

# KALEE INDOMITABLE

MODEL N°7

Sole Makers—

**A. KERSHAW & SON, LEEDS (England).**

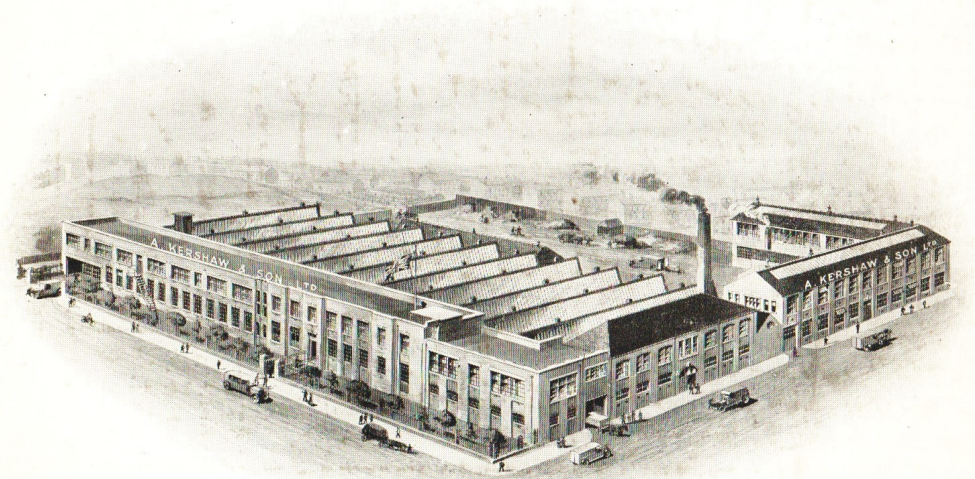
Sales Agency—



The Home of KERSHAW Productions

*Where the "Kalee Indomitable," Model No. 7,  
Cinematograph Projectors and Accessories  
are Manufactured.*

All British Capital ————— All British Labour



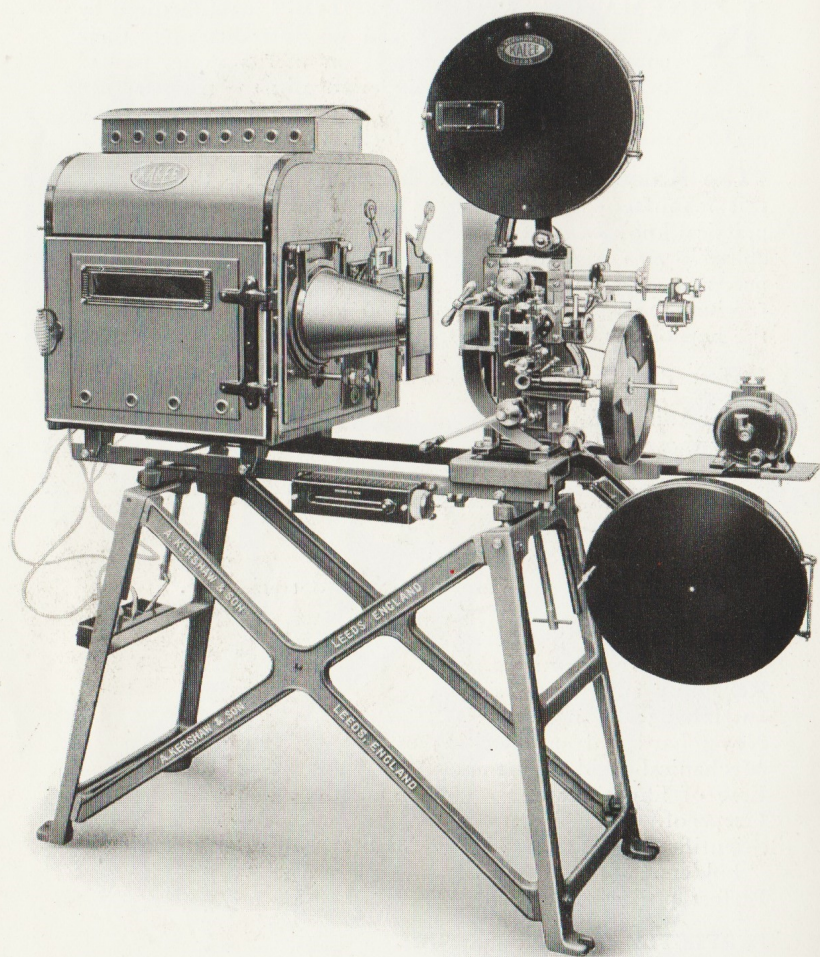
SOLE MAKERS —————

**A. KERSHAW & SON, LEEDS (England)**

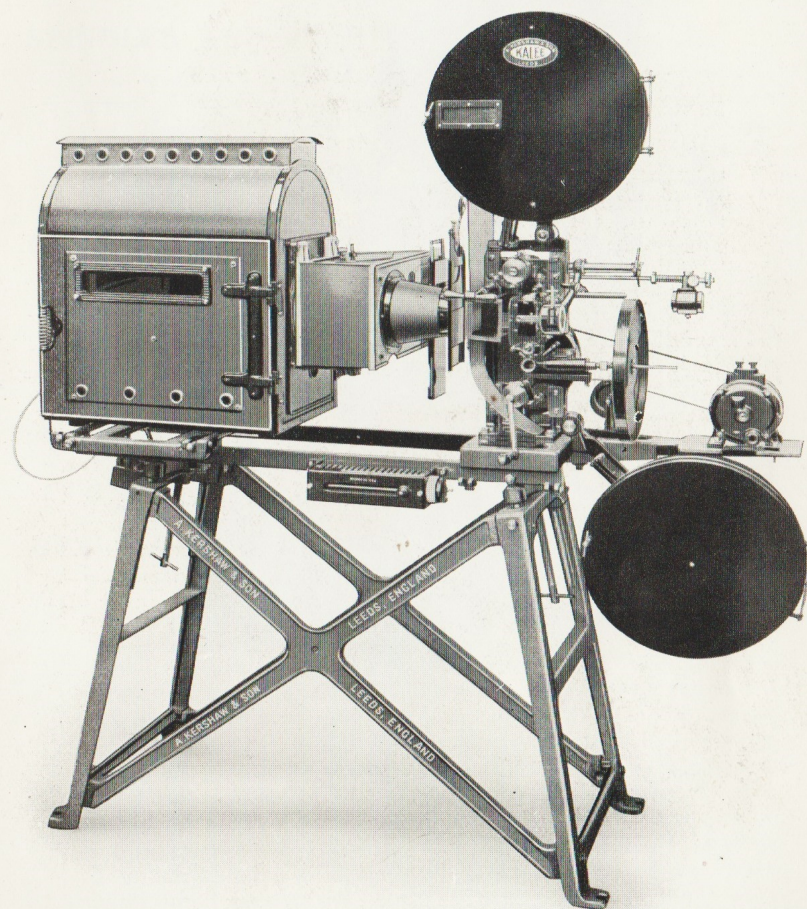
Branch of Amalgamated Photographic Manufacturers Ltd., 3 Soho Square, W.1.

SALES AGENCY —————



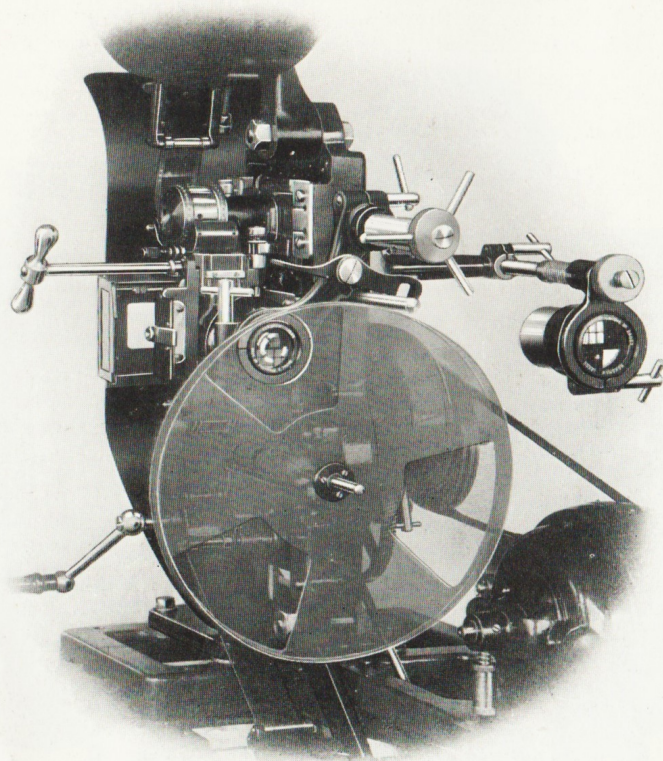


*Side View of "KALEE INDOMITABLE,"  
Model No. 7, B.L.S., Cinematograph Projector.*



*Side View of "KALEE INDOMITABLE"  
Model No. 7, B.L.K., Cinematograph Projector.*





*Enlarged view of "KALEE INDOMITABLE," Model No. 7  
Projector Mechanism, with Flicker Shutter in Ghost.*

## THE PROJECTOR MECHANISM

This is of very massive construction and graceful design, highly finished in black stoved enamel.

There are two main castings, the outer frame, to which is attached the spool arms and gate bracket, and the body which slides vertically in it to give the fixed optical centre.

Special attention is drawn to the fact that the outer frame is one casting only, not built up, thus ensuring perfect rigidity and alignment. The body casting has embodied in it all the bearing bosses, and the oil box is also cast solid with it. The advantage in this design being the elimination of many small detachable parts, which, through constant running and vibration, often work loose.

## SPINDLES AND BEARINGS

The spindles are made of special steel, ground on precision grinding machines to fine limits. The bearings, in which the spindles run, are made of a special material of ample proportions, pressed into the body and easily replaceable when they become worn.

## GEARS

**The Main Gear Wheel** is of large diameter, with spiral cut teeth. The material from which it is made is a patented synthetic, wear-resisting, non-resonant gear material, which has been thoroughly tested out under severe working conditions.

**The Main Pinion**, which is also of increased diameter and width, is made integral with the second motion spindle. This spindle is made of chrome vanadium high tensile steel, heat treated in manufacture to withstand hard wear and tear.

**BEVEL WHEELS** are made of special steel and mesh, with hardened steel bevel pinions.

In designing the gears for the "Kalee Indomitable" Model No. 7, a great deal of research work has been carried out to produce gears that are correct in tooth shape for high speed running, long life and silence in action. Special cutter generating machines have been constructed to correctly form the desired shape of the teeth. The Bevel gears are all correctly generated on a Gleason Bevel Gear Planer, which is acknowledged as the last word in the manufacture of this class of gear. The teeth, instead of being mere compromises, as produced by rotary cutters, work correctly along the whole flanks of the teeth. Case hardened alloy steel is employed for the shutter shaft mitre bevel gears, the teeth of which are cut spiral on a Gleason Spiral Gear Generator. This form of tooth gives perfect transmission and silence at high speeds.

## SPROCKETS

These are cut from special solid steel bars, the teeth being correctly formed and spaced.



**The Intermittent Sprocket** is made from a naturally hard-wear resisting alloy steel, and is produced on specially constructed and very accurate machines, and finally tested to very fine limits. One has only to compare the relative mask size to the projected picture size to get an idea of the accuracy required. A fraction of one thousandth part of an inch error in this sprocket will make it totally unfit to give a steady picture. In reality, the whole time the projector is in use it is undergoing an optical test of high magnification. The Intermittent Sprocket is attached to the cross shaft in a very simple manner, so that it can be very easily replaced.

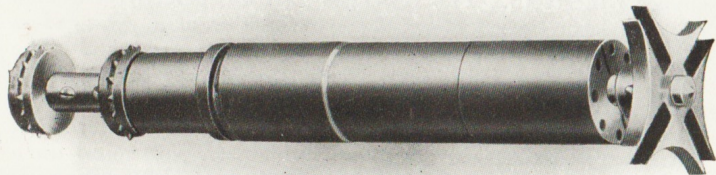
**The Large Feed Sprockets** are also given very special attention in manufacture, so that no undue strain is placed upon the film, single screw fittings are used, so that sprockets can be quickly replaced.

## FILM GUIDE AND SPROCKET ROLLERS

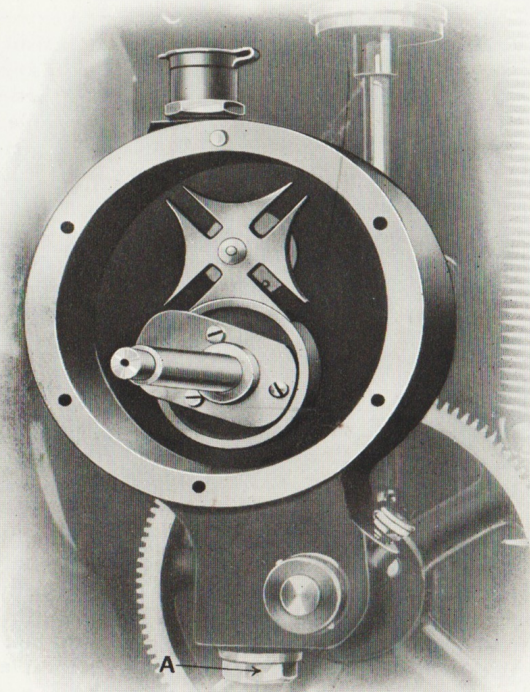
Are all constructed of steel, hardened, ground and lapped, and seldom require replacing.

They are correctly formed and relieved to avoid scratching the film. The frames carrying these rollers are all constructed of special steel pressings and are unbreakable.

For retaining roller spindles a standard size of split pin has been adopted. These cannot work loose, which is often the case with small screws, and the cost of replacement is practically nil.



*Interchangeable Unit (E77), Eccentric Sleeve Bearing, Intermittent Sprocket and Maltese Cross.*



*Note the Massive Oil Box which is cast integral with the Mechanism body, large size Maltese Cross and novel hardened Steel Locking Cam. A sump is arranged above the drain plug "A," to allow any dirt or foreign matter to settle without being constantly churned up into the intermittent movement.*

## THE MALTESE CROSS AND LOCKING CAM

**The Maltese Cross** is the most vital part of the projector mechanism and may correctly be termed the "Heart" of the



projector. To manufacture this all important part we employ the highest skill and the most accurate precision machinery.

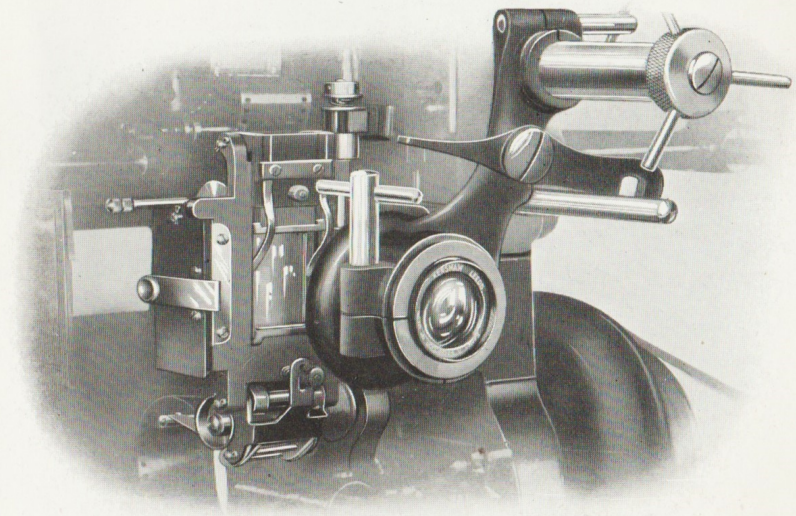
The material from which it is made is a special high tensile and toughened steel and finished by grinding to extremely fine limits of accuracy. The cross is of large size, ensuring long life. It is mounted on a spindle on which is also fixed the intermittent sprocket. The Spindle runs in bushed bearings, pressed into an eccentric sleeve or quill, the whole forming a replaceable unit. To take up all lateral movement of the cross shaft, the shaft has a hardened steel ball fixed in the end which works against a fine adjustment thrust screw, in the oil box cover plate. This end thrust can therefore be adjusted extremely fine, securely locked and runs in oil.

The eccentric sleeve allows of perfect engagement of the Maltese Cross and Locking Cam.

**The Locking Cam** is of new and novel design, constructed of steel, hardened and ground perfectly true. The striking roller is also of hardened steel, ground to very fine limits to fit the cross slots. The roller shaft is eccentrically adjusted so that the striking position is correctly placed relative to the engagement of the cross and cam. The whole intermittent movement is enclosed in a dust and oil tight oil box of ample size. The solidity of the oil box reduces friction and noise to an absolute minimum. The oil box cover carries a substantial third bearing for the second motion or cam shaft, and also an oil sight observation window.

## BALANCE OR DRIVING PULLEY

Made of cast-iron of correct design to give perfect balance to the intermittent movement and directly fixed to the cam spindle. It is mounted on a taper and locked by a nut, this method giving absolute truth and rigidity. It will be noticed that the balance wheel is dished so that the motor driving band tension is in the centre of the bearing instead of being over-hung. Also it is spoked, which allows of oil observation in the oil box, even when the projector is in motion.



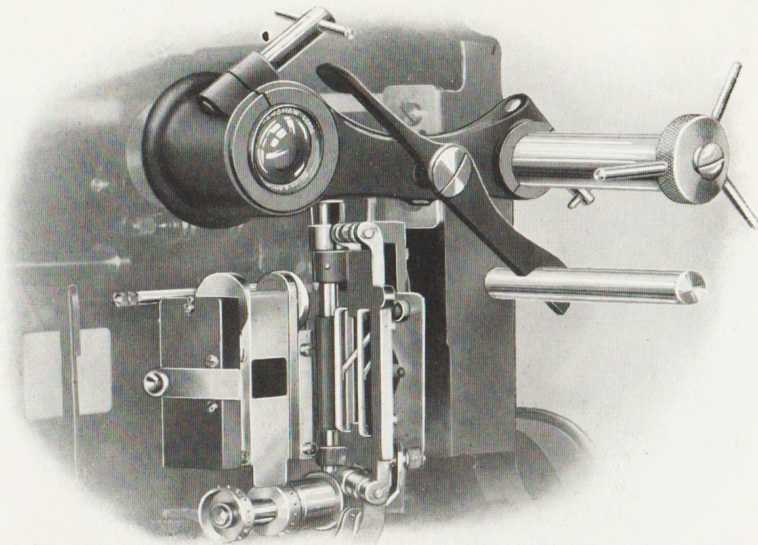
*Gate closed, with film and lens in position for projecting, the rigid mechanical focussing by means of capstan nut will be observed.*

## THE GATE

In designing the gate for the "Kalee Indomitable" Model No. 7, much thought and experimental work has been done to overcome the many faults inherent in present day projectors, at the same time bearing in mind simplicity.

