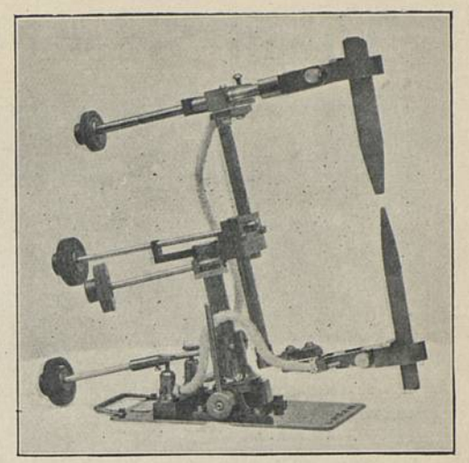
Urban Arc Lamp.

Models "W" and "W.W."

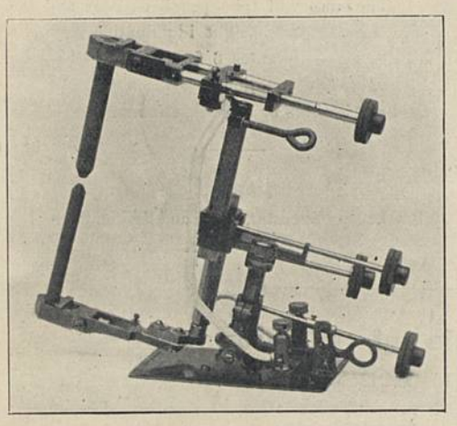
The popular Arc Lamp for kinematographers and for all projecting or lighting purposes where heavy currents are utilized. Tested for use with direct current to 50 amperes and 70 amperes alternating current.

Price, Model "W," £4.

Price, Model "W.W." £4 10s.



Model "W.W."—Urban Arc Lamp.



Urban Model "C.C."

Urban Arc Lamp.

Model "C.C."

The most adaptable Lamp for all electric current to 100 amperes. This lamp is of heavier build than Model "W.W." but not so heavy as Model "X."

Fitted with scissors pattern carbon holders, to take two 6-inch carbons, triangular racks, adjustable top carbon holder and new lever at base.

Price - - - £5 10s.

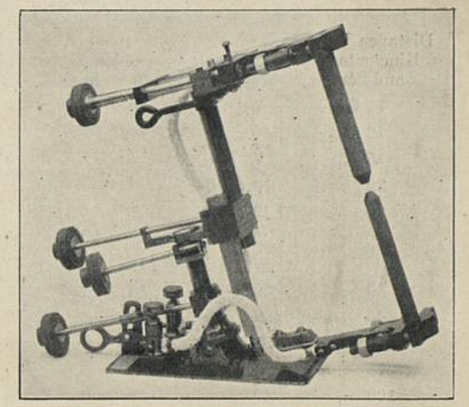
Urban Arc Lamp.

Model "K."

Fitted with adjustable carbon holder and compression springs to prevent carbons from slipping; new triangular rack supports and attachment for tilting the arc lamp. Will take two 6-inch carbons.

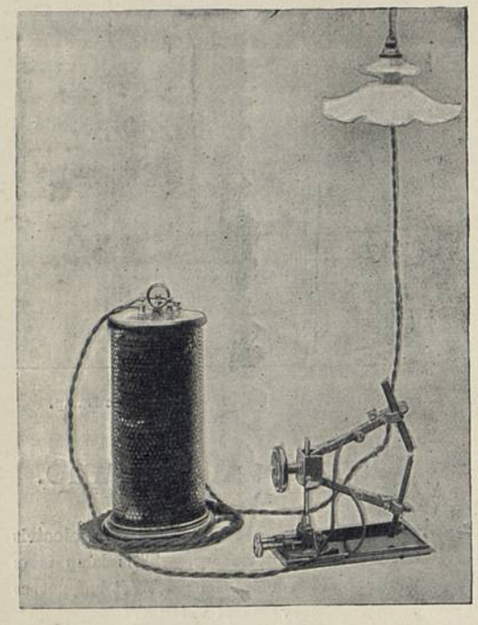
Amperage 100 direct; 120 alternating.

Price - - - £6.



Urban Model "K."

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 ordinarg 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 15s.

A Ready Reference Table of Distances for Kinematograph Lenses.

FOCUS OF LENS.

Distance between Kinematograph and Screen.	Diameter of Picture: 2in.		2½in.		3in.		4in.		5in.		6in.	
	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

Kinematograph 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 minimun 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 kinematograph 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.

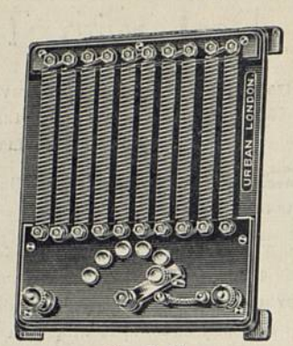
New Machine damaged in transit. Do not tinker. Return it at once for inspection and re-adjustment.
Stiff mechanism. Well oil the running parts with special lubricating oil and so prevent overheating.
A discoloured disc. Clean your condenser lenses with soft tissue paper or chamois leather.
"Ghost." Adjust 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. Equalize 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 shunken 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.
Ragged edged Disc. See if the mask be truly cut. Remove dust accumulations from the mask.

Urban Adjustable Arc-Lamp Resistances.

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

THE CIRCULAR SWITCH PATTERN.

Iron and Aluminium Frames.



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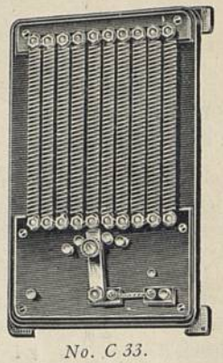


No. C 33.

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 rom place to place, and consequently encounters electric supply systems of various voltages, the resistance should be variable, in order to reduce the voltage and adjust it to exactly the 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 kinematograph 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 into 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) Aluminium Frame **£3 5 0**
" " " **D 34** (20 to 50 amperes) Aluminium Frame **3 10 0**

FOR HIGH VOLTAGES AND HEAVY CURRENTS.