Lateral movement of the film, so objectionable in the projected picture, has been entirely overcome by adopting automatic tracking rollers in place of a fixed width of gate track. The fixed gate track would be permissible if films were always of standard width, but this is an impossibility, owing to the variations due to shrinkage, etc. Also in the case of a wide film, on a fixed gate track, buckling occurs, the projected picture being intermittently in and out of focus. This generally happens on a first run film, just when the projectionist is called upon to show his skill in projection.



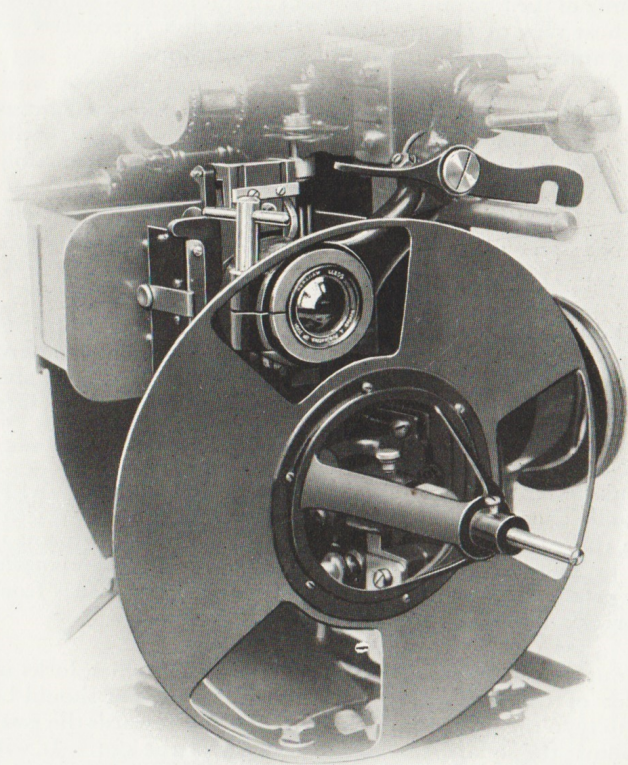


*Gate open and Cine Lens Support swung away, showing the replaceable steel mask plate, auto tracking rollers in place of fixed film track.*

The runner plate and mask is formed in one steel stamping, cleared in the centre to avoid scratching the film and is devoid of any sides. This plate is easily replaceable when worn. The mask, being integral, is as near as possible in the focal plane of the film, and consequently gives a clearly defined sharp masked picture. The size of the mask aperture is 0.9062 in. wide  $\times$  0.6796 in. high, which is now becoming generally adopted as a standard. It will be noted that the height is three-quarters of the width, obviously the projected picture being in the same proportion. At the top of the gate bracket and mask is a fixed roller, and; in addition, there is also a spring roller which automatically adjusts itself to the varying width of film.

The Gate opens at the front of the Projector, away from the source of light and heat, and allows of threading and adjustment of the film in the shortest possible time. It is constructed of steel, machined all over and finished optical black.

A steel facing is provided where it engages with the gate catch, obviating any undue wear.



*Mechanism arranged to use extremely short focus lenses for Rear Projection. The new type of lens support now supplied with all Model No. 7 Projectors, is swung from a point above the top of the gate. When the lens support is raised, it allows the gate to be fully opened for ease in film threading; although in use the lens may be practically touching the gate. A special flicker shutter is also provided, with sunk boss to clear the shutter spindle bracket, which allows the shutter blades to be brought close up to the lens. The rear projection model does not allow the fitting of a shutter guard.*

The film pressure skates are formed in one light steel frame, controlled by a pair of easily replaceable steel bow springs mounted on a hinged bracket. It is so arranged that when the milled head is fully screwed down, maximum tension is placed on the skates. When giving a "first run" of a film it is often found desirable to reduce the tension, to avoid



emulsion collecting on the runners, due to the fact that the final hardening of the film only comes about after it has been subjected to the heat rays of the arc lamp. The tension is reduced by turning anti-clockwise the small milled head nut.

At all times it is recommended to keep the tension as light as possible, it increases the life of the mechanism, particularly the intermittent sprocket, steadiness of projection must mainly evolve from the intermittent movement.

Hardened steel guide rollers are fitted to the top and bottom of the gate.

A steel cradle is fitted to the bottom of the gate which carries a special form of steel film guide shoe for the intermittent sprocket. This shoe gives increased film engagement, and reduces to a minimum, strain on film perforation; a necessity where film is projected above the normal speed.

Particular attention should be given to the adjustment of the film guide shoe. Without film, the shoe should be just clear of the rim of the intermittent sprocket. This adjustment is made by means of the small knurled steel nut at the bottom of the gate. When turned clockwise, the shoe recedes from the sprocket and *vice versa*.

This nut has a square shoulder on the back, which locks in the slot of the steel cradle lug, so that no attempt should be made to turn the nut without pressing the lug towards the gate. This allows the square shoulder to be clear of the slot. It will be noted that the nut is thereby allowed one-quarter of a revolution adjustment, which is sufficient to give the necessary adjustment of the shoe.

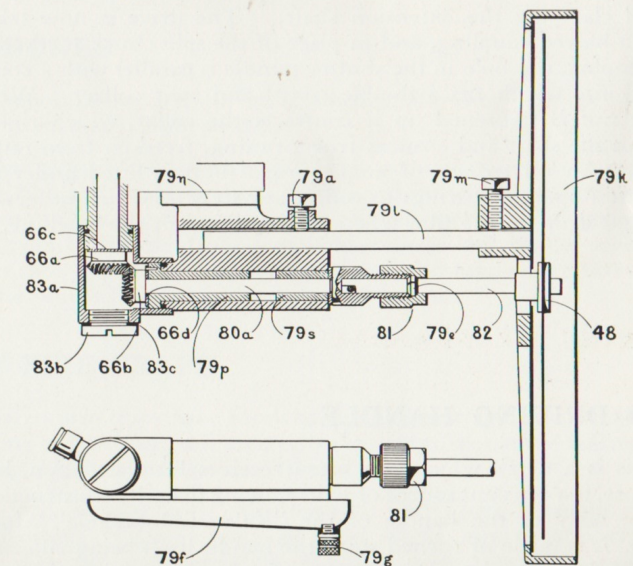
## MASKING OR FRAMING

This is known as fixed optical centre and is controlled by a steel pinion shaft with a suitably shaped handle. When the handle is in a horizontal position it indicates that the movement is in the central position. The pinion shaft bearing works in the gate bracket casting, which is fixed to the outer frame casting. The pinion is spiral cut, engaging with a steel rack fixed to the body casting, which can be raised or lowered smoothly, evenly, and easily, the body being balanced by a long substantial nickel-plated steel spiral spring. The masking allows of adjustment of two pictures, and entails no strain whatever on the film. Another distinctive feature will be noted, and that is, when masking, the whole gate moves, consequently, the relative position of the skates

and the mask runner plate is constantly varied, obviating to a great extent the wearing of the plate in switchback fashion; it rather tends to keep it flat, the wear taking place over the whole length.

## THE CINE LENS SUPPORT

This is an entirely new departure from the old fashioned rack and pinion jacket. It has been designed on entirely sound mechanical lines, the result being rigidity and obviating constant focussing. It will be noted that either a large aperture lens or small standard aperture lens can be firmly clamped in the bracket. This bracket is clamped in position according to the focal length of the lens, along a large diameter adjustable steel sleeve. The adjustable steel sleeve is actuated by a large steel knurled knob and allows of a fine focussing adjustment of ample capacity. When correct focal position is obtained the focussing knob can be locked by means of a novel locking device situated on the face of the knob. The centre spindle on which the sleeve slides is of large diameter and substantially bolted to the main frame. The lower rod is also massive and forms a perfect guide to the lens bracket and retains the axial position of the lens in perfect alignment with the mask. The heavy substantial construction absolutely eliminates any trace of vibration. Further, the lens bracket can be swung entirely out of the way of the gate to facilitate film threading, cleaning, etc.



Section drawing illustrating improved flicker shutter shaft bracket, oil drip trough, shutter guard, etc. For particulars of reference numbers see spare-part list.



## FLICKER SHUTTER

This is of the outside three blade type, working between the lens and the screen. The blades are formed to give the highest light efficiency with the least possible flicker. Provision is made for quickly setting the shutter to eliminate ghost by means of the three small screws on the shutter boss. The shutter revolves inside a detachable guard, which protects it from damage and also entirely obviates injury to the operator's hand when focussing, making adjustments, etc.

The shutter spindle drive is direct with the cam spindle through a pair of hardened steel mitre gears, correctly generated spiral teeth, backlash and wear being reduced to a minimum. The mitre gears run in a dust-proof cover box. When the shutter is once set correctly it requires practically no attention.

The shutter spindle extension shaft, shutter and shutter guard are made detachable to facilitate cleaning and to avoid injury in transit. Improvement has been made in the method of fitting and clamping the extension shaft. The drive is now taken by a halved coupling, and in place of the split chuck method of clamping, the hole in the shutter spindle is parallel with a coned end into which fits a double coned and split collar. When the nut is tightened up it contracts the collar, which rigidly grips the shaft and ensures true running, freedom from rattle, etc. An oil trough of ample proportions is fitted under the shutter spindle bearings to collect any stray oil which otherwise might drop on the film when passing through the machine.

## HAND DRIVING HANDLE

This is a detail which very often receives little attention, but, in use, is a constant source of worry owing to faulty construction. The body of the handle of the "Kalee Indomitable" Model No. 7, is made of turned steel, the handle itself being vulcanite bushed with a brass liner. It is fixed to the main spindle by means of a screw and can be quickly detached.

## AUTOMATIC LIGHT CUT-OFF

This is of an improved and simple form, the principle of action being dependent on oil friction between two steel discs.

Immediately the drive attains a safe speed, the cut-off opens clear of the light rays, but the moment the drive ceases, the cut-off drops and effectually shields the film.

The perfection and simplicity of its action deserves special attention, as it is a most valuable feature. It is impossible for the film to get scorched or burnt by being exposed for any length of time to the hot light rays.

## SPOOL ARMS

These are of ample strength and design, and are detachable, but when clamped are perfectly rigid. The spool spindles are plain (without snecks) which compels an operator to keep the doors closed. The Take-up on the bottom arm has received special attention, and is positive driven through bevel gears from the main spindle to the mechanism by means of a detachable shaft. A leather to metal slipping friction clutch is provided to compensate for the varying diameter of the film coil. The spring clutch tension is made adjustable to suit the load.

## SPOOL BOXES

The Spool Boxes are 15 in. diameter, allowing the use of 13 $\frac{3}{4}$  in. diameter film spools.

The top box is fitted with a spring brake to prevent over running of the film and there is also a mica window which enables an operator to see the film being run off the spool. The boxes and doors are made from best cold rolled steel plates, solid drawn, not built up. Substantial hinges and catches are fitted and the whole finished in black stoved enamel.

## SAFETY FIRE TRAPS

The safety fire traps have received the warmest approval of the licensing authorities, and are real safety traps, not mere rollers guiding the film into the spool boxes.

They are substantially constructed, with long machined fire damping ducts, a pair of steel guide rollers at each end. The lids are hinged to facilitate film threading, but cannot be left open, the lid being automatically closed by a strong spring.



## HEAT AND LIGHT SHIELDS

A small steel shield is fixed to the back of the gate to keep it cool. A large shield made of steel-plate is fixed to the back of the mechanism, which entirely prevents stray light from the Condenser passing through or past the projector. It extends from the top spool box to the base of the mechanism, preventing the film running on to the heated lamp-house, should a film-break occur. A coloured glass window is fitted between the heat shield and gate to prevent glare when adjusting the arc.

## LANTERN OR TITLE SLIDE ATTACHMENT

This is fixed to the outer frame; focussing is done on mechanical principles similar to the Cine Lens. The lens is securely clamped in a cast-iron holder, which slides on a screwed steel bar on which is fitted a substantial steel focussing knob. Rough adjustment of focus is obtained by unclamping the main bracket and sliding the steel bar; fine adjustment of focus is then made with the focussing knob.

## LENSES

These are of our own special design and manufacture.

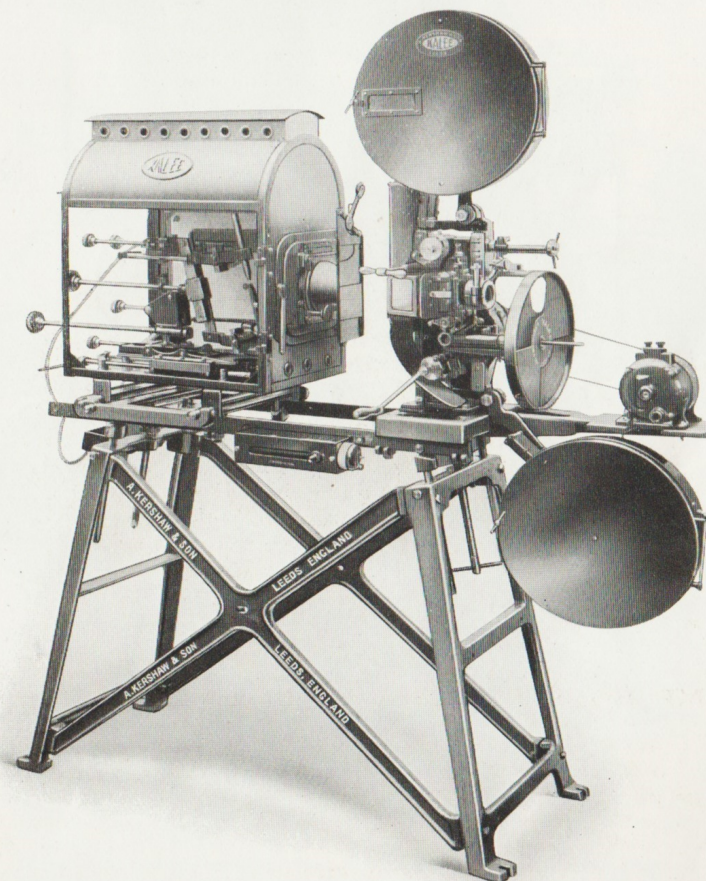


## LAMP HOUSES

In the past, practically any kind of iron box which held a condenser and an arc lamp has been accepted as good enough. A special study has been made of the Lamp House supplied with the "Kalee Indomitable" Model No. 7, to secure efficiency in ventilation, correct burning of the arc, condenser position, adjustment, etc. The **Lamp House** is of extra large capacity, a wrought-iron frame work, carrying the top, doors and

front, all of which are constructed of blued planished steel sheet. The two doors are made the full size of the lamp house, so that the arc lamp can be readily trimmed, adjusted or re-carboned. The doors are built up of two sections, with a ventilating air space between, the inner section being lined with asbestos. Substantial hinges are fitted, the design enabling the doors to be lifted away if desired. The door snecks are fitted with heat-resisting steel wire handles. Large sight glasses are fitted, the frame allows of two thicknesses of glass and a mica heat detractor, all of which can be quickly replaced.

## "The KALEE Indomitable"



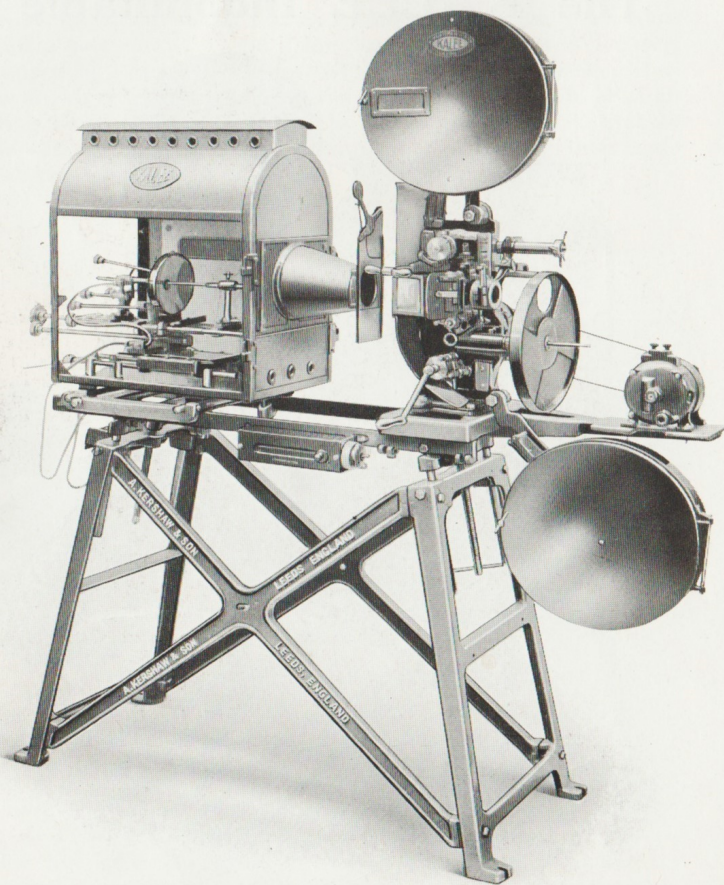
MODEL No. 7A. OUTFIT.



A woven asbestos curtain is provided to cover the open back of the lamp house.

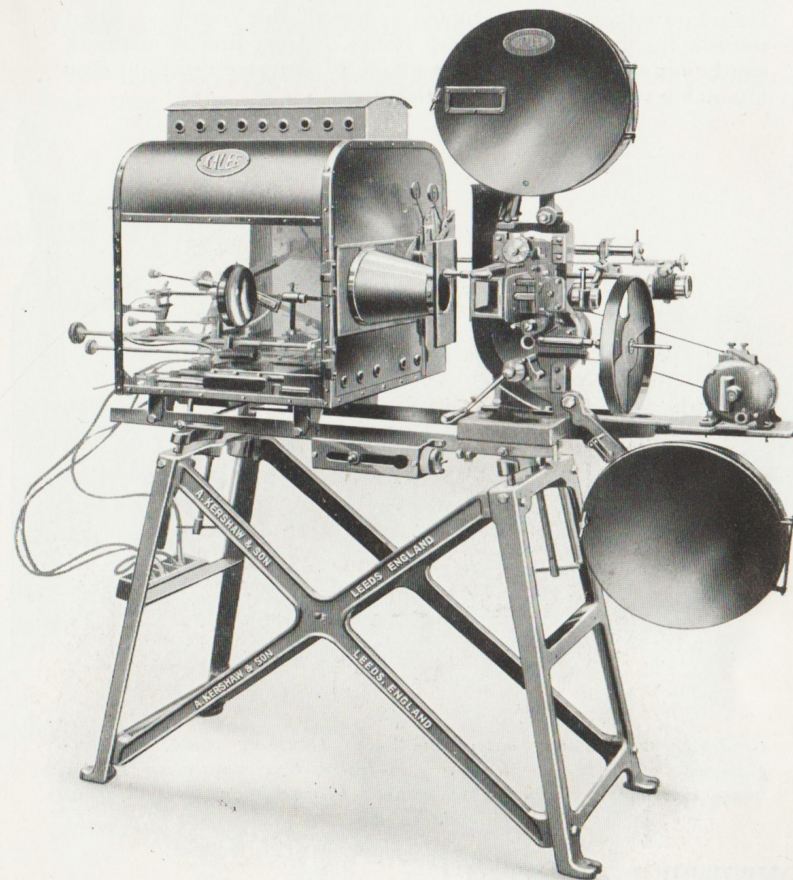
It will be noted that the base is devoid of any projecting lips at the door apertures to facilitate cleaning away carbon dust from the base of the lamp house.

## “The KALEE Indomitable”



**MODEL No. 7M. OUTFIT.**

## “The KALEE Indomitable”



**MODEL No. 7M.S. OUTFIT.**

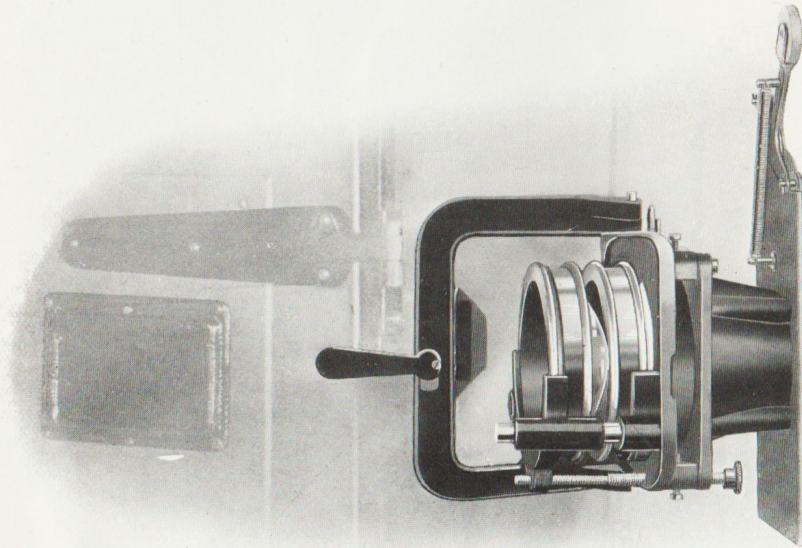
*Illustration shows Type “R.L.” Mirror Arc Lamp, with cut-off and Type “S.L.” Scissors Arc Lamp, with condenser cells, lenses, slide carrier and cut-off.*

*With both Lamps burning, the change over from Cinematograph to Slide Projection and vice versa can be made instantaneously by closing one cut-off and opening the other cut-off.*



## MECHANICAL TRAY

For moving the Arc Lamp to or from the condenser this is now integral with the lamp house base casting. The Arc Lamp is clamped on to an iron auxiliary base which sits on two steel rods, one of these rods is fixed and the other one slides in the lamp house base and is actuated by a malleable iron lever fitted outside the back of the lamp house. Very fine adjustment can be obtained with the advantage of extreme rigidity never attainable with a loose mechanical tray.



*Condenser front swung out of the Lamp House to enable easy replacement of Condenser lenses. Adjustment of separation of the lenses is made mechanically by means of a knob on the outside of Condenser cone.*

## CONDENSER FRONT

This is of very massive construction and is fixed to the lamp house front steel panel. The condenser is inside the lamp house but can be readily got at owing to the condenser front being hinged. By lifting the side lever horizontally, the whole front swings out of the lamp house.

The condenser lenses are each contained in separate cast-iron cells of the screw cap type, and fit into "U" shaped holders, the bi-convex lens holder is integral with the front casting, the back or meniscus lens holder being adjustable on the two steel rods.

This allows of perfect condenser adjustment, the two adjacent condenser faces should be as close as possible. In this type of holder, condenser breakages are absolutely reduced to a minimum, also, the Arc Crater can be approached nearer to the condenser than in any other design, especially the outside type. Care should be taken, however, in fitting new condensers, not to screw the cap up tight and nip the lenses: sufficient freedom must be allowed for the lenses to expand with the heat.

We advise screwing the cap up to the lens and then unscrewing one turn which allows sufficient slack.

## SLIDE CARRIER

This is constructed entirely of steel-plate and is unbreakable. It fits in the recess provided in the front light cone.

## CUT-OFF

An entirely new pattern has been designed and constructed, which fits on the front of the light cone.

The Cut-off is unbreakable, being made of steel-plate, and is quick in action when opening and closing. The action is of the curtain type, closing and opening to and from the centre.

## ARC LAMP

This is our well-known Type "YL," capable of carrying currents up to 100 amperes, fitted with six movements controlling the Arc crater.

## THE STAND

It is absolutely essential that the Projector Stand should be rock-steady to produce perfectly steady pictures on the screen. The "Kalee Indomitable" No. 7 Stand is of very heavy rigid construction, built up of iron castings, substantially bolted together and weighs approximately  $1\frac{3}{4}$  cwts.



The top or table is constructed of heavy wrought iron bars for supporting the mechanism and Lamp House bases.

Strong steel adjusting screws are provided at each end of the stand for tilting, lowering or elevating the top, which is carried on four guide pillars. When correct adjustment is attained, these guide pillars can be firmly locked by means of set screws.

## MECHANISM AND MOTOR BASE

Substantially constructed of cast iron, clamped firmly to the stand top by means of four bolts and clips. A felt pad is provided to absorb any tendency to vibration.

The driving motor is fixed to the front extension of the base, to which is also clamped a belt guide pulley, fixed in correct position so that the belt is always the same tension at varying masking positions. The belt pulley, being adjustable, enables an operator to quickly tighten or slacken the belt.

## LAMP HOUSE BASE

Supplied either for fixed Lamp House or slide over pattern, when the outfit is supplied with Lantern Slide attachment. Both patterns of bases are made of cast iron, and fitted with round steel runners, which rest in milled slots and clamped by set screws. This method allows the rods to be in perfect alignment with the stand.

## GENERAL ALIGNMENT

Special attention has been given to the method of fixing the Lamp House and Mechanism bases on the Stand top, so that the optical axis of the outfit is in alignment. All alignments are taken from the top bar nearest to the operator. The bases have slots milled on the underneath sides which fit on this bar, a plain face only resting on the other top bar. A special form of bolt and clamp is used to make the bases rigid in use. This form of clamp enables the bases to be placed in any position along the stand top. The stand top is long enough to allow a separation up to 26 inches from the mask to the front condenser lens.

## CARE OF THE "KALEE INDOMITABLE," No. 7 MECHANISM

A projector mechanism is a fine and accurately constructed piece of mechanical apparatus which has to withstand hard continuous wear and demands a certain amount of care if it is expected to fulfil its duties efficiently. Cleanliness and proper lubrication with a high-class oil are the main factors. Very little calculation is required to estimate the quantity of film which passes through the machine in, say, a week. Films harbour dust and grit, which are deposited on the machine and should be periodically removed.

We strongly advise, say, every month, taking the mechanism off its stand, placing it in a tin tray and thoroughly cleansing it with paraffin oil, an ordinary paint brush being a suitable tool to remove any obstinate particles of dirt.

In removing deposit that may have collected on the intermittent sprocket, the greatest care should be used, as the slightest injury to the teeth will upset the steadiness of the picture. A tooth brush is recommended for cleaning this part. In cleaning the skates or runner plate of emulsion which has adhered to them, a soft metal should be used as a scraper. This should be done daily in order to avoid scratching the films, especially with new run films which do not appear to be always perfectly set. We supply, at a small cost, a brass scraper mounted in a polished hard wood handle. On no account do we recommend removing the dirt with a knife or hard metal, as it is liable to scratch the polished steel surface, raising the edges, which will immediately collect dirt again, probably worse than before.

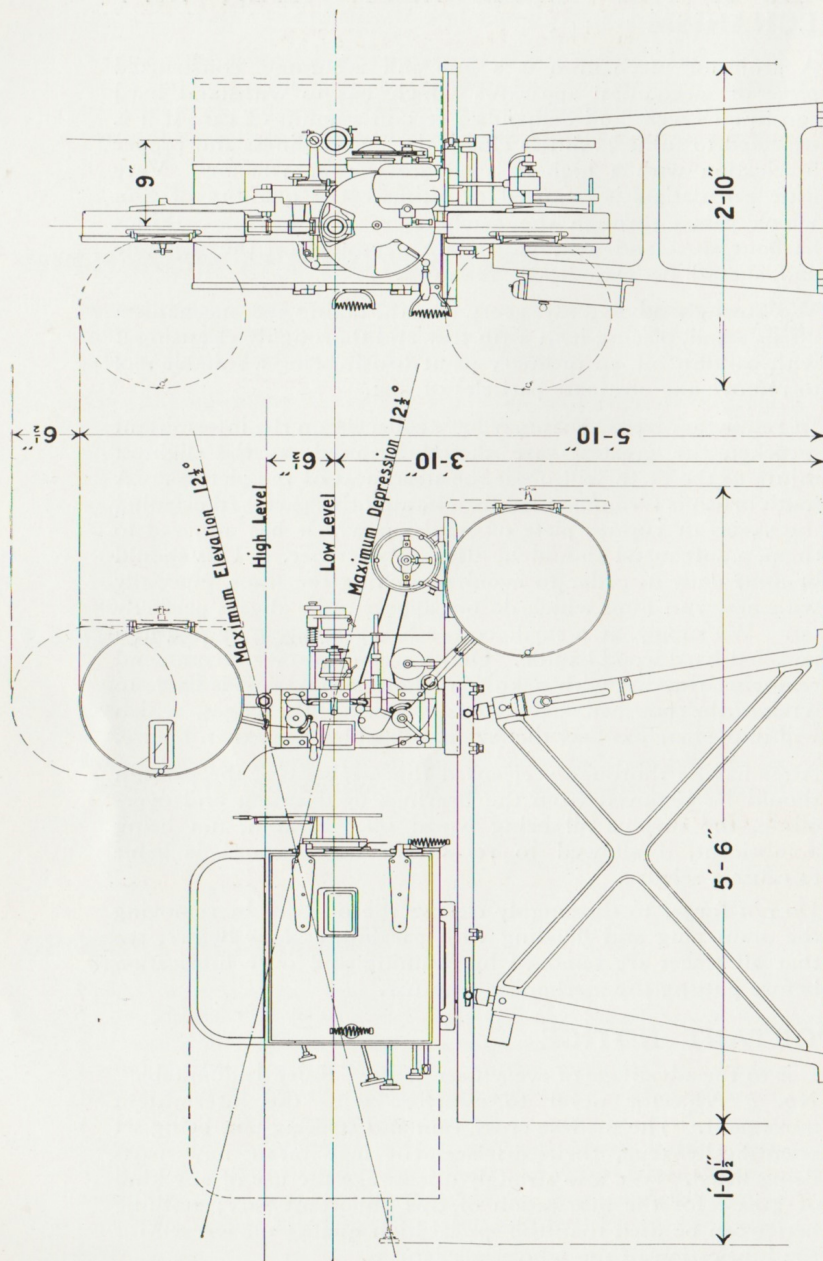
After having thoroughly cleansed the mechanism, the paraffin should be removed from the bearings by draining and over-oiling, the surplus oil being wiped off. Paraffin, not being a lubricant, if allowed to remain in the bearings, is liable to cause a seizure.

Do not forget to thoroughly cleanse the oil bath by removing the drain plug and flooding with paraffin, and, as before, see that all traces are removed by draining and over lubrication before putting the mechanism into use.

## IMPORTANT NOTICE

It is to the advantage of every user of the "Kalee Indomitable" No. 7 Projector never to interfere with the intermittent movement. The maltese cross, cam and striking pin, being set scientifically true, their displacement may mean new parts being fitted. We also strongly discourage the use of any kind of grease for the lubrication of this important part; nothing better can be used than the special high quality oil we sell for the lubrication of the whole mechanism.





**SCHEDULE PRICES of "KALEE INDOMITABLE"  
MODEL No. 7 OUTFITS.**

When Coding, follow Code Word with Lens Code Word (see Lens List).  
Schedule Outfit Prices are for complete outfits as specified, parts not  
required are not deductible at listed prices.

## No. 7A Outfit

"Kalee Indomitable" No. 7 Mechanism with Spool Arms.  
 Pair of 15 in. Fire-resisting Steel Spool Boxes.  
 Mechanism and Motor Base, Belt Guide Pulley, Bolts and  
 Felt Pad.  
 Lamp House with Mechanical Tray, Condenser Front and  
 Asbestos Curtain.  
 Fixed Lamp House Base and Bolts.  
 One Set of  $4\frac{1}{2}$  in. Condenser Lenses.  
 Heavy Iron Stand.  
 Type "YL" 100 Ampere Arc Lamp.  
 Terminal Block.  
 Pair of 100 Ampere Asbestos-covered\* Flexible Copper Leads.  
 Two  $13\frac{3}{4}$  in. diameter Steel Film Spools.  
 Steel Curtain Light Cut-off.  
 Kershaw Series "A" Cinematograph Lens (3 in. to 7 in. focus).  
 Spanners and One Tin of "Superoil."

Price ... ..  
Code Word: "SEKIN."

### No. 7M Outfit

Outfit as No. 7A, but fitted with  
Type "R.L." Mirror Arc Lamp and without condenser lenses  
and cells.

Price ... ..  
Code Word: "SEMIR."

## No. 7B Outfit

Outfit as No. 7A, but fitted with  
Slide over Lamp House base, in place of fixed base.  
Two way Steel Slide Carrier.  
Lantern Slide Lens Attachment Fittings.  
Kershaw Series "T" Title Lens, 8 in. to 28 in. focus.

Price ... ..  
Code Word: "SEBEE."



### No. 7M.S. Outfit

"Kalee Indomitable" No. 7 Mechanism with spool arms.  
Pair of 15 in. Fire-resisting Steel Spool Boxes.  
Mechanism and Motor Base, Belt Guide Pulley, Bolts and Felt Pad.  
Double Lamp House, with two Mechanical Trays and Asbestos Curtain.  
Plain Front with Steel Curtain Light Cut-off.  
Adjustable Condenser Front, with Cells, Steel Slide Carrier and Steel Curtain Light Cut-off.  
One Set of  $4\frac{1}{2}$  in. Condenser Lenses.  
Lamp House Base and Bolts.  
Heavy Type Iron Stand.  
Type "R.L." Mirror Arc Lamp.  
Type "S.L." Scissors Arc Lamp.  
Two Terminal Blocks.  
Two Pair of Asbestos-covered Flexible Covered Copper Leads.  
Two  $13\frac{3}{4}$  in. diameter Steel Film Spools.  
Kershaw Series "A" Cinematograph Lens (3 in. to 7 in. focus).  
Lantern Slide Lens Attachment Fittings.  
Kershaw Series "T" Title Lens (8 in. to 28 in. focus).  
Spanners and One Tin of "Superoil."

Price ... ..

Code Word: "SEMSY."

### No. 7M.K. Outfit

"Kalee Indomitable" No. 7 Mechanism with Spool Arms.  
Pair of 15 in. Fire-resisting Steel Spool Boxes.  
Mechanism and Motor Base, Belt Guide Pulley, Bolts and Felt Pad.  
Lamp House with Mechanical Tray and Asbestos Curtain.  
"Kerascope" front.  
Fixed Lamp House Base and Bolts.  
Vertical Steel Slide Carrier.  
Heavy Iron Stand.

### No. 7M.K. Outfit—Continued.

Type "R.L." Mirror Arc Lamp.  
Terminal Block.  
Pair of 50 Ampere Asbestos covered Flexible Copper Leads.  
Two  $13\frac{3}{4}$  in. diameter Steel Film Spools.  
Steel Curtain Light Cut-off.  
Kershaw Series "A" Cinematograph Lens (3 in. to 7 in. focus).  
Lantern Slide Lens Attachment Fittings.  
Kershaw Series "T" Title Lens (8 in. to 28 in. focus).  
Spanners and One Tin "Superoil."

Price ... ..

Code Word: "MEKER."

### No. 7A.M.L. Outfit

"Kalee Indomitable" No. 7 Mechanism with Spool Arms, pair of 15 in. Fire-resisting Steel Spool Boxes, Mechanism and Motor Base, Belt Guide Pulley, Bolts and Felt Pad.  
Type "M.L." High Power Mirror Arc Lamp in Single Lamp House with 8 in. Mirror and 8 in. Condenser.  
Fixed Lamp House Base and Bolts.  
Heavy Iron Stand.  
Terminal Block.  
Pair of 50 Ampere Asbestos-covered Flexible Copper Leads.  
Two  $13\frac{3}{4}$  ins. diameter Steel Film Spools.  
Steel Curtain Light Cut-off.  
Kershaw Series "A" Cinematograph Lens (3 in. to 7 in. focus).  
Spanners and One Tin of "Superoil."

Price ... ..

Code Word: "SAMEL."

### No. 7B.L.K. Outfit

Outfit as No. 7A.M.L., but fitted with Lantern Slide Lens Attachment Fittings.  
Kershaw Series "T" Title Lens (8 in. to 28 in. focus).  
Type "M.L." Kerascope with Steel Curtain Cut-off and Vertical Steel Slide Carrier and Slide Holder Frames.

Price ... ..

Code Word: "SAMKE."



### No. 7B.L.S. Outfit

Outfit as No. 7A.M.L., but fitted with Lantern Slide Lens Attachment fittings, Kershaw Series "T" Title Lens (8 in. to 28 in. focus). Double Lamp House with type "M.L." High Power Mirror Arc Lamp in place of single lamp house.

Type "S.L." Scissors Arc Lamp.

Double Terminal Block.

Two pairs of 50 Ampere Asbestos-covered Flexible Copper Leads, plain front with Steel Slide Carrier, Curtain Cut-off.

One Set of  $4\frac{1}{2}$  in. Condenser Lenses.

Price ... ..

Code Word: "BLISS."

### No. 7T.M.L. Outfit

"KALEE INDOMITABLE" No. 7 Mechanism.