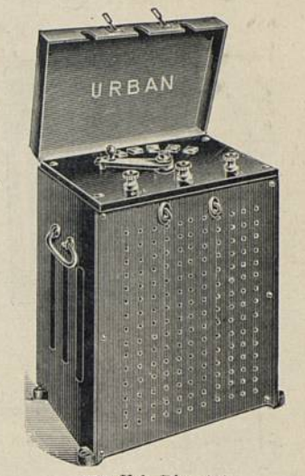
The most satisfactory results for **High Voltages** will be obtained by using two or three of **Type C 33** or **D 34 in series.** For **Heavy Currents** use them in **parallel.**

250 VOLT RHEOSTAT.

A recent type of an efficient Rheostat designed especially for the kinematograph 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 Kruppine 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 - - - £10 0 0

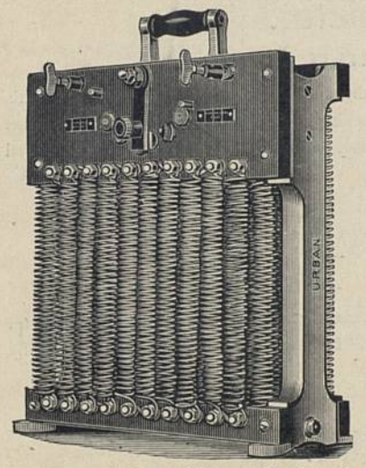
Special Resistances to order to any requirements. Frames re-wired with the above special wire at short notice.



250 Volt Rheostat.

LARGE PORTABLE DOUBLE FRAME RESISTANCE

FITTED WITH SIX-POINT REGULATOR.



For regulating the current for Arc Lamps in Kinematograph and other Lanterns, producing Stage Effects, Dynamo Regulating and Testing.

Fitted with 40 open spirals of high resistance alloy joined in parallels of two coils, the front rows connected with the six points to afford the necessary regulation. The back row of coils being permanently in circuit are not controlled by the switch.

The coils are stretched between strips of plain slate carried by an aluminium frame.

The resistance fitted with carrying handle as in illustration is easily portable.

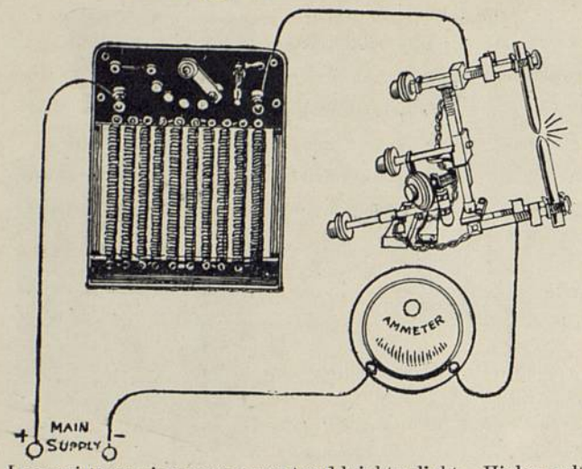
In order to reduce weight as much as possible, this resistance is designed to work at a high degree of temperature, but to encourage free dissipation of heat the frame is not enclosed.

The weight of this special Portable Resistance is 38lbs.

Amperage, 40 on 110 or 250 volts, direct or alternating current. Where greater carrying capacity is required—say an amperage of 60—a rheostat of lower resistance can be supplied.

Code "Coil." **PRICE - - £7 15s.**

Diagram of Connections.



The diagram illustrates the connection of the Arc Lamp, Resistance, etc., with the main supply of electricity in the Hall. The *positive* wire or *lead* is connected to the upper carbon of the lamp, and the negative to the lower. A Resistance must be inserted in the circuit to check the flow of the current, which would otherwise be too great. One of the leads to the lamp is therefore broken and the two loose ends inserted in the two terminals of the Resistance. An ammeter should be similarly inserted to measure the quantity of current passing through the lamp. Less resistance gives more current and brighter light. Higher voltages (of the supply main) require more resistance. The positive carbon burns away at twice the rate of the negative, and therefore should be considerably thicker, and it should be *cored* to keep the light steady. In the case of ALTERNATING current, both leads are alike and may be connected up indiscriminately, and the carbons should be of equal size and both cored.

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 50 Amperes	...	...	**£2 0 0**
20 to 100 ,,	...	...	**2 12 0**

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.

Finest Grade Electric Light Carbons.

For "Urban" or other Projection Arc Lamps.

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 are customarily employed in modern kinematograph 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 five 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.

FOR CONTINUOUS CURRENT—

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

10 to 15 Ampères	(10 m/m. solid and 13 m/m. cored) per 25 pairs	... ...	**3s. 3d.**
15 to 25 ,,	(12 ,, ,, 16 ,, ,,) ,, ,,	... ...	**4s. 0d.**
25 to 35 ,,	(13 ,, ,, 18 ,, ,,) ,, ,,	... ...	**4s. 9d.**
35 to 45 ,,	(14 ,, ,, 20 ,, ,,) ,, ,,	... ...	**6s. 0d.**
40 to 50 ,,	(16 m/m. solid and 22 m/m. cored) per 25 pairs	... ...	**7s. 0d.**
50 to 70 ,,	(18 ,, ,, 25 ,, ,,) ,, ,,	... ...	**10s. 0d.**

FOR ALTERNATING CURRENT—

6-inch lengths, with one end pointed.

20 to 30 Ampères	(13 m/m. cored) per 25 pairs	**3s. 6d.**
30 to 45 ,,	(16 ,, ,,) ,, ,, ...	**5s. 0d.**
35 to 50 ,,	(18 ,, ,,) ,, ,, ...	**6s. 0d.**
60 to 80 ,,	(20 ,, ,,) ,, ,, ...	**7s. 6d.**
60 to 74 ,,	(22 m/m. cored) per 25 pairs	**9s. 0d.**
80 to 100 ,,	(25 ,, ,,) ,, ,, ...	**12s. 0d.**

IMPORTANT. There are many qualities of Carbons.

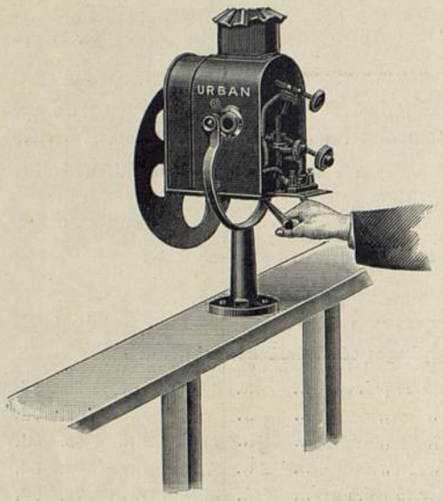
Do not confuse our prices with those quoted by many of our Competitors for an inferior grade.

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

The above quotations are **based** on the **very finest quality carbons**, of the famous Siemens Manufacture.

Special Quotations for Quantities.

Urban Stage Lantern.



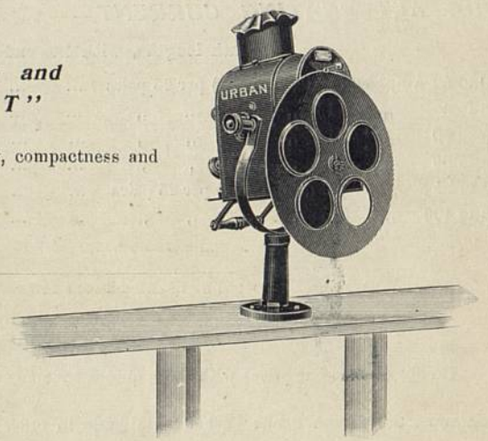
This Lantern is constructed to meet all requirements of properly lighting the stage from the wings.

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 is 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 tints 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.

Operators' Enclosures.

Fireproof and close-jointed, conforming to all legislative requirements

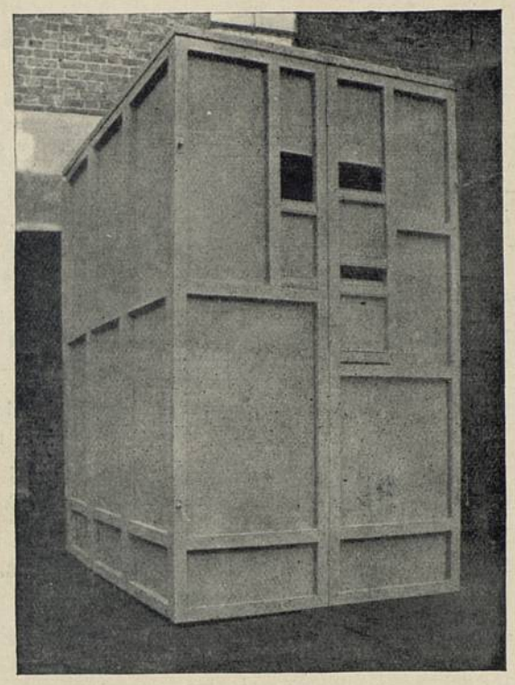
Portable—can be erected and dismantled in a few minutes.

Wooden framed, morticed and steel-lined throughout; all joints tongued and grooved. All bolts fitted with wing nuts.

Made in five pieces.

Sides fold into three sections of 2-feet.

Front, back and top into two sections of 2-feet.



Automatic sliding doors which fall by their own weight over the apertures, and can be controlled both from within and without.

MADE IN THREE SIZES . . . .

4-feet × 4-feet × 7-feet	Price	£8 0 0
* 5-feet × 4-feet × 7-feet	„	8 10 0
6-feet × 4-feet × 7-feet	„	9 5 0

* This size folds into three sections of 2-feet 6-inches and two sections of 2-feet.

Free on Rail. **Ready for immediate delivery.** **Other sizes made to order.**

Practical Instruction in the Management of Limelight 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 certainity.

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 $\frac{1}{8}$ inch will be sufficient, gradually increasing the distance to $\frac{3}{8}$ or $\frac{1}{2}$ 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 unsatistactory, 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.

"GWYER" LIMELIGHT JET.

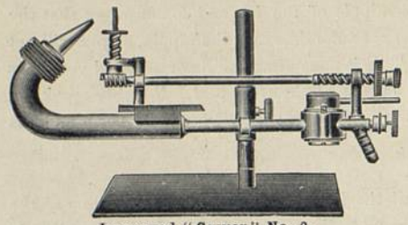
We claim for the "Gwyer" Jet the following advantages:—

1—A light of great brilliancy and whiteness, or 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.



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

Approximately giving a light of 2,000 candle power, this Jet is designed for Kinematograph 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 required, so that should the Jet become hot, it will not part.

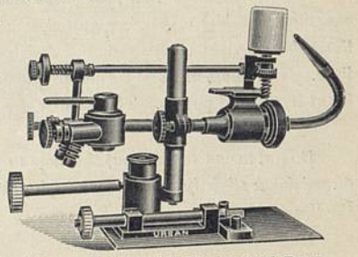
A cut-off tap is provided, which reduces the gases in succession, leaving only a small hydrogen bye-pass flame.

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.

The Jet is sent out fitted with a $\frac{1}{16}$in. bore nipple.

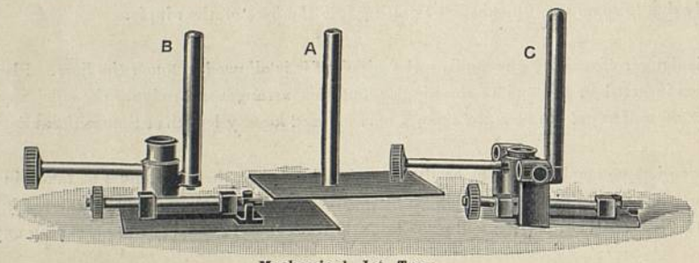
A lime $1\frac{3}{4}$in diameter is the best size to use to obtain a powerful light.



"Gwyer" Jet with Mechanical Tray.

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.

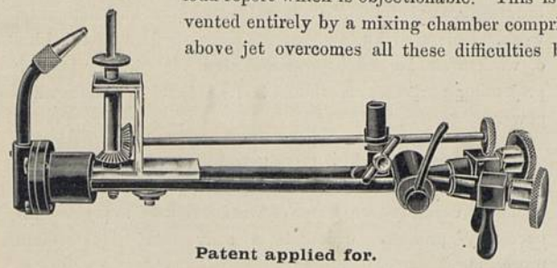
The pillar to which the lamp or jet is clamped has both vertical and horizontal movement by means of the thumbscrews. This tray offers great advantages over the older style, and with its aid the necessary mechanical adjustments of the light are effected quietly, accurately and with a minimum of trouble.

A ... **ORDINARY TRAY** with heavy pillar (fit any lantern) ... ... **Price 4s. 0d**
B ... **MECHANICAL TRAY** (fit any lantern) ... ... **,, £1**

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

Kamm's Patent Mixing Jet.

When Limelight Jets are used with carburetters or saturators, there is a possibility of a certain amount of oxygen passing through with the hydrogen, especially when the carburetter 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 comprised of perforated discs or gauze. The above jet overcomes all these difficulties by the insertion of a valve between 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.