Pair of 15 in. Fire-resisting Steel Spool Boxes and Spool Arms.

Two  $13\frac{3}{4}$  in. Steel Film Spools.

Heavy Iron Adjustable Stand with Mechanism and Motor Bases, Belt Guide Pulleys.

Fixed Lamp House Base and Bolts.

Type "10M.L." High-power Mirror Arc Lamp in Single Lamp House with 10 in. Mirror and 10 in. Condenser, and Steel Curtain Cut-off.

Pair of 50 Ampere Asbestos-covered Flexible Copper Leads.

No. 1 Double Pole Switch and Adapter.

Kershaw Series "A" Cinematograph Lens (3 in. to 7 in. focus).

Spanners and One Tin of "Superoil."

Price ... ..

Code Word: "TENAT."

### No. 7T.L.K. Outfit

"KALEE INDOMITABLE" No. 7 Mechanism.

Pair of 15 in. Fire-resisting Steel Spool Boxes and Spool Arms.

Two  $13\frac{3}{4}$  in. Steel Film Spools.

Heavy Iron Adjustable Stand, with Mechanism and Motor Bases, Belt Guide Pulleys.

Fixed Lamp House Base and Bolts.

Type "10M.L." High-power Mirror Arc Lamp in Single Lamp House with 10 in. Mirror and 10 in. Condenser.

Type "10M.L." Kerascope, with Steel Curtain Cut-off and Vertical Steel Slide Carrier and Slide Holders.

Pair of 50 Ampere Asbestos-covered Flexible Copper Leads.

No. 1 Double Pole Switch and Adapter.

Kershaw Series "A" Cinematograph Lens (3 in. to 7 in. focus).

Lantern Slide Lens Attachment Fittings.

Kershaw Series "T" Title Lens (8 in. to 28 in. focus).

Spanners and One Tin of Superoil.

Price ... ..

Code Word: "TENER."

### No. 7T.L.S. Outfit

"KALEE INDOMITABLE" No. 7 Mechanism.

Pair of 15 in. Fire-resisting Steel Spool Boxes and Spool Arms.

Two  $13\frac{3}{4}$  in. Steel Film Spools.

Heavy Iron Adjustable Stand, with Mechanism and Motor Bases, Belt Guide Pulleys.

Double Lamp House, with One Mechanical Tray and Asbestos Curtain.

Cone Front, with Steel Curtain Cut-off.

Condenser Front, with Vertical Steel Slide Carrier, Slide Holders, and Steel Curtain Cut-off.

One Set of  $4\frac{1}{2}$  in. Condenser Lenses.

Type "10M.L." High-power Mirror Arc Lamp, with 10 in. Mirror and 10 in. Condenser.



### No. 7T.L.S. Outfit—Continued.

Type "S.L." Scissors Arc Lamp.

Two No. 1 Double Pole Switches and Adapter.

Two Pairs of 50 Ampere Asbestos-covered Flexible Copper Leads.

Kershaw Series "A" Cinematograph Lens (3 in. to 7 in. focus).

Lantern Slide Lens Attachment Fittings.

Kershaw Series "T" Title Lens (8 in. to 28 in. focus).

Spanners and One Tin of "Superoil."

Price ... ..

Code Word: "TENS1."

### No. 7 Mechanism

"Kalee Indomitable" No. 7 Mechanism with Spool Arms.

Pair of 15 in. Fire-resisting Spool Boxes.

Price ... ..

Code Word: "SEMEK."

### No. 7C. Mechanism Standby

Mechanism as No. 7, but **without** Spool Arms, Spool Boxes.

Price ... ..

Code Word: "SEDBY."

## REAR PROJECTION

The following Outfits and Mechanisms are fitted with special Shutter for Rear Projection, and Supplementary Lens.

### No. 7A.R. Outfit

Outfit as No. 7A. (fitted with Supplementary Lens and Special rear projection anastigmat lens).

Price ... ..

Code Word: "SENAR."

### No. 7M.R. Outfit

Outfit as No. 7M (fitted with supplementary lens and special anastigmat lens).

Price ... ..

Code Word: "SERAM."

### No. 7B.R. Outfit

Outfit as No. 7B. (fitted with supplementary lens and special anastigmat lens).

Price ... ..

Code Word: "SARIB."

### No. 7M.S.R. Outfit

Outfit as No. 7M.S. (fitted with supplementary lens and special anastigmat lens).

Price ... ..

Code Word: "SARSY."

### No. 7T.M.L.R.

Outfit as No. 7T.M.L. (fitted with supplementary lens and special anastigmat lens).

Price ... ..

Code Word: "TENRO."

### No. 7T.L.K.R.

Outfit as No. 7T.L.K. (fitted with supplementary lens and special anastigmat lens).

Price ... ..

Code Word: "TENWI."

### No. 7T.L.S.R.

Outfit as No. 7T.L.S. (fitted with supplementary lens and special anastigmat lens).<sup>1</sup>

Price ... ..

Code Word: "TENDO."

### No. 7R. Mechanism

Mechanism as No. 7 (fitted with supplementary lens, but without projection lens).

Price ... ..

Code Word: "SAREK."

### No. 7C.R. Mechanism Standby

Mechanism as No. 7C (fitted with supplementary lens, but without projection lens).

Price ... ..

Code Word: "SERRY."

**When Coding, add focus in inches of Cinematograph Lens to Code Word, the title lens will be supplied about  $4\frac{1}{2}$  times its focus.**

**Scheduled Prices being special prices, parts not required are not deductible at listed prices.**



## SPARE PARTS FOR THE "KALEE INDOMITABLE MODEL No. 7" MECHANISM.

The "Kalee Indomitable" Model No. 7 Projector is manufactured in a factory specially built and equipped with the most modern precision machinery for the production of the highest class mechanical precision apparatus.

All the composite parts are standardised to very fine limits, and are practically interchangeable, with the exception of taper pin holes. In supplying a part which is fixed by a taper pin, one side only is drilled, the completing of the hole and final reamering to size being left to the mechanic doing the repair.

The majority of composite parts are illustrated on the three following plates. When ordering parts not illustrated, state the list number of the part for which they are required.

The factory number of the mechanism should be stated; this will be found on the top of the mechanism near the top spool arm fixing bolt. Also, when ordering parts for this type of mechanism, to avoid any mistakes, the number of the part should be prefixed by the letter "E."

Spare parts are kept in stock and in most cases can be despatched by return of post.

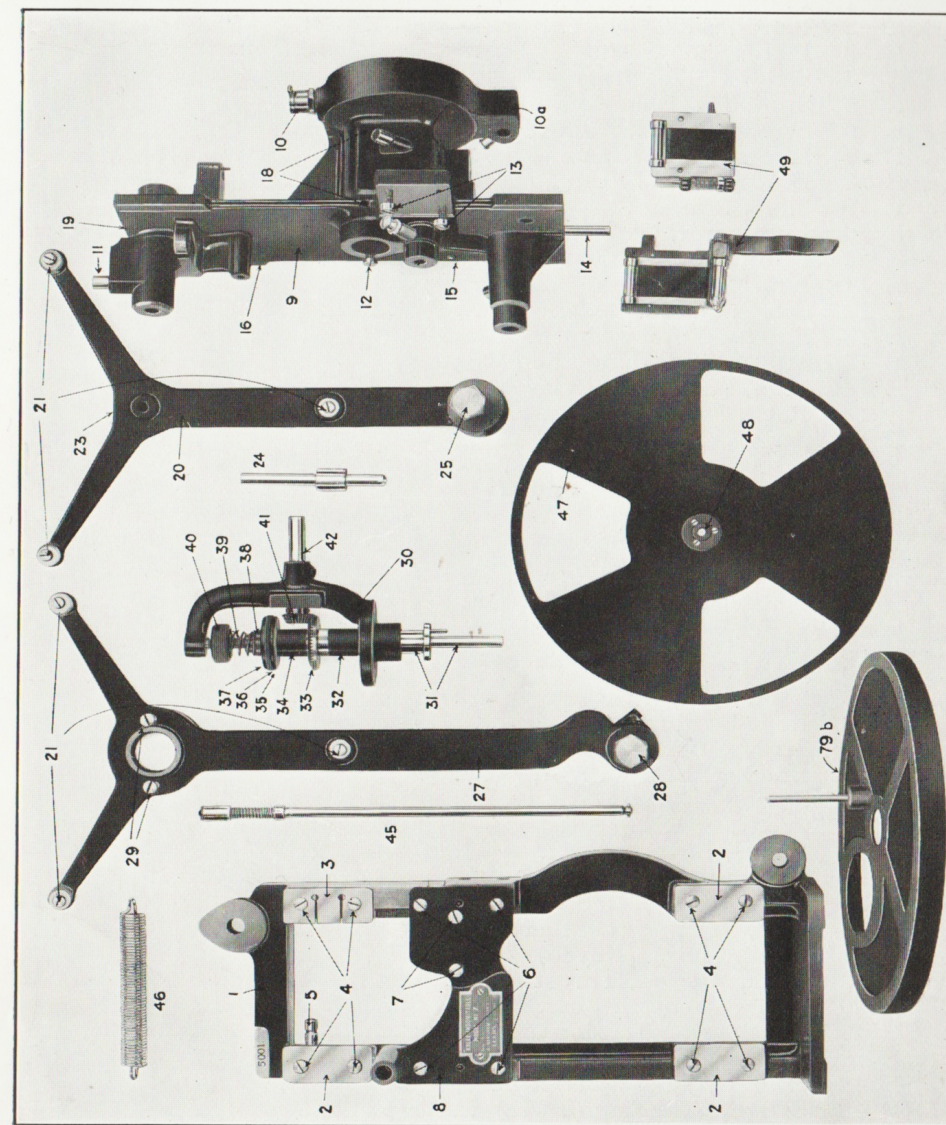


Plate No. 1.



## HEAT AND LIGHT SHIELDS

A small steel shield is fixed to the back of the gate to keep it cool. A large shield made of steel-plate is fixed to the back of the mechanism, which entirely prevents stray light from the Condenser passing through or past the projector. It extends from the top spool box to the base of the mechanism, preventing the film running on to the heated lamp-house, should a film-break occur. A coloured glass window is fitted between the heat shield and gate to prevent glare when adjusting the arc.

## LANTERN OR TITLE SLIDE ATTACHMENT

This is fixed to the outer frame; focussing is done on mechanical principles similar to the Cine Lens. The lens is securely clamped in a cast-iron holder, which slides on a screwed steel bar on which is fitted a substantial steel focussing knob. Rough adjustment of focus is obtained by unclamping the main bracket and sliding the steel bar; fine adjustment of focus is then made with the focussing knob.

## LENSES

These are of our own special design and manufacture.

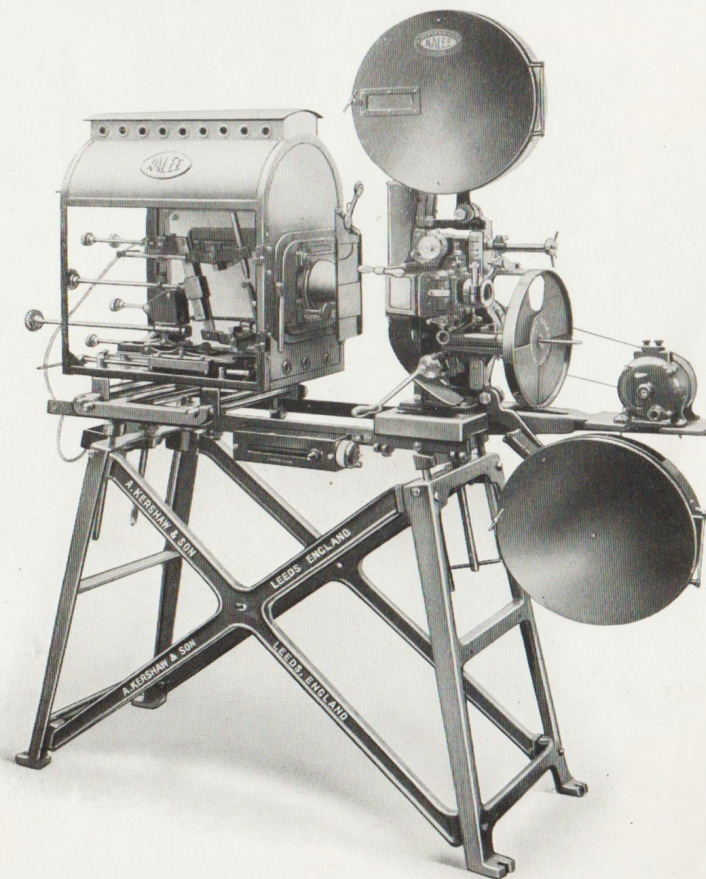


## LAMP HOUSES

In the past, practically any kind of iron box which held a condenser and an arc lamp has been accepted as good enough. A special study has been made of the Lamp House supplied with the "Kalee Indomitable" Model No. 7, to secure efficiency in ventilation, correct burning of the arc, condenser position, adjustment, etc. The **Lamp House** is of extra large capacity, a wrought-iron frame work, carrying the top, doors and

front, all of which are constructed of blued planished steel sheet. The two doors are made the full size of the lamp house, so that the arc lamp can be readily trimmed, adjusted or re-carboned. The doors are built up of two sections, with a ventilating air space between, the inner section being lined with asbestos. Substantial hinges are fitted, the design enabling the doors to be lifted away if desired. The door snecks are fitted with heat-resisting steel wire handles. Large sight glasses are fitted, the frame allows of two thicknesses of glass and a mica heat detractor, all of which can be quickly replaced.

## "The KALEE Indomitable"



MODEL No. 7A. OUTFIT.



### PLATE No. 1.

No.	Description.	£	s.	d.
E 47b	Disc, Rotary Shutter (Aluminium 3 Blade)	12	0	each
E 47c	Disc, Rotary Shutter (Aluminium 2 Blade)	12	0	"
E 48	Boss, Rotary Shutter	6	0	"
E 49	Trap, Film (Complete)	1	13	0
E 79b	Guard, Rotary Shutter	18	0	"

### PLATE No. 2.

No.	Description.	£	s.	d.
E 41	Pinions, Bevel	7	0	each
E 50	Pinion, Framing (Complete)	1	4	0
E 51	Handle (Complete)	18	0	"
E 52	Screw, Handle	1	0	"
E 53	Spindle, Main	15	0	"
E 54	Sprocket, Bottom	1	4	0
E 55	Collar, Main Spindle	1	0	"
E 56	Spindle, Top	10	0	"
E 57	Sprocket, Top	1	4	0
E 58	Collar, Top Spindle Spacing	2	6	"
E 59	Bevel, Top	17	6	"
E 60	Spindle, Vertical	7	6	"
E 61	Disc, Auto Shutter (Bottom)	9	0	"
E 62	Disc, Auto Shutter (Top)	7	6	"
E 63	Spring, Auto Shutter	1	6	"
E 64	Shell, Spring	5	3	"
E 65	Shutter, Spindle and Auto (Complete)	8	0	"
E 66	Wheels, Spiral Mitre	12	0	"
E 67	Spindle, Pinion and Cam (Complete)	3	0	0
E 68	Pin and Roller, Cam Striking	4	6	"
E 69	Washer, Pinion Thrust	1	6	"
E 70	Flywheel	18	0	"
E 71	Nut, Flywheel Retaining	1	0	"
E 72	Quill, Cross Spindle Bearing	1	10	0
E 73	Spindle, Cross and Inter Sprocket	15	0	"
E 74	Cross, Maltese	1	13	0
E 75	Sprocket, Intermittent	1	4	0
E 76	Screws, Inter Sprocket	1	3	pair
E 77	Assembly, Complete (E 72 to E 76)	5	5	each
E 78	Wheel, Main Gear and Bevel (Complete)	1	16	0
E 79	Bracket, Rotary Shutter	1	4	0
E 79a	Clamping Screw, Rotary Shutter Guard	6		"
E 79c	Sleeve, Rotary Shutter Spindle	5	0	"
E 79d	Nuts, Shutter Spindle Sleeve	2	0	"
E 79e	Split Collar, Loose Spindle	1	0	"
E 79f	Oil Trough, Shutter Bracket	5	0	"
E 79g	Drain Plug, Oil Trough	9		"

### PLATE No. 2.

No.	Description.	£	s.	d.
E 79h	Screws, Oil Trough	3		each
E 80	Spindle, Rotary Shutter	18	0	"
E 81	Nut, Spindle	3	6	"
E 82	Spindle, Loose Rotary Shutter	7	6	"
E 83	Guard, Mitre Wheel	6	0	"
E 84	Bracket, Take up	9	0	"
E 85	Spindle, Take up	8	0	"
E 86	Stud, Idle Roller	4	0	"
E 87	Roller, Idle	4	6	"
E 88	Nut, Idle, Roller Stud	6		"
E 89	Cover, Oil Box	1	10	0
E 90	Screw, Cross Spindle Thrust	1	6	"
E 91	Collar, Cross Spindle Thrust Screw	1	6	"
E 92	Screws, Collar Locking	6		pair
E 93	Window, Oil Level	1	0	each
E 94	Ring, Retaining Window	1	3	"
E 95	Screws, Oil Box Cover	6		pair
E 96	Plug, Oil Box Drain	1	6	each
E 97	Deflector, Oil	1	0	"
E 98	Screws, Oil Deflector	6		pair
E 99	Stud, Roller Bracket	3	6	each
E100	Collars, Spring Adjusting	2	0	"
E101	Spring, Roller Bracket	1	0	"
E102	Frame, Roller Bracket	4	0	"
E103	Rollers, Flanged	5	0	"
E104	Rollers, Grooved	5	0	"
E105	Spindle, Grooved Roller	2	0	"
E106	Assembly Complete (E99 to E105)	1	4	0
E107	Frame, Gate	1	10	0
E108	Plate, Mask	8	0	"
E109	Screws, Mask Plate	6		pair
E110	Spindle, Film Guide Rollers	1	6	each
E111	Roller, Film Guide	8	0	"
E112	Roller, Film Guide (sliding)	9	0	"
E113	Spring, Film Guide Roller	6		"
E114	Collar, Film Guide Roller Spring	1	0	"
E115	Shield, Gate Heat	1	6	"
E116	Screws, Gate Heat Shield	6		pair
E117	Catch, Gate	5	0	each
E118	Spring, Gate Catch	6		"
E119	Screws, Gate Catch	6		pair
E120	Gate	1	7	0 each
E121	Pin, Gate Hinge	1	6	"
E122	Collar, Loose Gate Hinge	1	0	"
E123	Spring, Gate Hinge Pin	6		"
E124	Collar, fixed Gate Hinge	1	0	"
E125	Plate, Catch	1	6	"