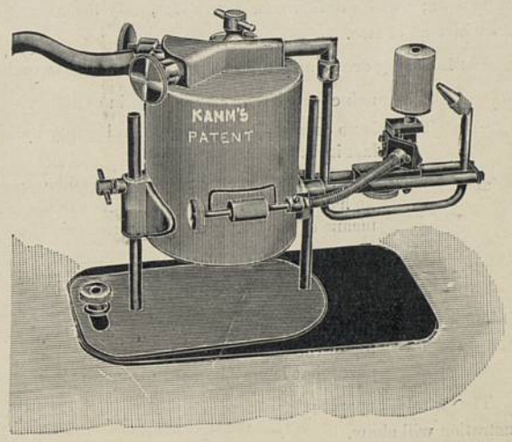
Patent applied for.

The jet is made of the very best material and the greatest care is taken in its manufacture. It is provided with a byepass, 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 loose or corrode, all parts being fitted with ground metal surfaces. It is hard so dered throughout, and will wear a lifetime with ordinary wear and. The nozzle is made of a special metal which stands a high degree of heat, and will not cinder or char.

Price, complete - - £2 10s. 0d. nett.

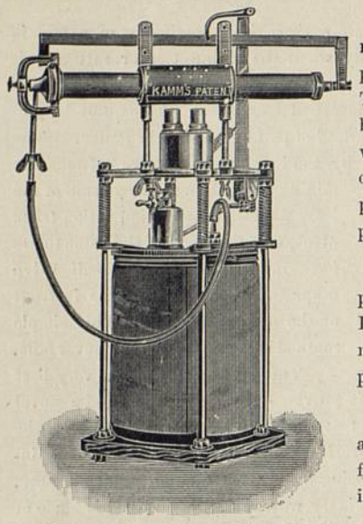
Carburetter Jet. (PATENT)

This Carburetter Jet produces the hydrocarbon gas required for limelight from gasoline, petrol or ether. It gives a high-power light, and can be used with either an oxygen generator or a cylinder of compressed oxygen, or with oxygen under pressure from any source. Very economical in use, one gallon of gasoline being sufficient for about forty hours light. *Absolutely safe*. Back-fire is impossible, owing to a patent device which prevents the flame from travelling back down the nozzle of the jet. With this Carburetter Jet only one tube is required, namely, that which conveys the oxygen gas, and if this is pulled off by accident, although the oxygen will escape, there is absolutely no danger, as oxygen will not burn by itself.



Price
£3 10s. nett.

Kamm's Oxygen Generator and Carburetter



Have been invented with the object of providing **kinematographers** 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 kinematograph 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 composed 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 kinematograph 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, which is accomplished by means of a special purifier attached to the top of the container, containing soda lime powder, which delivers the gas so absolutely pure, that 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 carburetter** 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 Carburetter 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 Carburetter and there, by pressure, causes the ether to give off hydrogen. From the Carburetter both gases are conducted to the jet by means of rubber tubes.

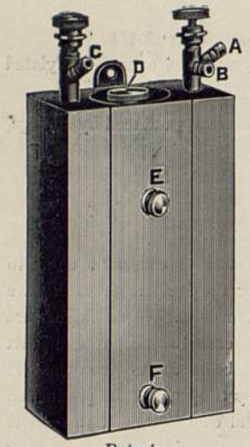
Firing back and other inconveniences experienced in so-called saturators are entirely obviated, as there are valves to prevent this. With ordinary precaution it is as safe as any ordinary household appliance, such as a cooking stove or paraffin lamp.

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

STRICTLY NETT PRICES.

THE KAMM GENERATOR	- - - - -	£11	0 0
THE KAMM CARBURETTER	- - - - -	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.



Patent.

The Pendant Saturator.

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 7in. by 4in. Weight, packed, 7lbs.

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

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:—

1in. diameter, packed 12 in a tin. Price per tin ... ... **2s. 3d.**

1¼in. „ „ 6 „ „ „ ... ... **2s. 3d.**

Limes can be sent by Parcel Post to Operators abroad.

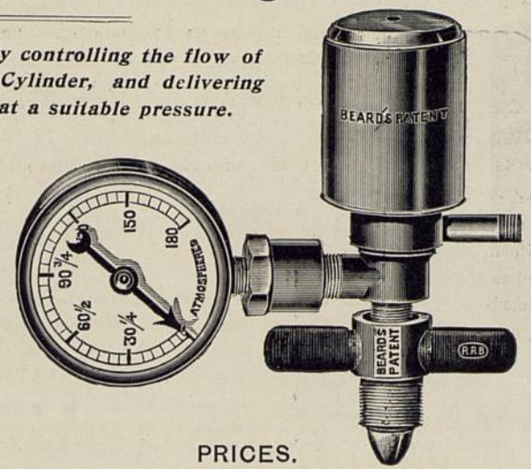
Best Red India Rubber Tubing.

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

Brass Junctions, for joining India Rubber Tubing, **4d.** each.

Beard's Patent Regulators & 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**
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**

Pressure gauge only ... ... „ **1 10 0**
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 5 0**
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**

Fine Adjustment Valve ... ... „ **0 7 0**

„ „ „ for gauge ... ... „ **0 8 6**

GAS SUNDRIES AND ACCESSORIES.

Folding Lever Gas Key ... ... Price **1s. 6d.**

Tee Key for Gas Cylinders ... ... „ **1s. 3d.**

Combination Gas Cylinder Key ... ... „ **2s. 6d.**

Nipples for Lime Jets ... ... „ **2s. 0d.**

Complete Lime Pins and Screw ... ... „ **2s. 3d.**

Table and Lime pin only ... ... „ **1s. 3d.**

Steel Lime Tongs ... ... „ **2s. 0d.**

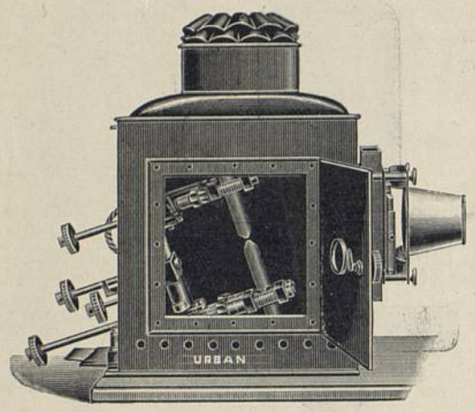
Brass Lime Tongs and Borer ... ... „ **1s. 6d.**

Safety Stout Iron Retort with screw top, arm and safety valve, for making Oxygen Gas ... ... „ **9s. 0d.**

Lead Generators for making Hydrogen Gas ... ... „ **15s. 0d.**

Brass Purifier Tube (will fit any bottle) ... ... „ **3s. 6d.**

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.