# PLATE No. 2.

No.	Description.	ℓ	s.	d.	
E126	Screws, Catch Plate ... ..			6	pair
E127	Skate, Gate ... ..	4		6	each
E128	Springs, Gate Skate ... ..	2	0		pair
E129	Bar, Gate Skate Spring Retaining ... ..	2	0		each
E129a	Bar (clear holes), Gate Skate Spring Retaining ... ..	2	0		„
E130	Screws, Bar ... ..			9	pair
E130a	Nut Tension, Plain ... ..	1	0		each
E130b	Bracket, Tension ... ..	6	0		„
E130c	Stop Washer, Tension ... ..	0	6		„
E131	Nut, Gate Shoe Bracket ... ..	1	0		„
E132	Spindle, Top Roller Gate ... ..	1	0		„
E133	Roller, Top Gate ... ..	4	6		„
E134	Spindle, Gate Bracket and Roller ... ..	1	0		„
E135	Roller, Bottom Gate ... ..	4	0		„
E136	Bracket, Gate Shoe... ..	4	0		„
E137	Spring, Gate Shoe Bracket ... ..			3	„
E138	Collar, Spring ... ..			9	„
E139	Spindle, Gate Shoe Bracket ... ..	1	0		„
E140	Shoe, Inter Sprocket Gate Bracket ... ..	6	0		„
E141	Washers, Shoe Spacing ... ..			3	„
E142	Holder, Cine Lens ... ..	1	1	0	„
E142a	Latch, Cine Lens Holder ... ..			5	0
E142b	Screw, Cine Lens Holder Latch ... ..			2	0
E142c	Adjusting Screw, Cine Lens Holder ... ..			1	3
E142d	Nut, Cine Lens Holder Adjusting Screw... ..			6	„
E143	Screw, Thumb (Clamping Holder) ... ..			1	3
E144	Screw, Thumb (Clamping Cine Lens) ... ..			1	3
E145	Bush, Adapter Cine Lens ... ..			7	6
E146	Stud, Cine Lens Holder ... ..			3	6
E147	Nuts, Cine Lens Holder and Stop Stud ... ..			6	„
E148	Sleeve, Cine Lens Holder ... ..			6	0
E149	Spring, Cine Lens, Holder ... ..			6	„
E150	Collar, Cine Lens Holder ... ..			2	6
E151	Nut, Focussing (Cine Lens) ... ..			4	0
E152	Screw, Focussing Nut Retaining ... ..			6	„
E153	Stud, Cine Lens Holder Stop ... ..			2	6
E154	Holder, Title Lens ... ..	12	0		„
E155	Screw, Thumb (Clamping Holder) ... ..			1	3
E156	Bracket, Title Lens... ..			7	0
E157	Screw, Thumb (Clamping Spindle) ... ..			1	3
E158	Spindle, Title Lens Holder ... ..			3	6
E159	Spring, Title Lens Holder ... ..			6	„
E160	Nut, Focussing (Title Lens) ... ..			2	6
E161	Screw, Focussing Nut Retaining ... ..			6	„
E162	Stripper, Top Sprocket ... ..			2	0
E163	Screw, Top Sprocket Stripper ... ..			3	„
E164	Holder, Series "C" Cine Lens ... ..	1	10	0	„

# ADDITIONAL SPARE PARTS.

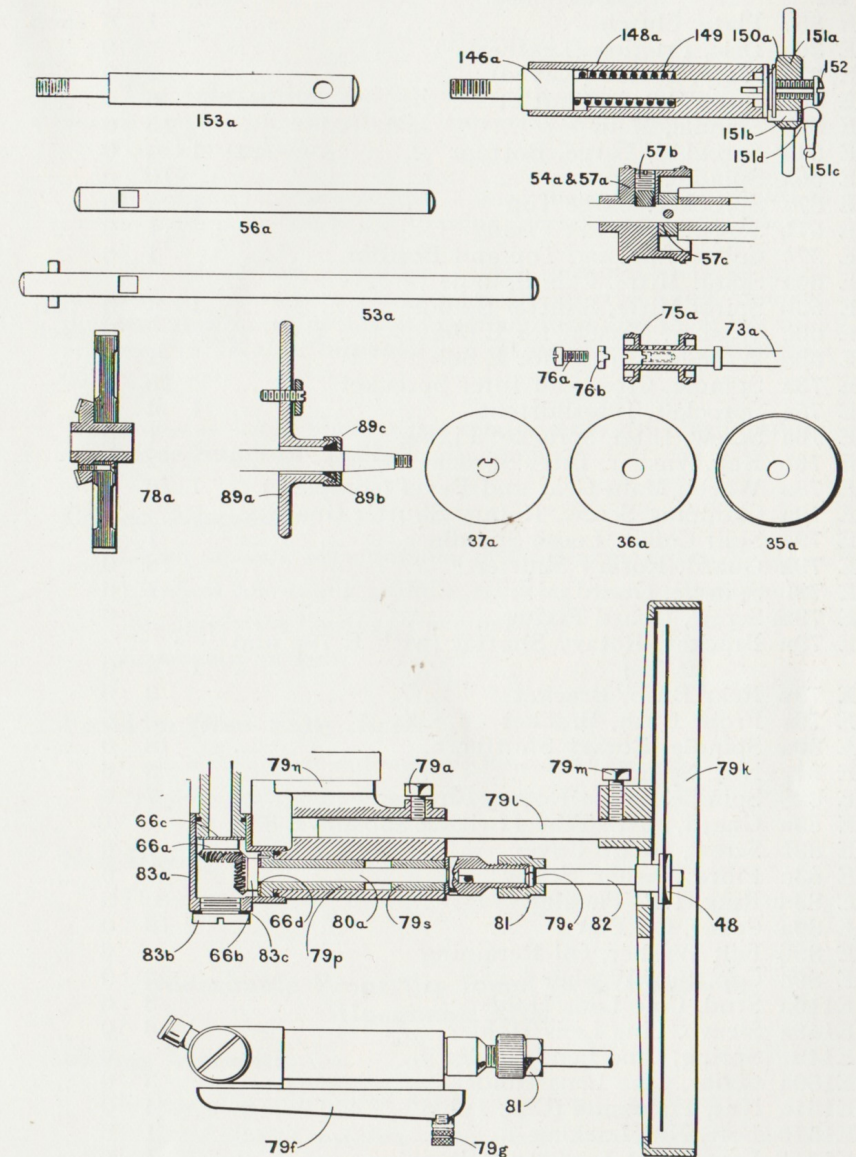


Plate No. 3.



### PLATE No. 3.

No.	Description.	£	s.	d.	
E 35a	Plate, Clutch ... ..	1	6		each
E 36a	Disc, Friction (Leather) ... ..		9		"
E 37a	Plate, Clutch (Keyed) ... ..	2	0		"
E 48	Boss, Rotary Shutter ... ..	6	0		"
E 53a	Spindle, Main ... ..	15	0		"
E 54a	Sprocket, Large, Bottom ... ..	1	4	0	"
E 56a	Spindle, Top ... ..	10	0		"
E 57a	Sprocket, Large Top ... ..	1	4	0	"
E 57b	Screw, Sprocket Fixing ... ..	1	0		"
E 57c	Collar, Spacing, Top and Bottom... ..	1	6		"
E 66a	Spiral Mitre, Cam Spindle ... ..				
E 66b	Spiral Mitre, Shutter Spindle ... ..	1	4	0	pair
E 66c	Washer, Thrust, for E 66a ... ..		2	0	each
E 66d	Washer, Thrust, for E 66b ... ..		2	0	"
E 73a	Spindle, Cross and Inter Sprocket ... ..	18	0		"
E 75a	Sprocket, Intermittent ... ..	1	4	0	"
E 76a	Screw, Inter Sprocket Fixing ... ..		1	0	"
E 76b	Key Washer, Inter Sprocket ... ..		2	0	"
E 78a	Wheel, Main Gear and Bevel (complete)... ..	1	16	0	"
E 79a	Clamping Screw, Rotary Shutter Guard ... ..		6		"
E 79e	Split Collar, Loose Spindle ... ..		1	0	"
E 79k	Guard, Rotary Shutter ... ..	18	0		"
E 79l	Spindle, Guard ... ..		1	6	"
E 79m	Screw, Guard Fixing ... ..			6	"
E 79n	Bracket, Rotary Shutter (with E 79p and E 79s) ... ..	1	4	0	"
E 79p	Rear Bush, Bracket ... ..		3	0	"
E 79s	Front Bush, Bracket ... ..		2	6	"
E 80a	Spindle, Rotary Shutter ... ..	18	0		"
E 81	Nut, Spindle ... ..		3	6	"
E 82	Spindle, Loose Rotary Shutter ... ..		7	6	"
E 83a	Guard, Mitre Wheel (with E 83b and E 83c) ... ..		8	0	"
E 83b	Screw, Guard Cover ... ..		1	6	"
E 83c	Fibre Washer, Screw ... ..			6	"
E 83d	Ring, I.R. Packing ... ..			6	"
E 89a	Cover, Oil Box ... ..	1	10	0	"
E 89b	Felt Washer, Oil Retaining ... ..			6	"
E 89c	Cap, Felt Washer ... ..		2	0	"
E146a	Stud, Cine Lens Holder ... ..		3	6	"
E148a	Sleeve, Cine Lens Holder ... ..		6	0	"
E149	Spring, Cine Lens Holder ... ..			6	"
E150a	Collar, Cine Lens Holder ... ..		3	0	"
E151a	Nut, Focussing (Cine Lens) ... ..		4	0	"
E151b	Bolt, Nut Locking ... ..		1	6	"
E151c	Lever, Nut Locking Bolt ... ..		1	6	"
E151d	Washer, Lever ... ..			3	"
E152	Screw, Focussing Nut Retaining ... ..			6	"
E153a	Stud, Cine Lens Holder Stop ... ..		2	6	"

## "Kalee" Lubricating Oil.

**The lubrication** and selection of a proper oil for projector mechanisms is an exceedingly important and vital item, often overlooked by operators.

Experience has proved that a good many faults attributed to the mechanism, are solely due to using common and unsuitable oils.

To uphold the reputation of the manufacturers of these mechanisms, it has been found necessary to give much thought, time and experiment to this all-important item, and there has been produced in "**Kalee Superoil**" an oil superior to any obtainable on the market.

Below is stated briefly a few comparisons of the high qualities of "**Kalee Superoil**" against common oils.

### Correct Viscosity :

Giving smooth, silent running of the Maltese Cross.

Excellent lubricating qualities, reducing wear to a minimum.

Remains in the bearings, therefore——

Economical in use.

### Freedom from Fatty Acids :

Gives a clean, free-running machine and bearings.

Freedom from gumming or clogging.

### Non-Drying :

Therefore, may be used for months without a trace of deposit

### Undesirable Properties found in Common or Unsuitable Oils.

### Wrong Viscosity.

Giving noisy running of the Maltese Cross.

Poor lubricating qualities, consequently considerable premature wear.

Runs out of the bearings, therefore——

Expensive in use.



### Fatty Acids :

Cause saponification, and corrosion of the bearings and metal parts.

Gums up the mechanism.

### Drying :

Slow drying, especially at high temperatures, leaving a thick rubber-like deposit in and around the bearings.

The first signs are heavy running of the mechanism, eventually binding up.

The constituents of **"Kalee Superoil"** are the finest and purest quality obtainable ; in first cost it will therefore appear to be expensive—its cheapness will only be apparent in its economy in use.

**"Kalee Superoil" No. 1 size tin; ( $\frac{1}{2}$  pint) ...**

Code Word : " SUPIT. "

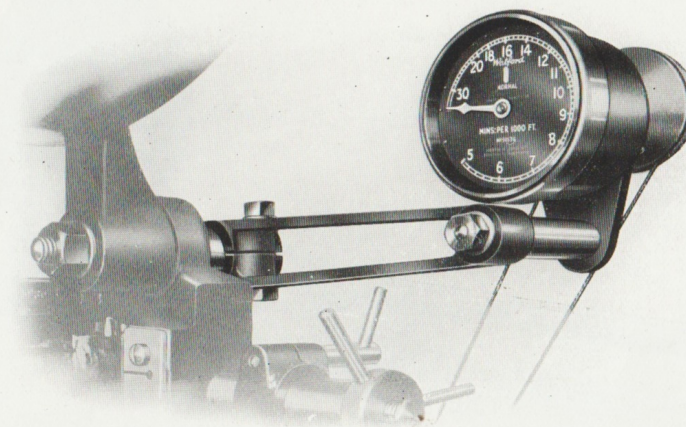
**"Kalee Superoil" No. 2 size tin; (1 pint) ...**

Code Word : " SUPER. "

**"Kalee Superoil" No. 3 size tin; ( $\frac{1}{2}$  gallon) ...**

Code Word : " SUPAN. "

## "Kalee" Film Speed Indicator.



The "Kalee" Film Speed Indicator has been specially designed and made to fit "Kalee" Projectors, and enables an operator to know by a glance the exact speed at which the film is passing through the Projector.

It is a thoroughly well-made and reliable instrument, constructed to withstand continuous service.

The Dial is graduated to give a wide range of speed up to 1,000 feet of film in five minutes.

**Price ... each set.**

Code Word : " KALSP. "

The price includes :—Speedometer, Extended Top Spool Arm Bolt, Gunmetal Arm, Bracket and Bolt, Pulley, Special Steel Pulley to fix on Projector Balance Wheel, and Rubber Driving Band, as illustrated.

**Spare Rubber Driving Belts ... each.**

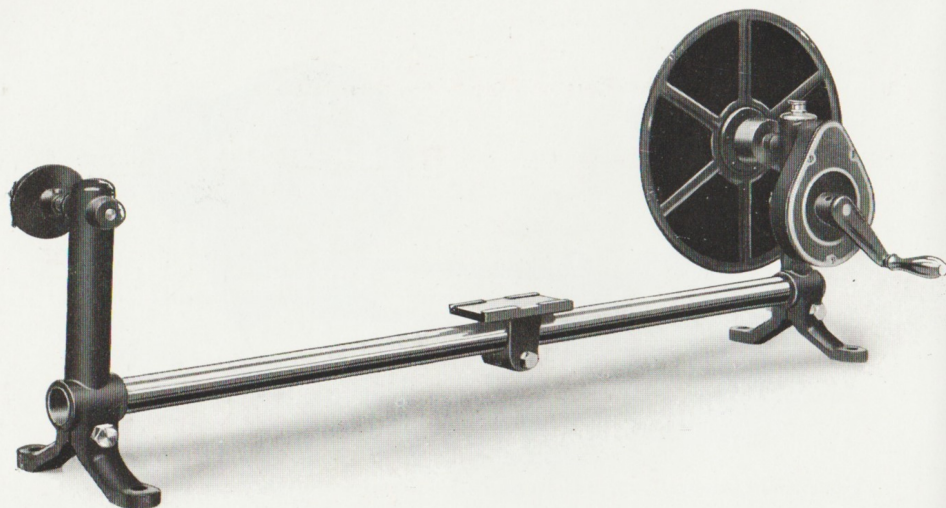
Code Word : " KELBA. "

**Special Hardened and Tempered  
Flexible Steel Driving Belts ... each.**

Code Word : " SPEEL. "



# **“KALEE” Film Rewinder.** Type K.W.



Type K.W. Rewinder is a new type model of heavy construction, made to withstand hard continuous service.

The Standards are made of cast-iron of novel design, accurately machined and bored; connected together by a strong nickel plated steel tube 39 inches long. When screwed down to the bench, the Rewinder is extremely rigid, the increased separation of the heads makes the handling and examination of film comparatively simple.

The Gears are machine cut and are enclosed by a gear cover.

Spindles are made of cast-steel precision ground to limits.

The assembly is made by screw driver and spanner, no taper pins being used, so that it can be taken to pieces quickly for making replacements, etc., when required. A cast-iron block machined out to film width is fixed to the centre of steel tube, which forms a simple fixture for scraping and jointing film.

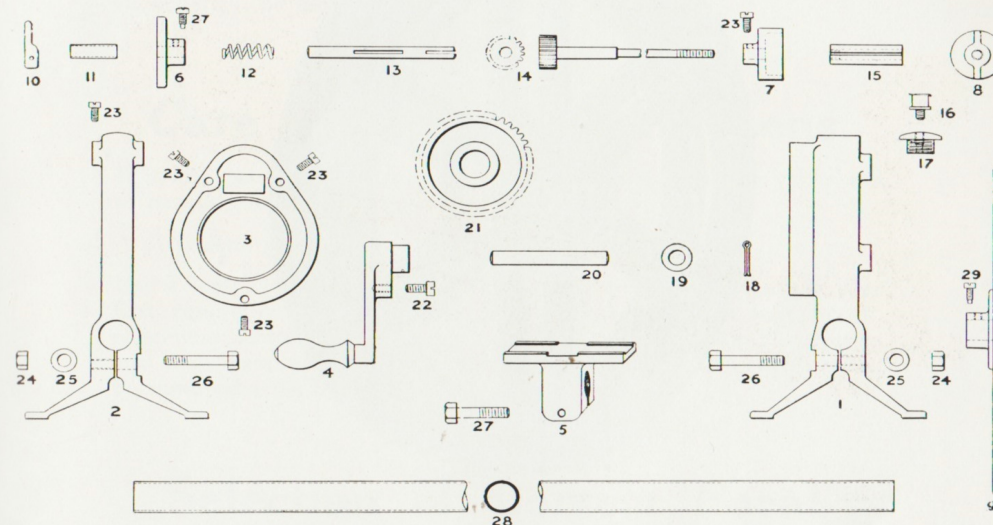
The whole Rewinder is well-finished, castings black stove enamelled and machined parts bright. A 12 in. pressed steel disc is provided for loose film rewinding.

Approx. weight complete, 19 lbs.

Price Complete...  
Price without scraping block

Code Word: “KWINE.”  
Code Word: “KWILT.”

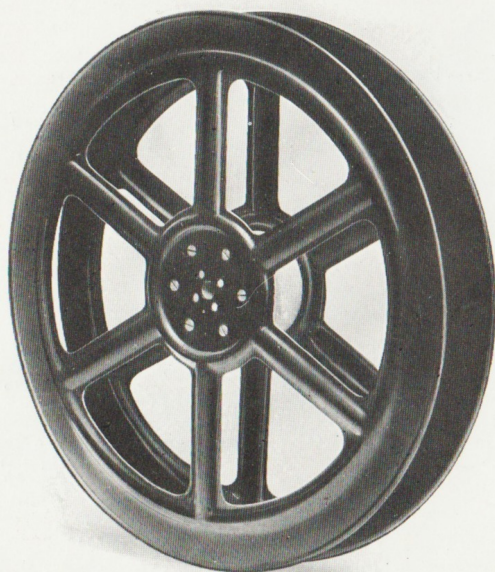
## SPARE PARTS FOR K.W. REWINDER



No.		s.	d.	No.		s.	d.
1	Gear Standard ... ..	each	12 0	16	Lubricator ... ..	each	9
2	Plain Standard ... ..	”	8 0	17	Cap for gear standard ... ..	”	2 3
3	Gear Cover ... ..	”	2 3	18	Split pin for No. 20 spindle ... ..	”	3
4	Handle and Crank ... ..	”	6 0	19	Washer for No. 20 spindle ... ..	”	3
5	Jointing Table ... ..	”	5 0	20	Main gear spindle ... ..	”	2 0
6	Boss for plain standard ... ..	”	1 6	21	Main gear wheel ... ..	”	6 0
7	Collar for gear standard ... ..	”	1 9	22	Screw for No. 4 ... ..	”	4
8	Wing nut ... ..	”	1 0	23	Screws for cover Nos. 2, 3 and 7 ... ..	”	4
9	Steel disc with boss ... ..	”	5 0	24	Nuts for No. 26 ... ..	”	3
10	Retaining sneck for No. 13 ... ..	”	6	25	Washers for No. 25 ... ..	”	3
11	Distance tube ... ..	”	6	26	Bolt, Clamping steel tube for Nos. 1 and 2 ... ..	”	6
12	Spring for No. 6 boss ... ..	”	6	27	Bolt for No. 5 ... ..	”	6
13	Spindle for plain standard ... ..	”	1 6	27A	Screw for No. 6 ... ..	”	6
14	Spindle and pinion for gear standard ... ..	”	7 6	28	Stay tube ... ..	”	6 0
15	Brass bush for No. 9 ... ..	”	1 6	29	Screw for No. 9 ... ..	”	6



## "KALEE" Steel Spools



These Spools are accurately made, true running, and of the highest class finish.

The sides or cheeks are made from stampings in heavy gauge cold rolled steel, ribbed to give strength and rigidity.

The centre or core is made of Birch wood to which each side is securely held by six steel wood screws and reinforced in the centre by a brass tube, spun over at each end.

This tube also forms a bearing for the spool to revolve on when in use.

The Film is gripped to the core by means of a hardened and tempered steel clip which is easily accessible and simple for an operator to manipulate.

These Spools are all made to fit  $\frac{3}{8}$  in. spindles, and in four different diameters.

12 in. diam. Steel Spools, black enamelled	each, Code Kai.
12 $\frac{3}{4}$ in. " " " " "	" " Kaid.
13 $\frac{3}{4}$ in. " " " " "	" " Kaip.
14 $\frac{3}{4}$ in. " " " " "	" " Kafor.

## "KERSHAW" Projection Lenses

Project a picture with perfectly clear definition over the full field free from distortion and colour. No stops are used therefore the highest illumination and efficiency is secured. Full advantage has been taken in designing these lenses to use the latest types of optical glasses, which are thoroughly transparent in respect of the actinic rays, hence the desired result of brilliancy.

### Care of the Projection Lens.

It is important to keep the lens clean, and care should be taken not to handle them with greasy fingers.

A dirty lens will never project a good, clear picture.

Use a soft, clean piece of silk or old fine linen for cleaning, after first removing the grit or dust by means of a camel hair brush, otherwise scratches will appear in time, which impair the results and may mean the eventual repolishing of the lens. Grease can be removed with a little alcohol.

### Selection of Correct Focal Length.

The focus of the lens governs the size of the projected picture on the screen, the longer the focus the smaller the size of the picture and *vice-versa*.

The following tables of distances, etc., have been computed for Cinematograph lenses, assuming the mask width to be 0.9 in. wide, and Lantern Lenses working with a slide mask of 3 ins.

If, however, more accurate results are desired, these can be obtained with the formula below.

D—Distance in feet from lens to screen.

P—Width in feet of picture on screen.

M—Width in inches of mask.

F—Focus in inches of lens.

$$\therefore F = \frac{D \times M}{P} \quad P = \frac{D \times M}{F} \quad D = \frac{P \times F}{M}$$



# TABLE OF DISTANCES OF CINEMATOGRAPH LENSES.

Mask aperture .9 in. wide.

Distance Lens to Screen Feet.	Focus of Lens in Inches.															
	2 in. ft. in.	2 1/4 in. ft. in.	2 1/2 in. ft. in.	3 in. ft. in.	3 1/4 in. ft. in.	3 1/2 in. ft. in.	3 3/4 in. ft. in.	4 in. ft. in.	4 1/4 in. ft. in.	4 1/2 in. ft. in.	4 3/4 in. ft. in.	5 in. ft. in.	5 1/4 in. ft. in.	5 1/2 in. ft. in.	5 3/4 in. ft. in.	6 in. ft. in.
10	4 6 4	0 3	7 3	3 3	0 2	9 2	7 2	5 2	3 2	1 2	0 1	1 11	1 10	1 9	1 8	1 7
12	5 5 4	10 4	4 3	11 3	7 3	1 2	11 2	8 2	2 7	2 5	2 4	2 2	2 1	1 11	1 10	1 10
15	6 9 6	0 5	5 4	11 4	5 4	2 3	11 3	7 3	3 3	2 3	0 2	11 2	7 2	2 6	2 4	2 3
20	9 0 8	0 7	2 6	7 6	0 5	7 5	2 4	10 4	6 4	3 4	0 3	10 3	7 3	5 3	3 3	1 3
25	11 3 10	0 9	0 8	2 7	6 6	11 6	5 6	0 5	7 5	3 5	0 4	9 4	6 4	3 4	1 3	10 3
30	13 6 12	0 10	9 9	10 9	0 8	4 7	9 7	3 6	9 6	4 6	0 5	9 5	5 5	2 4	1 4	8 4
35	15 9 14	0 12	7 11	5 10	6 9	8 9	0 8	5 7	10 7	4 7	0 6	8 6	4 6	0 5	9 5	5 5
40	18 0 16	0 14	4 13	2 12	0 11	2 10	4 9	8 9	0 8	6 8	0 7	8 7	2 6	10 6	6 6	2 6
45	20 3 18	0 16	2 14	9 13	6 12	6 11	7 10	10 10	1 9	6 9	0 8	7 8	1 7	8 7	4 6	11 6
50	22 6 20	0 18	0 16	5 15	0 13	10 12	11 12	0 11	3 10	7 10	0 9	6 9	0 8	7 8	2 7	10 7
55	24 9 22	0 19	9 18	1 16	5 15	4 14	3 13	3 12	5 11	8 11	0 10	7 9	11 9	5 9	0 8	6 8
60	27 0 24	0 21	6 19	8 18	0 16	8 15	6 14	6 13	6 12	8 12	0 11	6 10	10 10	4 9	10 9	4 9
65	29 3 26	0 23	4 21	4 19	6 18	1 16	9 15	8 14	7 13	9 13	0 12	5 11	8 11	1 10	7 10	0 9
70	31 6 28	0 25	1 23	0 21	9 19	6 18	1 16	11 15	9 14	10 14	0 13	5 12	7 12	0 11	5 10	10 10
75	33 9 30	0 27	0 24	7 22	6 20	9 19	4 18	0 16	10 15	10 15	0 14	3 13	6 12	10 12	3 11	8 11
80	36 0 32	0 28	9 26	3 24	0 22	2 20	8 19	3 18	0 16	11 16	0 15	3 14	5 13	9 13	1 12	6 12
85	38 3 34	0 30	7 27	10 25	6 23	6 21	11 20	5 19	1 17	11 17	0 16	2 15	4 14	7 13	1 13	3 12
90	40 6 36	0 32	5 29	6 27	0 25	0 23	2 21	8 20	2 19	0 18	0 17	2 16	2 15	4 14	8 13	10 13
95	42 9 38	0 34	2 31	2 28	6 26	4 24	6 22	10 21	4 20	1 19	0 18	1 17	1 16	3 15	6 14	9 14
100	45 0 40	0 36	0 32	9 30	0 27	8 25	9 24	0 22	6 21	2 20	0 18	1 18	0 17	1 16	5 15	7 15
110	49 6 44	0 39	7 36	0 33	0 30	5 28	4 26	5 24	9 23	3 22	0 20	10 19	10 18	10 18	1 17	2 16
120	54 0 48	0 43	2 39	4 36	0 33	3 30	11 28	10 27	0 25	5 24	0 22	9 21	7 20	6 19	8 18	0 18

Width of Picture.

The height of Picture is approximately  $\frac{3}{4}$  the width.

# TABLE OF DISTANCES FOR LANTERN LENSES.

Mask Size 3 inches.

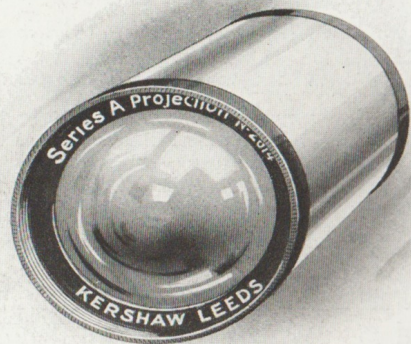
Distance Lens to Screen Feet	Focus of Lens in Inches.															
	4 in. ft. in.	6 in. ft. in.	8 in. ft. in.	10 in. ft. in.	12 in. ft. in.	14 in. ft. in.	16 in. ft. in.	18 in. ft. in.	20 in. ft. in.	22 in. ft. in.	24 in. ft. in.	26 in. ft. in.	28 in. ft. in.	Size of Picture.		
10	7 6	5 0	3 9	3 0	2 6	2 2	1 10	1 8	1 6	1 4	1 3	1 2	1 1			
12	9 0	6 0	4 6	3 7	3 0	2 7	2 3	2 0	1 9	1 7	1 6	1 4	1 3	1 1	1 1	1 1
15	11 3	7 6	5 8	4 6	3 9	3 3	2 10	2 6	2 3	2 0	1 10	1 9	1 8	1 1	1 1	1 1
20	15 0	10 0	7 6	6 0	5 0	4 3	3 9	3 4	3 0	2 9	2 6	2 4	2 2	2 2	2 2	2 2
25	18 9	12 6	9 4	7 6	6 3	5 4	4 8	4 2	3 9	3 5	3 1	2 11	2 8	2 8	2 8	2 8
30	22 6	15 0	11 3	9 0	7 6	6 5	5 7	5 0	4 6	4 1	3 9	3 6	3 3	3 3	3 3	3 3
35	26 3	17 6	13 1	10 6	8 9	7 6	6 7	5 10	5 3	4 9	4 4	4 0	3 9	3 9	3 9	3 9
40	30 0	20 0	15 0	12 0	10 0	8 6	7 6	6 8	6 0	5 4	5 0	4 7	4 3	4 3	4 3	4 3
45	33 9	22 6	16 10	13 6	11 3	9 8	8 5	7 6	6 9	6 1	5 7	5 2	4 10	4 10	4 10	4 10
50	37 6	25 0	18 9	15 0	12 6	10 9	9 4	8 4	7 6	6 10	6 3	5 9	5 4	5 4	5 4	5 4
60	45 0	30 0	22 6	18 0	15 0	12 11	11 3	10 0	9 0	8 2	7 6	6 11	6 5	6 5	6 5	6 5
70	52 6	35 0	26 3	21 0	17 6	15 1	13 1	11 8	10 6	9 6	8 9	8 1	7 6	7 6	7 6	7 6
80	60 0	40 0	30 0	24 0	20 0	17 1	15 0	13 4	12 0	10 11	10 0	9 3	8 7	8 7	8 7	8 7
90	67 6	45 0	33 9	27 0	22 6	19 5	16 10	15 0	13 6	12 3	11 3	10 5	9 8	9 8	9 8	9 8
100	75 0	50 0	37 6	30 0	25 0	21 7	18 9	16 8	15 0	13 8	12 6	11 6	10 8	10 8	10 8	10 8

Size of Picture.

In selecting a Lantern Lens, its Focus should be approximately  $4\frac{1}{2}$  times that of the Cinematograph Lens.



## "KERSHAW" Cinematograph Projection Lenses.



### Series A.

*Standard Size Mount 1.68 inches dia.*

Working at full open aperture—no central stops—therefore allowing the maximum amount of light available to pass.

Focal Length, Inches.	F Value	Price Each.	Code Word.
2½	F 2.0	}	Acton
3	F 2.2		Acree
3¼	F 2.3		Actor
3½	F 2.5		Actimo
3¾	F 2.7		Actinic
4	F 2.9		Actual
4¼	F 3.1		Acted
4½	F 3.3		Actral
4¾	F 3.5		Actak
5	F 3.7		Actent
5½	F 4.0		Actist
6	F 4.4		Actaler
6½	F 4.8		Accent
7	F 5.2		Aceso

Intermediate focal lengths ... extra.

## "KERSHAW" Cinematograph Projection Lenses.



### Series B.

*\*\* Standard Size Mount 2.07 inches dia.*  
LARGE APERTURE.

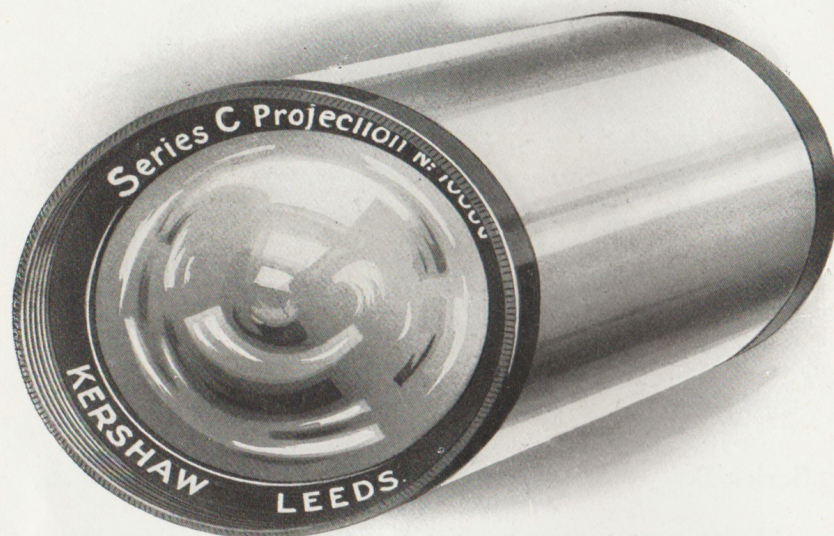
Similar in construction to series A, and of the same high quality. The larger diameter mount makes it possible to use larger diameter optical elements, therefore allowing more light to pass.

Focal Length, Inches.	F Value	Price Each	Code Word.
3	F 1.7	}	Bens
3¼	F 1.8		Benson
3½	F 2.0		Bensit
3¾	F 2.1		Bend
4	F 2.2		Benton
4¼	F 2.4		Belt
4½	F 2.5		Bentop
4¾	F 2.7		Bended
5	F 2.8		Bensize
5½	F 3.1		Bensal
6	F 3.3		Bensix
6½	F 3.7		Bensosit
7	F 4.0		Benseven

Intermediate focal lengths ... extra.



## “ KERSHAW ” Cinematograph Projection Lenses.



**Series C.** *Standard Size Mount 2.75 inches dia.*  
EXTRA LARGE APERTURE.

Designed to meet the requirements for a lens of increased aperture. The large diameter mount makes it possible to use optical elements of extra large aperture, hence increased illumination.

Focal Length, Inches.	F Value.	Price Each.	Code Word.
4 $\frac{1}{2}$	F 2.0	}	Cabon
4 $\frac{3}{4}$	F 2.0		Cacon
5	F 2.0		Cadon
5 $\frac{1}{2}$	F 2.2		Cagon
6	F 2.4		Cakon
6 $\frac{1}{2}$	F 2.6		Calon
7	F 2.8		Camon

Intermediate focal lengths ... extra.

## “ KERSHAW ” Lantern or Title Projection Lenses.



Entirely British Made.

**Series T.** *Standard Size Mount 2.07 inches dia.*

These lenses have been specially designed for use in conjunction with our Cinematograph Projection Lenses, for projecting slides, titles, advertisements, etc., but are equally suitable for any form of Lantern Projection.

They are of first class make and finish, and give remarkably fine, clear definition over the whole field.

The working aperture is 1.9 inches dia.

8 in. to 28 in. equiv. focus ... .. each  
(Advancing by 2 in.)

Intermediate focal lengths ... extra.

Code Word : “ TITLE. ”

When coding, add focus in inches to Code Word.



## SPARE PARTS FOR THE "KALEE INDOMITABLE MODEL No. 7" MECHANISM.

The "Kalee Indomitable" Model No. 7 Projector is manufactured in a factory specially built and equipped with the most modern precision machinery for the production of the highest class mechanical precision apparatus.

All the composite parts are standardised to very fine limits, and are practically interchangeable, with the exception of taper pin holes. In supplying a part which is fixed by a taper pin, one side only is drilled, the completing of the hole and final reamering to size being left to the mechanic doing the repair.

The majority of composite parts are illustrated on the three following plates. When ordering parts not illustrated, state the list number of the part for which they are required.

The factory number of the mechanism should be stated; this will be found on the top of the mechanism near the top spool arm fixing bolt. Also, when ordering parts for this type of mechanism, to avoid any mistakes, the number of the part should be prefixed by the letter "E."

Spare parts are kept in stock and in most cases can be despatched by return of post.