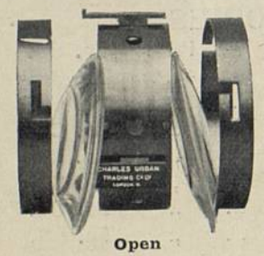
Free ventilation of Air. No charring or warping of wood casing.

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 15s.

Heavy Condensers.

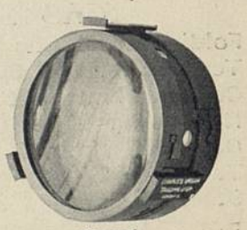
Especially constructed to resist sudden expansion and contraction, thus rendering almost impossible the breakage of lenses from these causes.



Open

The condenser is made in three parts and is fitted with bayonet catches to facilitate the removal of lenses for cleaning purposes. The cell will accommodate 100 or 101 m/m lenses, and is held in position in the lantern tube by a bayonet catch.

Adjustable, and easily fitted to bioscope lanterns of any type. The lugs are attached to the cell by means of screws which allow space for packing if the tube be too large.

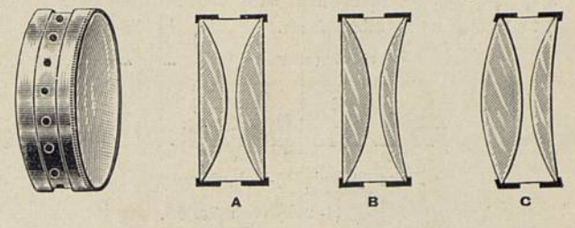


Closed

PRICE - - - £1 1s.

Condensers ("Pill-Box" Cells).

The advantage of the "Pill-Box" Condenser Cell, over all other cells of the screw cap varicty, 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 the operator is hurried. 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 Condenser, "C" Combination	**Price,** complete,			**10s. 0d.**
4½ „ „ „ „ „	„	„		**11s. 6d.**
4 „ „ **Bi-Convex Lens** (Front Glass)	„	„		**3s. 0d.**
4½ „ „ „ „ „	„	„		**4s. 6d.**
4 „ „ **Meniscus** „ (Back Glass)	„	„		**3s. 3d.**
4½ „ „ „ „ „	„	„		**5s. 0d.**
4 „ **Clip Brass Condenser**	„	„		**12s. 0d.**
Special Heavy Condenser, complete	„	„		**21s. 0d.**

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

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 1½-inch Focus, Aperture f:2 ... **£1 10s.**

Price of Lens mounted in brass tubes:

2-inch Focus, Aperture f.2 ...	**£1 1s.**			
2½ „ „ „ f.3 ...	„			
3 „ „ „ f.3 ...	„			
4 „ „ „ f.3 ...	„			
5 „ „ „ f.3 ...	„			
6 „ „ „ f.3 ...	„			

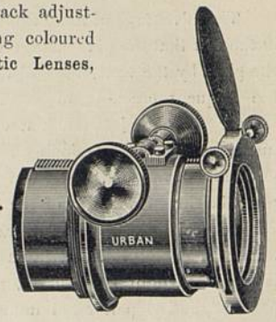
Price of Rack Mount and Adaptor to carry any of the Lenses 8s. 6d.

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. *See page* 38.

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 (1-inch, 1½-inch, 2-inch), each **3s.**

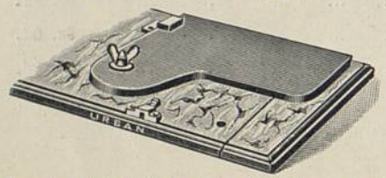
(4-inch) each **3s. 6d.**

O.G. Lens Flange.

For attaching to Bioscope when using Lantern Lens. **Price, 6s. 6d.**

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 burred thumbscrews for instantaneous adjustments of the double movement.

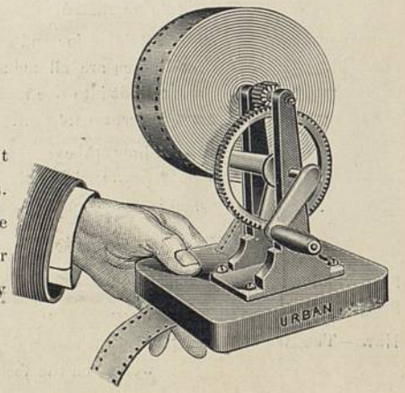


All bolts and Wing Screws are of steel and brass, highly finished. The Base is further supplied with a Russian Iron Adjusting Lantern Tray. Dimensions, 12 inches by 28 inches. (Not sold in sections.)

Price (complete) £2 os. od.

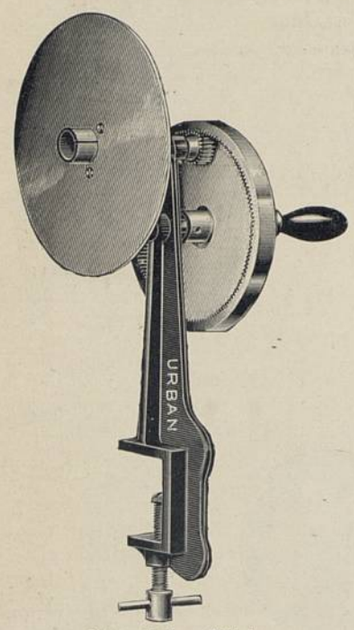
Nickelled Rapid Film Winders.

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.



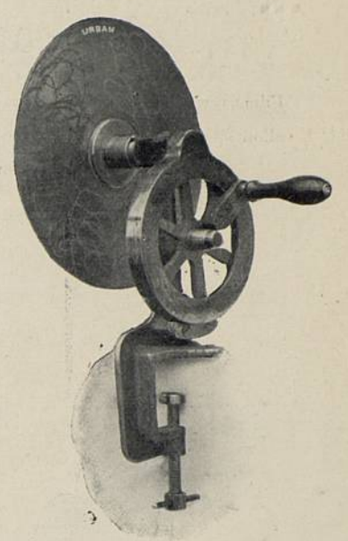
Internal Gear Winder.

Price 17s. 6d.

Will wind . . . .

1,000 feet of Film.

Can be clamped . to any Table or Projecting Stand. .

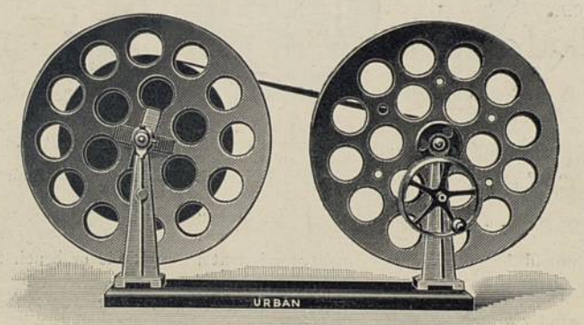


High Gear.

Heavy Winder with Shield Protector.

Price £1 5s.

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** (without Reels) **£2,**

The Urban Combined Film Winder and Re-winder.

Films rewound by a simple contrivance which holds the reel during the process. Detachable plates allow spools to be wound for transit after exhibition. The Gearing is so arranged by means of intern drive, that should the film become detached or overwound, it cannot engage in the teeth.

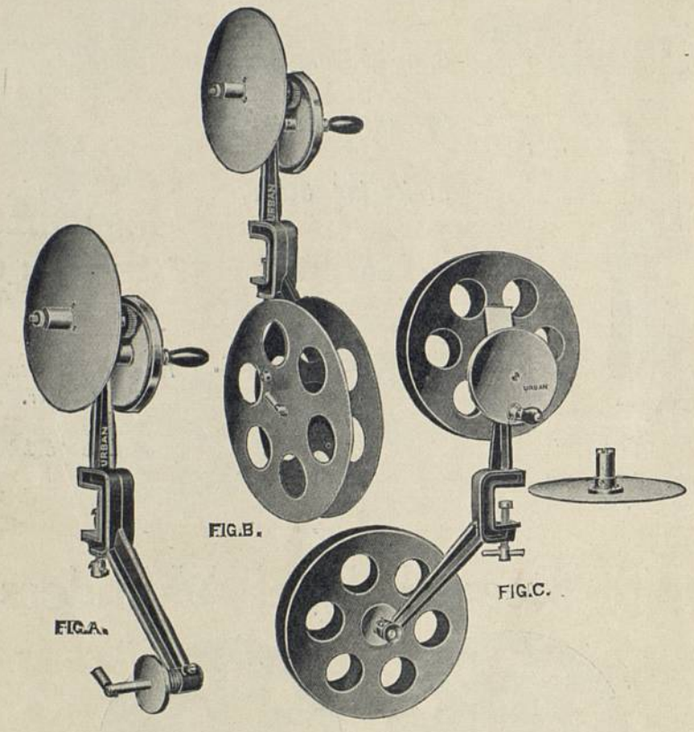


Figure "A" shows the device complete. **"B"** gives the spool in position, that films may be wound off and separated. **"C"** shows the two spools in position for re-winding from one to the other, for purposes of continuous exhibition.

A Thumb-screw is provided as an easy and ready attachment to any table or bench for the purpose of winding.

THE MOST COMPACT WINDING MACHINE IN EXISTENCE.

PRICE - - - - £2.

Adjustable Iron Stands.

Heavily built for rigidity. Chanelled steel legs. Adjustable to any angle by movement of the rear legs only, the stability of those in front securing always a direct line between the lens tube and the operating box aperture.

Cross stays to the front legs effectually prevent any tendency to a side swaying movement during operation.

Made to fold, for convenience of transport.

Price - - £2 10s.

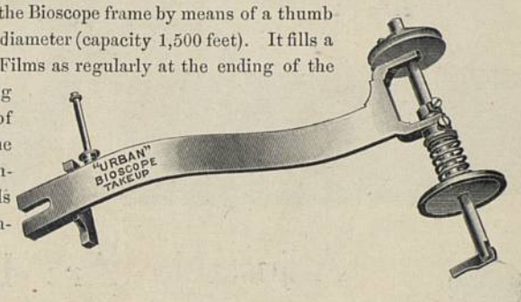
Metal-to-Metal Tension Take-up Clutch

The most serviceable yet introduced. Everlasting wear.

Price .. .. 15s.

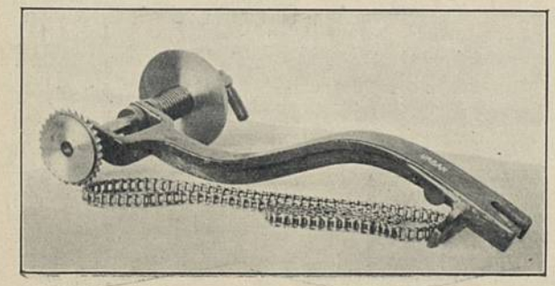
Bioscope Automatic Re-winding Gear.

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 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.



Re-winding Gear.

With two Chain Wheels and Chain.

As illustrated.

Price - £1 15s.

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.

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.

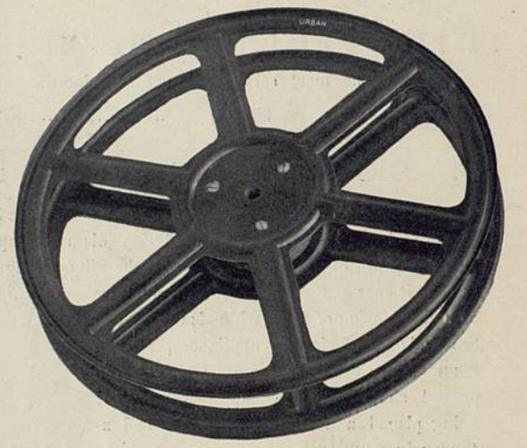
Beautifully made disc spools, perforated for lightness; very strong and durable.

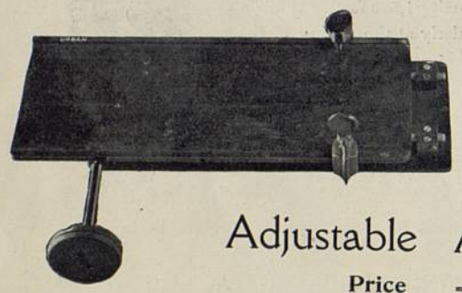
10-inch	...	capacity about 1,000 feet	...	**Price 9s. 6d.**
12-inch	...	,, ,, 1,500 feet	...	**,, 11s. 0d.**
14-inch	...	,, ,, 2,000 feet	...	**,, 19s. 0d.**

Feather-Weight 12-inch Spools.

Blocked out.