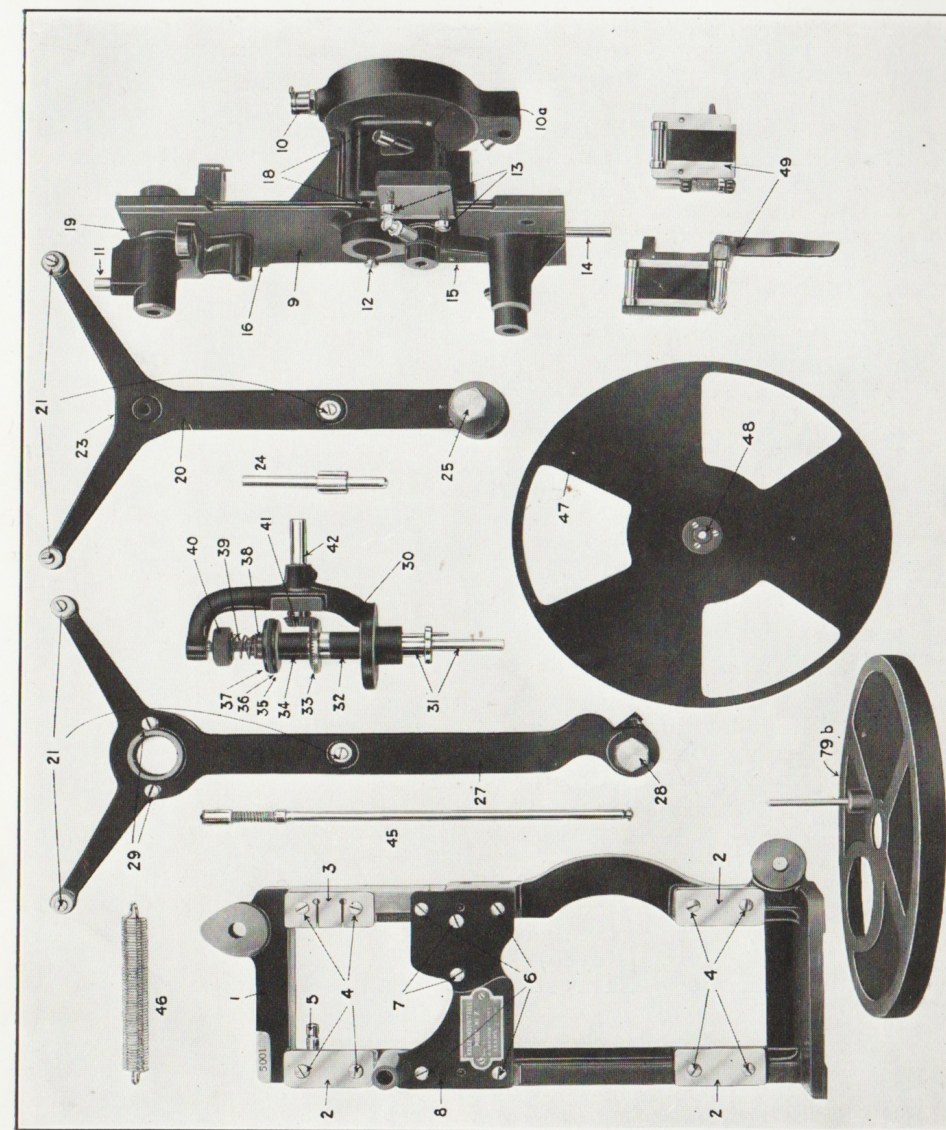
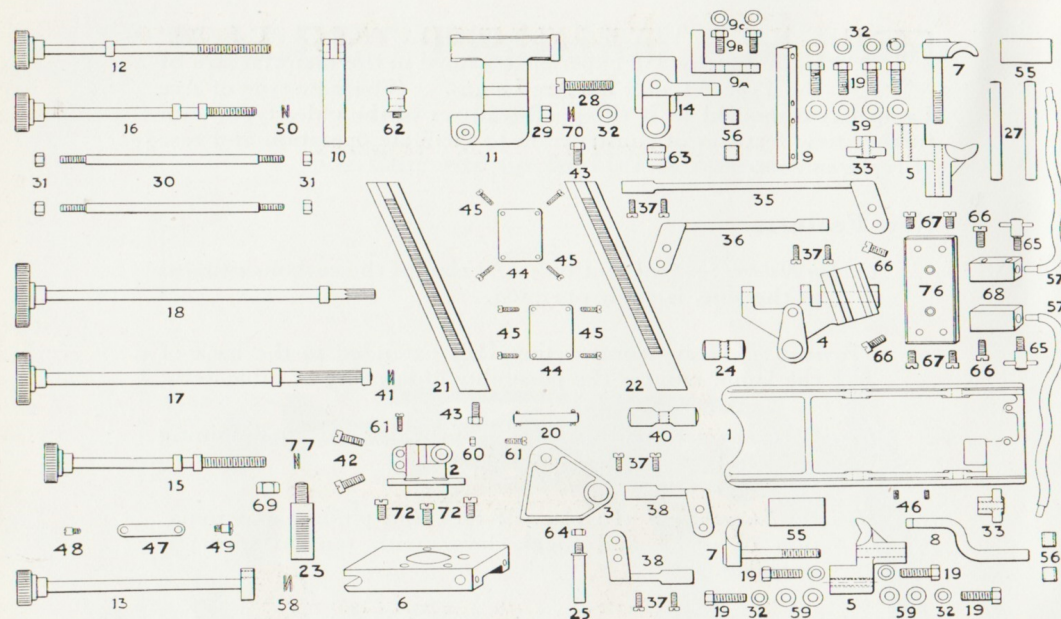


Plate No. 1.





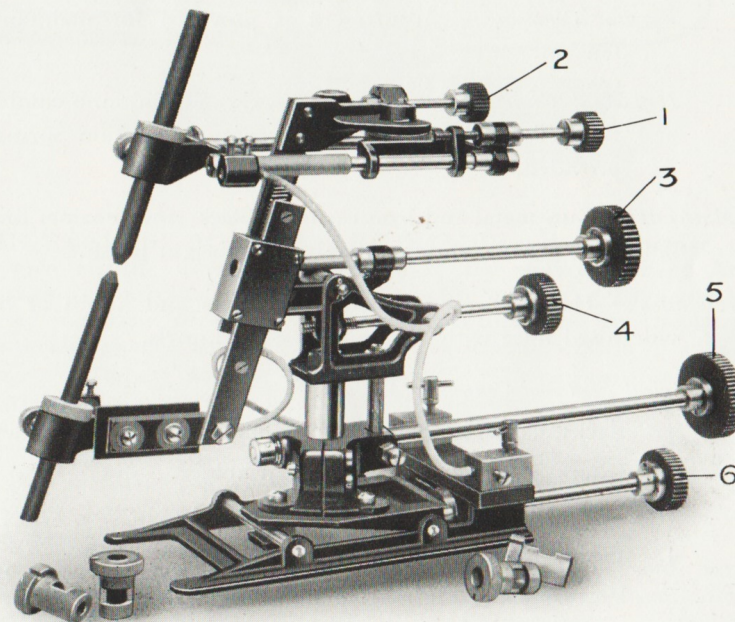
TYPE Y.L. ARC LAMP SPARE PARTS

No.	DESCRIPTION	each	£	s.	d.	No.	DESCRIPTION	each	£	s.	d.	
1	Base	...	0	12	0	35	Top Terminal	...	0	6	0	
2	Body	...	0	15	0	36	Bottom Terminal	...	0	5	0	
3	Centre Frame	...	0	12	0	37	Screws for Terminals	...	0	0	6	
4	Tilting Bracket	...	1	0	0	38	Short Terminals (for use with Terminal Block)	...	0	4	6	
5	Top and Bottom Back Carbon Holder	...	0	7	0	40	Pivot Pin for Tilting Bracket Screw	...	0	4	0	
6	Lateral Slide Base for Body	...	0	9	0	41	Spring Washer for Elevating Pinion	...	0	0	6	
7	Top and Bottom Carbon Holder Caps	...	0	4	0	42	Body Tension Screws	...	0	0	6	
8	Bottom Carbon Holder Bracket	...	0	7	0	43	Screws for Racks...	...	0	0	6	
9	Bar for Top Carbon Holder Bracket	...	0	3	0	44	Rack Bar Plates	...	0	1	6	
9A	Top Carbon Holder Bracket	...	0	5	0	45	Screws for Rack Bar Plates	...	0	0	3	
9B	Screw for No. 9A	...	0	0	6	46	Screws for No. 6 Slide Rods	...	0	0	3	
9C	Washers for No. 9A	...	0	0	3	47	Link for Centering Crank	...	0	2	0	
10	Space bar for Slide Rods	...	0	5	0	48	Pin for Centering Crank...	...	0	0	9	
11	Slide Bar Frame	...	0	12	0	49	Pivot Screw for Link	...	0	1	0	
12	Slide Screw	...	0	7	0	50	Spring Washer for Swivel Screw...	...	0	0	6	
13	Horizontal Centering Crank	...	0	9	0	55	Mica Insulating Plates	...	0	1	0	
14	Swivel Bracket	...	0	12	0	56	Insulating Bushes	...	0	0	6	
15	Control Screw for Tilting Bracket	...	0	8	0	57	Leads, Asbestos Covered Copper	pair	0	8	6	
16	Swivel (No. 14) Screw	...	0	8	0	58	Spring Washer for Centering Crank	each	0	0	6	
17	Elevating Pinion	...	0	9	0	59	Mica Washers	...	pair	0	0	9
18	Feed Pinion	...	0	10	6	60	Nut for Guide Pin Set Screw	each	0	0	3	
19	Screws for Carbon Holders	...	0	0	6	61	Set Screw for Guide Pin and Body	...	0	0	6	
20	Pivot Pin, Tilting Bracket	...	0	2	0	62	Pivot Nut for Swivel Screw	...	0	3	0	
21	Rack Bar and Rack (Left Hand)	...	0	9	0	63	Nut for Swivel Bracket	...	0	3	0	
22	Rack Bar and Rack (Right Hand)	...	0	9	0	64	Nut for Guide Pin	...	0	0	4	
23	Main Pillar	...	0	6	0	65	Tommy Screws for Terminals	...	0	0	9	
24	Nut for Tilting Bracket	...	0	3	0	66	Screws for Terminals	...	0	0	6	
25	Guide Pin	...	0	2	0	67	Screws for Terminals	...	0	0	6	
27	Slide Rods for No. 6	...	0	0	9	68	Terminals	...	0	2	3	
28	Pivot Screw for No. 14	...	0	1	3	69	Nut for Main Pillar	...	0	0	4	
29	Nut for No. 28	...	0	0	4	70	Spring Washer for Swivel Pivot Screw	...	0	0	6	
30	Top Slide Rods	...	0	2	3	72	Screws for Body (No. 2)	...	0	0	6	
31	Nuts for No. 30	...	0	0	4	76	Hard Fibre Base for Terminals...	...	0	2	9	
32	Washers for Nos. 28 and 19	...	0	0	3	77	Spring Washer for Tilting Bracket Control Screw (No. 15)	...	0	0	6	
33	Carbon Holder Wing Nuts	pair	0	2	3							

# “ KALEE ” Projection Arc Lamp.

Type C.L.

For Currents up to 50 Amperes.





**T**HE "KALEE" TYPE "CL" PROJECTION ARC LAMP has been designed on similar lines to the Type "YL," but lighter and less in size. It is suitable for ordinary slide projection or for Kinematograph projection, where a current of not more than 50 amperes is required.

## FEATURES.

*Carbon Holders* :—Special sleeve bushes make it possible to use any size carbon up to 18 m.m. dia., the carbon is directly clamped by one screw only.

*Vertical Centering* :—Adjustment is provided for maintaining tension.

*Horizontal Centering* :—In place of rack and pinion, a combination of crank and toggle lever with tension spring is provided.

*Materials* :—Gun-metal and iron castings, black stove enamel finish. All racks, pinions and screws are steel, bright finish.

*Insulation* :—Heavy sheet mica, steatite bushes and knobs of hard vulcanised fibre with deep machine-cut knurls.

*Mechanical Feed and Centering Motions* :—

1. Backward and forward movement to top carbon holder.
2. Lateral movement to top carbon holder.
3. Carbon feed, quick and accurate.
4. Tilting movement to lamp.
5. Vertical centering movement.
6. Lateral movement to lamp.

Approximate weight of Arc Lamp, as illustrated, 12 lbs.

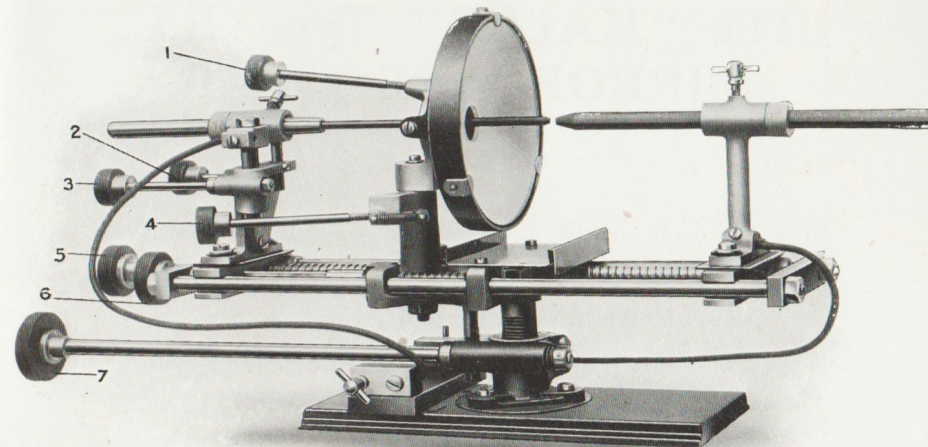
Price each

Code Word: "CEFEL."

The above price includes two Carbon Holder Bushes, and unless ordered otherwise, one each 12 and 14 m.m. is supplied

Extra Bushes —8, 10, 12 or 14 m.m., each.

## "KALEE" Mirror Arc Lamp. Type R.L.



**T**HE "KALEE" MIRROR ARC LAMP has been designed to give all the advantages obtained by the mirror type of Arc Lamp, controlled in the easiest possible manner. Constructed of selected materials, of robust build, and manufactured on the latest interchangeable system, to withstand hard, continuous service.

*Advantages* :—Highest possible light efficiency. 75 per cent. saved in current consumption. Elimination of condensers. Small diameter carbons, reduced cost.

*Materials* :—Body and base of cast-iron; carbon holders and supports, gun-metal; actuating screws, steel; mirror holder, aluminium.

*Finish* :—Iron and aluminium castings, black stove enamel; gun-metal and steel parts, dull nickel-plated.

*Insulation* :—Heavy sheet mica and porcelain bushes, handles of hard vulcanised fibre. Terminals are separately mounted on a vulcanised fibre block fixed to the main base.

*Mirror* :—Best quality glass, silvered with hard protective backing.

*Spares* :—All the component parts are manufactured in jigs and fixtures, hence easy replacement.

*Carbons* :—Each lamp is provided with holders to take the following sizes of carbons:—

Positive 10 and 12 mm. diam. ... Negative 6, 7 and 8 mm. diam.

*Amperage* :—We recommend the following combination of carbons:—

0-10 Amperes, 6 mm. negative, and 10 mm. positive.

10-20 „ 7 mm. „ and 10 mm. „

20-35 „ 8 mm. „ and 12 mm. „

**Price of Arc Lamp complete with set of carbon holders,**

Weight of Arc Lamp, approx., 18 lbs. Code Word: "MIRAC"



# Instructions for working The "KALEE" Type R.L. MIRROR ARC LAMP.

The following mechanical feed and centering motions are provided:—

1. Vertical centering of Mirror.
2. Horizontal centering of Negative carbon.
3. Vertical centering of Negative carbon.
4. Horizontal centering of Mirror
5. Carbon feed, quick and accurate.
6. Backward and forward movement of crater in relation to mirror.
7. Vertical adjustment of optical centre.

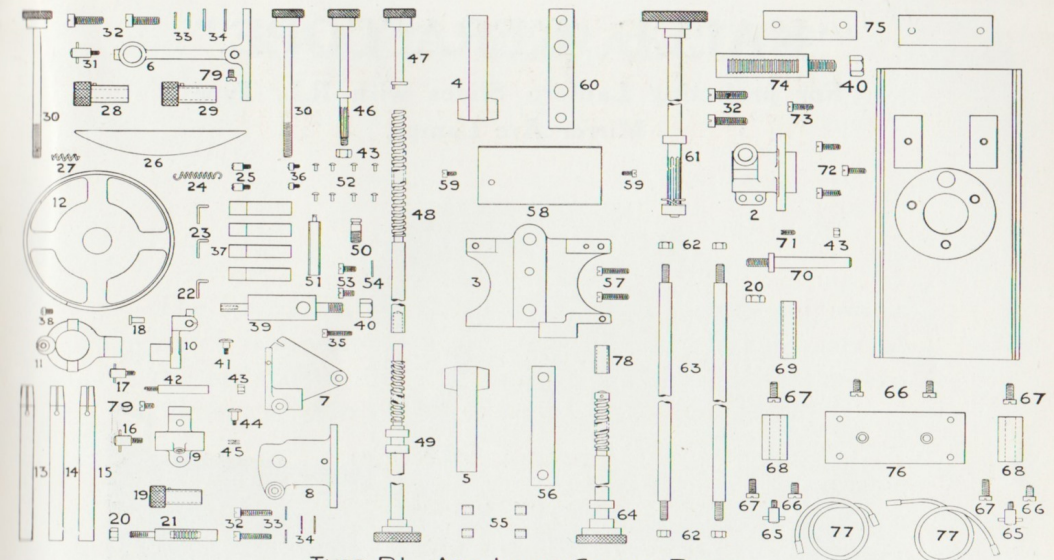
Open out the carbon feed (5) as far as possible, insert the negative carbon in the back holder so as to project through the hole in Mirror about  $2\frac{1}{2}$  ins. Insert the positive (cored) carbon in the front holder so that its point is separated  $\frac{1}{4}$  in. from the negative carbon point. Be careful to see that the lamp is connected up to current supply in the correct polarity direction. By observation, roughly adjust mirror central with carbons.

Allow a working distance of about 15 ins. to 17 ins. from the Arc Crater to Projector Gate.

The lamp house runners should be carefully adjusted to ensure the carbon being lineable with the optical axis of the projector.

The Arc should be maintained, as far as possible, at  $\frac{1}{8}$  in. to avoid shadow effect.

By careful manipulation of the various motions a user will quickly find the best positions to obtain the maximum efficiency.



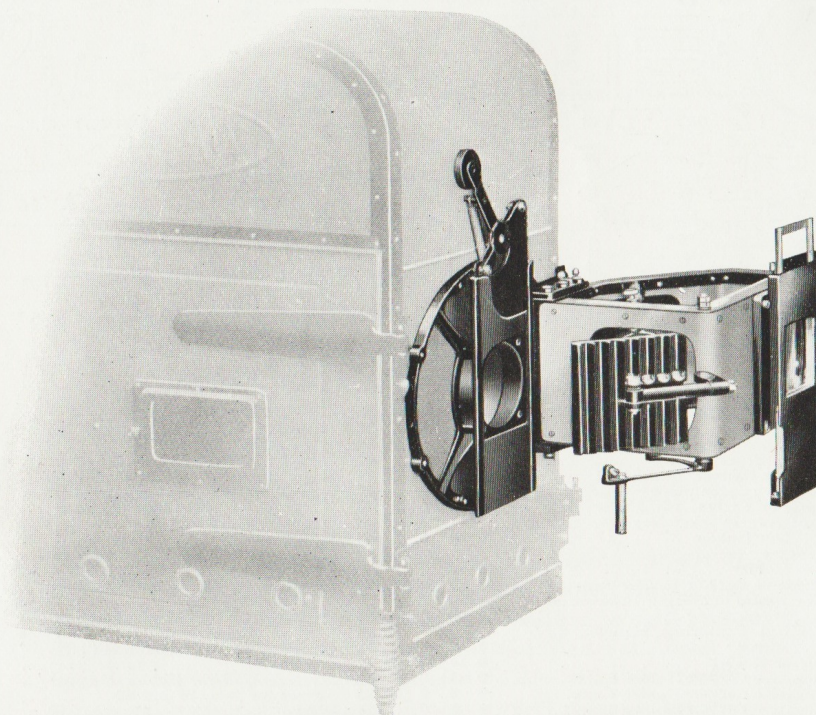
TYPE R.L. ARC LAMP SPARE PARTS.