Price - 3s. 6d.





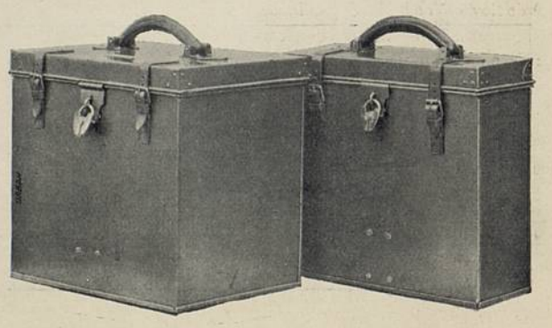
Adjustable Arc Lamp Tray.

Price - - - 24s.

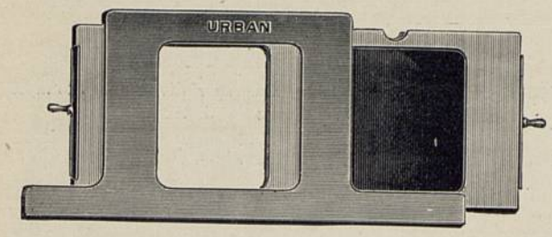
Fireproof Carrying Cases for Film Reels.

Russian iron. Solid leather handles. Fitted with straps and latest padlock.

To carry	2	3	4 spools
Price	**20/-**	**23/-**	**25/-**



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.

Light Pattern Metal Double Slide Carrier. Price 5s.

Urban Curtain Light Cut-off.

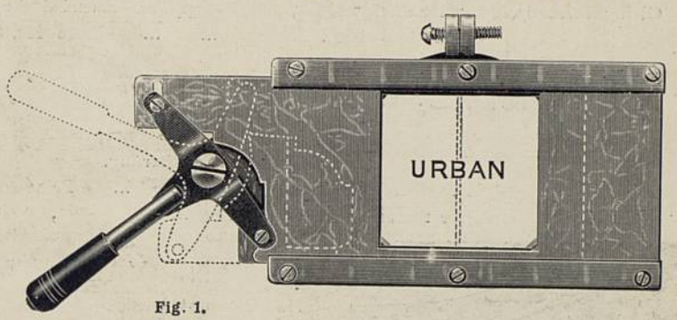


Fig. 1.

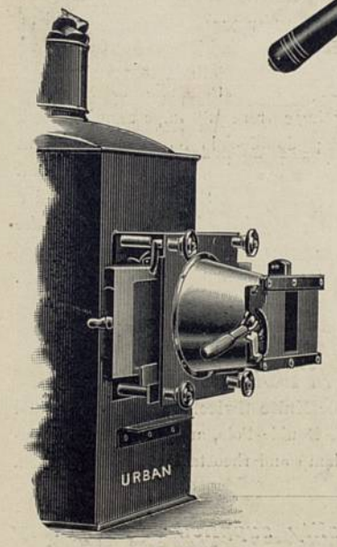


Fig. 2.

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.

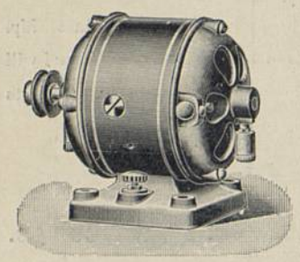
FIG. 1 *shows the device, open aperture; dotted lines show same closed.*

FIG. 2 *shows the device attached to Lantern Cone.*

— —

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

Electric Motors and Appliances.



ELECTRIC MOTOR.

DIRECT CURRENT, semi-enclosed and especially designed to meet all kinematographic requirements for driving purposes.

		110 volts	220 volts
$\frac{1}{16}$-h.p.	**Price**	£3 1 0	£3 5 0
$\frac{1}{8}$-h.p.	„	£3 3 0	£3 15 0
ALTERNATING CURRENT—			
$\frac{1}{16}$-h.p. ... small phase	„	£4 15 0	£5 0 0
$\frac{1}{8}$-h.p. ... „ „	„	£6 5 0	£6 9 0
$\frac{1}{16}$-h.p. ... three phase	„	£3 16 0	£3 18 0
$\frac{1}{8}$-h.p. ... „ „	„	£4 0 0	£4 5 0

Prices for Higher Power Motors on application.

STARTING AND REGULATING RESISTANCES.

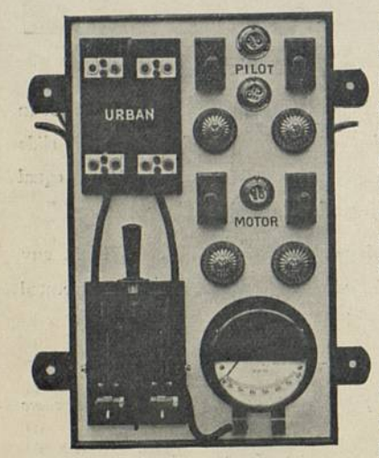
Giving three speeds and an off position, are strongly recommended for use with these motors.

For $\frac{1}{16}$ or $\frac{1}{8}$-h.p. Motor ... ... **Price 12s. 0d.**

NEW MODEL COMMUTATOR TYPE ALTERNATING MOTOR.

Regulated or Self-Starting.

$\frac{1}{10}$-h.p. ... ... 110 volts	**Price**	£5 12 0
Starter for same	„	£1 5 0



URBAN WALL SWITCHBOARD.

Made to meet London County Council and other municipal requirements, and consisting of Ammeter reading to 80 amperes on either direct or alternating current; 80 amperes quick-break double-pole Knife Switch; double-pole 80 amperes cut-out arranged for front connection with mains, arc lamp and rheostat. Provision is also made for connecting two pilot lights and a motor for driving the bioscope by inserting adaptors into the respective holders, and the whole is mounted on an asbestos covered board. This switchboard may be used on 500 volt circuit.

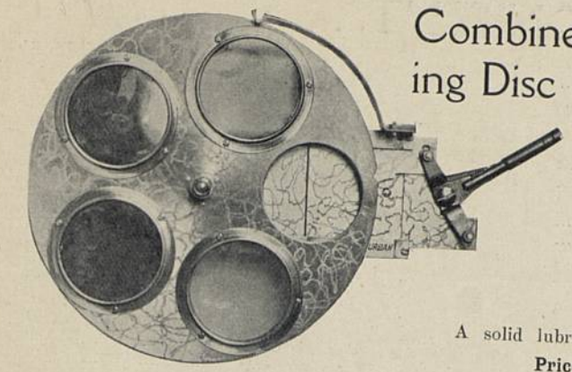
Price, complete ... ... £8.

Oak bases, mounted on marble. Prices on application.

SWITCHES.

Quick-Break, Double-Pole **Knife Switch,** 80 amperes; fitted with 80 ampere **Cut-out,** Double-Pole, arranged for front connection with mains, arc lamp and rheostat. **Price £1 15s.**

Electrical Accessories of the very highest quality supplied to suit every requirement of the Kinematograph Trade.



Combined Revolving Tinting Disc and Light Cut-off.

Brass, polished, figured and lacquered.

Price ... £1 15s.

Bioscope "Graphitine."

A solid lubricant for the tread of wheels.

Price, per stick ... 6d.

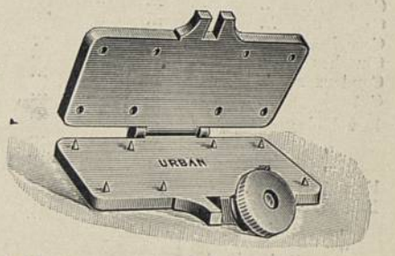
Urban Film Cement.

Price, per bottle, 6d.; Specially prepared. Always ready. In bottles fitted with stopped cork and camel's hair brush. **per dozen bottles, 5s.**

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) ... ... **13s.**



Sundry Supplies and Bioscope Parts.

Set of 6 Bow Steel Film Trap Springs with screws	per set	3 0
Support for Top Reel, complete		12 6
Brass or Steel Cam Roller		2 6
Brass Guide and Sprocket Rollers (flanged)		1 6
Bevel Steel Gear Wheel for Shutter Shaft		6 0
Eccentric Shaft with steel gear wheel		7 0
Bioscope Handles		4 0
Extra Film Traps complete for Urban Bioscope		£3 5 0
Fireproof Gate fitted to Machine		£3 15 0
Extra Shutter (Opaque Blade) with fittings		6 0
Translucent Violet Shutter Blades	per dozen	3 0
O. G. Flange to fit Lantern Lens	each	6 6
Film Take-up with Steel Coil Belt		15 0
Gut or Wire Coil Belts for take-up		2 0
Clutch Take-up Springs with fittings		3 0
Spanner for Model "X" Urban Lamp		1 6
Asbestos Covered Wire Leads for Arc Lamps	per pair	2 0
Aluminium Fireproop Spool Boxes	per pair	£5 10 0
Metal Water or Cooling Troughs	each	12 0

Repairs to Bioscope Projectors, Cameras, Arc Lamps, Lime Jets, and all Accessories at Reasonable Prices, and in the shortest time.

CONTENTS.

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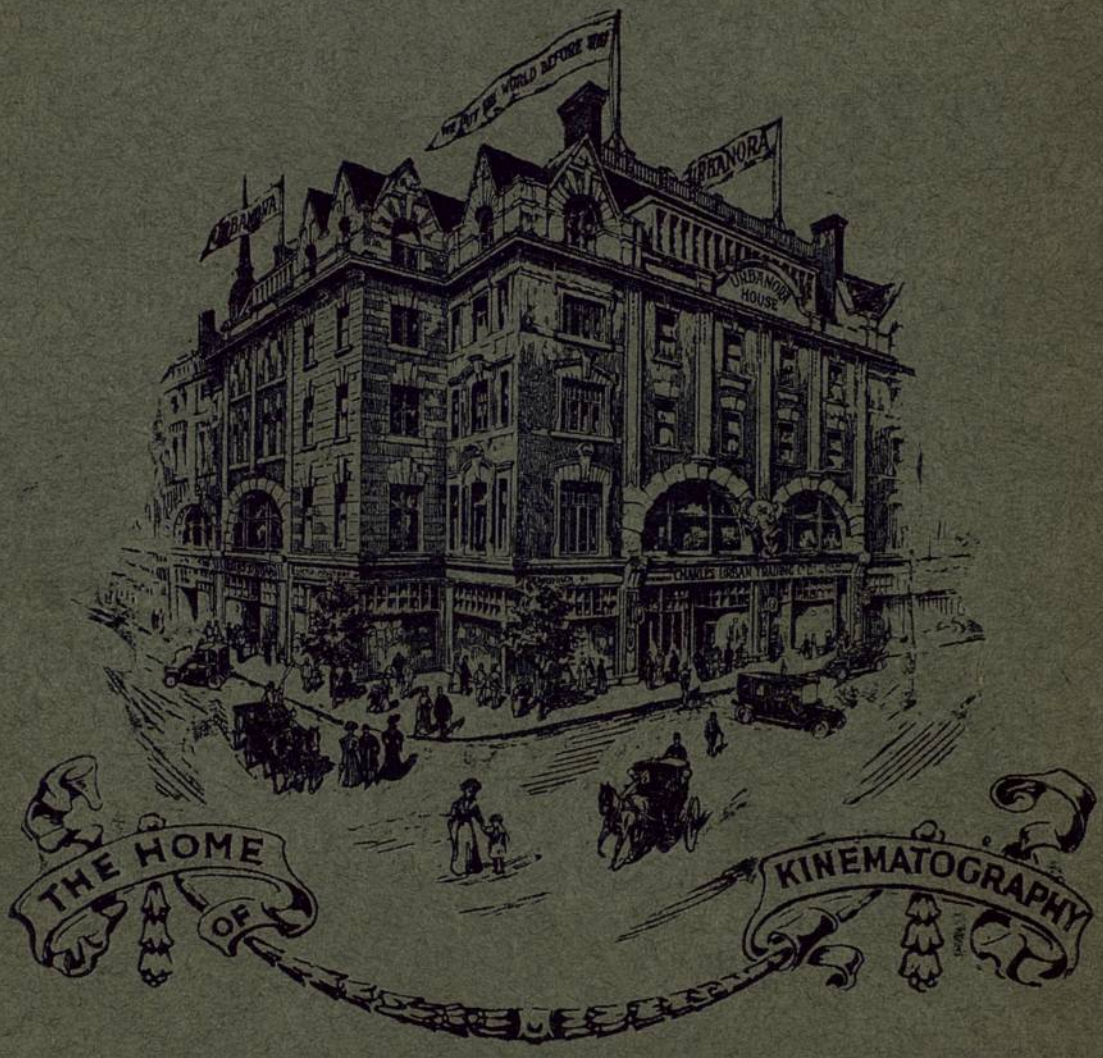
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