No.	DESCRIPTION.	QTY.	£	s.	d.	No.	DESCRIPTION.	QTY.	£	s.	d.
1	Base	each	0	9	0	38	Screw for Mirror Clip No. 22	each	0	0	4
2	Body	...	0	15	0	39	Pillar for Mirror Brackets	...	0	6	6
3	Centre Bracket	...	0	9	0	40	Nuts for Nos. 39 and 74 Pillars	...	0	0	4
4	Positive Carbon Holder Slide	...	0	12	0	41	Pivot Screw for No. 7 Bracket	...	0	1	0
5	Negative Carbon Holder Slide	...	0	12	0	42	Guide Pin, Negative Carbon Holder	...	0	1	0
6	Positive Carbon Holder Support	...	0	10	0	43	Nuts for Nos. 42, 46 and 71	...	0	0	3
7	Centering Bracket Negative Carbon Holder	...	0	11	0	44	Screw for Centering Bracket	...	0	1	0
8	Bracket for Negative Carbon Holder	...	0	9	0	45	Spring Washer	...	0	0	4
9	Negative Carbon Holder Support	...	0	8	0	46	Elevating Pinion Negative Carbon Holder	...	0	3	6
10	Horizontal Centering Bracket for Mirror	...	0	8	0	47	Centering Crank, Negative Carbon Holder	...	0	3	0
11	Vertical Centering Bracket for Mirror	...	0	9	0	48 & 49	Carbon Feed Screws complete Set	Set	0	12	0
12	Mirror Holder	...	0	13	0	50	Stud for No. 24 Spring	each	0	0	6
13	Negative Carbon Holder 6 mm.	...	0	5	0	51	Crossbar Mirror Adjustment (horizontal)	...	0	1	6
14	Negative Carbon Holder 7 mm.	...	0	5	0	52	Screws for Mirror Holder	...	0	0	3
15	Negative Carbon Holder 8 mm.	...	0	5	0	53	Screws for Nos. 10 and 29	...	0	0	4
16	Clamping Screw, Negative Carbon	...	0	1	0	54	Washer for Screw No. 53 on No. 10	...	0	0	3
17	Clamping Screw, Mirror Bracket No. 10	...	0	1	0	55	Porcelain Bushes	...	0	0	6
18	Rivet for Pad Mirror Holder	...	0	0	4	56	Back Slide Bar	...	0	3	3
19	Negative Carbon Holder Sleeves	...	0	4	0	57	Screws for No. 3	...	0	0	6
20	Nut for No. 21—Elevating Rack	...	0	0	3	58	Carbon Dust Tray	...	0	1	6
21	Elevating Rack, Negative Carbon Holder	...	0	2	3	59	Screws for Tray	...	0	0	3
22	Clip securing Mirror, top	...	0	0	9	60	Front Slide Bar	...	0	3	6
23	Clips securing Mirror, side	pair	0	1	3	61	Elevating Pinion	...	0	9	0
24	Spring for No. 10 Bracket	each	0	0	4	62	Nuts for Slide Rails	...	0	0	4
25	Screws for Mirror Holder	pair	0	1	3	63	Slide Rails	...	0	2	3
26	Mirror	each	1	1	0	64	Focussing Screw	...	0	8	0
27	Spring, Vertical Centering Mirror	...	0	0	4	65	Tommy Screws for Terminals	...	0	1	0
28	Positive Carbon Holder Sleeve, 10mm.	...	0	4	0	66	Lead Screws for Terminals	...	0	0	6
29	Positive Carbon Holder Sleeve, 12mm.	...	0	4	0	67	Screws fixing Terminals to Fibre Block	...	0	0	3
30	Centering Screws for Mirror	...	0	2	6	68	Terminals	...	0	2	3
31	Clamping Screws Positive Carbon	...	0	1	0	69	Distance Tube	...	0	1	3
32	Washers for Nos. 2, 4 and 5	...	0	0	6	70	Guide Pin for Body	...	0	2	0
33	Washers for Nos. 4 and 5	...	0	0	3	71	Grub Screw for Body	...	0	0	3
34	Mica Washers for Nos. 4 and 5	...	0	0	4	72	Screws for Base	...	0	0	6
35	Screws, Clamping Guide Pin, Neg. Carbon Holder	...	0	0	6	73	Screw for Body	...	0	0	6
36	Screws for Mirror Clips, No. 23	...	0	0	6	74	Main Pillar	...	0	6	0
37	Pressure Springs for Mirror	...	0	0	9	75	Mica Insulators	...	0	2	3
						76	Fibre Terminal Block	...	0	2	3
						77	Leads	pair	0	3	6
						78	Distance tube for Focus Screw	each	0	1	0
						79	Lead Screws for Nos. 6 and 9	...	0	0	4



## “KALEE KERASCOPE.”

For projecting Lantern Slides with R.L. Type  
Mirror Arc Lamps.



Type “R.L.” Kerascope as fitted to “Kalee” No. 7 Lamp House,  
with Vertical Steel Slide Carrier and Steel Curtain Cut-off,  
and as supplied with No. 7 M.K. Outfit.

“KALEE KERASCOPE,” as illustration, but without Steel  
Curtain Cut-off.

Price     ...     ...     ...  
Code Word: “KERAS.”

“KALEE” Steel Curtain Light Cut-off.

Price     ...     ...     ...  
Code Word: “STOFF.”

## “KALEE KERASCOPE”



### SPECIFICATION.

The “KALEE KERASCOPE” is a special apparatus  
which is mounted on the Lamp House front in place of  
the ordinary condenser housing, for projecting Lantern  
Slides with Mirror Arc Lamps, of the R.L. Type.

In use the apparatus entirely obviates the objectionable  
black centre spot which appears on the screen when  
using Mirror Arc Lamps with the ordinary condenser  
arrangement.

It is not necessary to slide over the Lamp House when  
changing over from Cine to Slide projection; a vertically  
swung Mirror is brought into action, which intercepts  
the light rays from the Arc Lamp. The rays then pass  
through a Diverging Lens and are then reflected by a  
second Mirror, through a special Condenser which is  
mounted behind the Slide Carrier. The projected image  
then passes through the Lantern Objective in the  
ordinary manner.

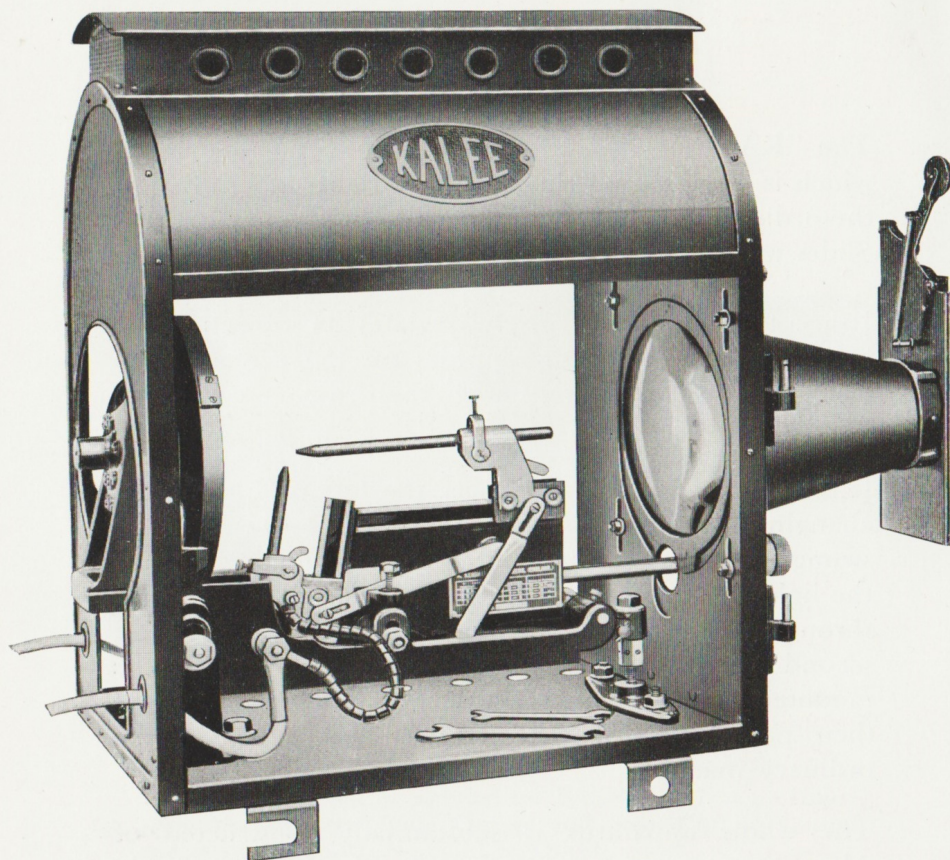
The whole apparatus is substantially constructed of  
Aluminium castings encased with Blued Sheet Steel;  
the Optical Components are specially selected and of  
superior quality.

A special type of Vertical Slide Carrier is fitted and the  
slides are carried in separate metal holders. The simple  
action of withdrawing the bottom slide, allows the next  
slide to come into correct register for projection.



# **"KALEE" Type 8M.L. High-Power Mirror Arc Lamp**

(8 in. diameter Mirror and 8 in. diameter Condenser).



**"KALEE" Type 8M.L.** High-Power Mirror Arc Lamp, complete with Single Lamp House, as illustration, Light Cone and Steel Curtain Cut-off (as supplied with No. 7A.M.L. Outfit).

PRICE ... ..

Code Word: "HIPOW."

**"KALEE" Type 8M.L.** High-Power Mirror Arc Lamp, complete, with Single Lamp House, Type M.L. Kerascope, Light Cone, Steel Curtain Cut-off, Vertical Steel Slide Carrier and Slide Holder Frames (as supplied with No. 7B.L.K. Outfit).

PRICE ... ..

Code Word: "HIKER."

## **SPECIFICATION :**

The "KALEE" Type "8 M.L." High-Power Mirror Arc Lamp represents the latest developments in Mirror Arc construction and is an evolutionary design, gained by experience in manufacturing large numbers of Mirror Arc Lamps.

### **ADVANTAGES :**

- 1 Increased light efficiency by using a large diameter (8in.) mirror without a central hole.
- 2 Arc crater, placed at the most efficient light collecting position.
- 3 Large diameter (8 in.) condenser finally converges the beam of light on to the projector gate mask and at the same time absorbs heat which would otherwise be transmitted to the mechanism.
- 4 Ease of operation—when correctly set up in the first instance—it is only necessary to operate the carbon feed knobs, both work on the one spindle, and can be locked to work simultaneously.

### **MATERIALS :**

Only selected materials are used—base, body and mirror holder cast-iron—steel worms—gun-metal segments—pressed steel carbon holders.

### **FINISH :**

Castings, etc., black stove enamelled—gun-metal and steel components, dull nickel-plated.

### **INSULATION :**

Heavy sheet mica—hard vulcanized fibre carbon feed knobs.

### **MIRROR :**

Best quality heat-resisting glass, heavily silvered and coated with a special hard protective backing.

### **CONDENSER :**

Best quality heat-absorbing glass, transparent and thoroughly annealed.

### **SPARES :**

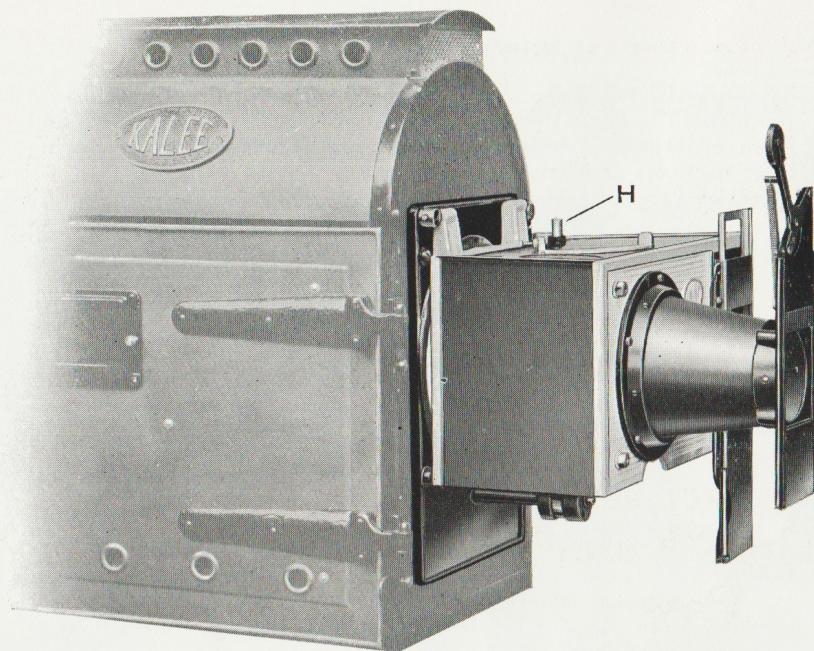
All component parts are manufactured by the most modern methods in jigs and fixtures to close limits—hence easy replacements.

### **AMPERAGE :**

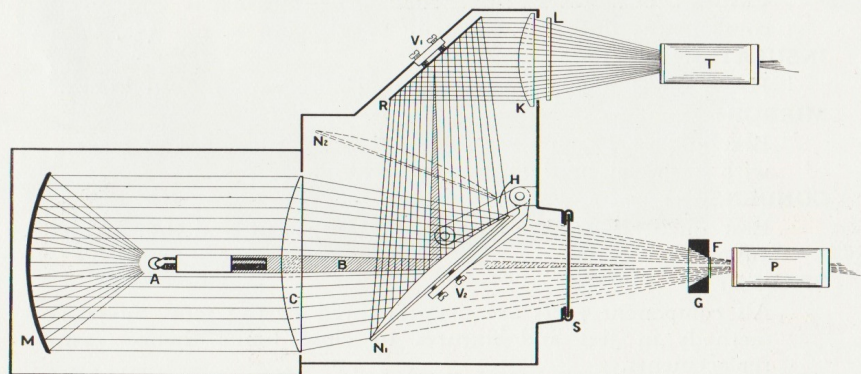
The following combination of carbons are recommended :

+	CARBONS	—		
POSITIVE.		NEGATIVE.	AMPERES.	WIDTH OF PICTURE.
12 m.m.		10 m.m.	15—20	18—24 feet
10 m.m.		8 m.m.	9—14	12—18 feet
7 m.m.		6 m.m.	5—8	9—12 feet





Type "M.L." Kerascope fitted to Type "M.L." Lamp House.



Sectional plan line drawing showing the path of the light rays when projecting both film and lantern slides.

When projecting slides, a convex mirror (N) intercepts the convergent beam after passing through the condenser (C).

The light rays are then reflected on to a plane mirror (R); then through a special condenser (K), mounted behind the slide carrier (L).

The projected image then passes through the lantern objective (T) in the ordinary manner.

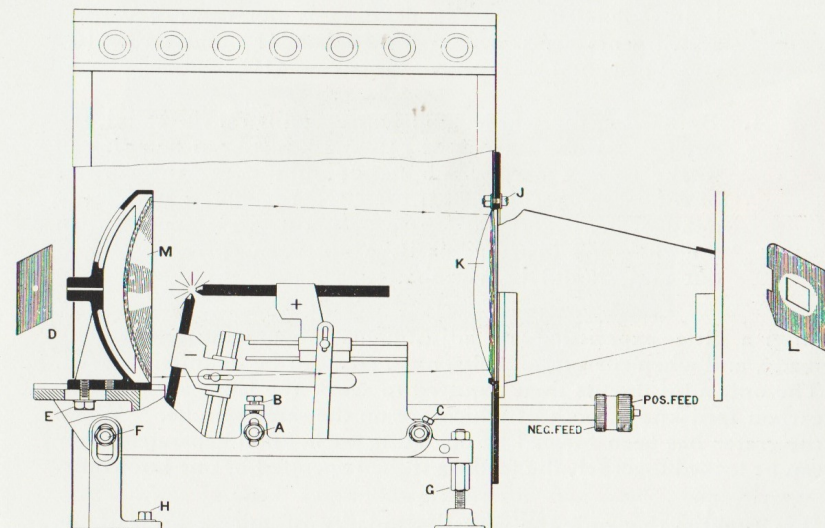
Adjusting screws are provided for setting the mirrors in the correct positions.

To change over from film to slide projection it is only necessary to close the cut-off and swing over the mirror lever (H).

To ensure perfect covering of lantern slides it is necessary to state the focal length of the lantern lens to be used with it, so that the correct focus condenser can be supplied. The following combinations of lantern objectives and condensers should be used.

OBJECTIVE FOCUS	CONDENSER FOCUS
6 inch to 12 inch	9 inch
12 inch to 25 inch	16 inch
25 inch upwards	20 inch

## INSTRUCTIONS for SETTING UP and WORKING The "Kalee" Type "M.L." High- Power Mirror Arc Lamp.



To obtain maximum efficiency with the "Kalee" Type "M.L." Arc Lamp, care in setting up in the first instance should be taken in making the following essential adjustments:

1. The centre of the condenser (K) must be in alignment with the optical centre of the mechanism.



2. The Arc Crater must be relatively true with the mirror (M).
3. The Condenser (K) must be just flooded with light.
4. The Mask Plate (L) must be just flooded over the corners of the aperture.

All these adjustments are provided for in a very simple manner as follows :

1. The set screws (J) allow the condenser (K) to be raised or lowered. For "Kalee" mechanisms, a line marked on the housing should coincide with a line on the body.
2. Slacken nut (A), the lamp can then be moved vertically by screw (B). Lateral movement can be made when set screw (C) is slackened. When correctly set, an image of the crater will be projected through the small hole in the back of mirror housing. To verify, a piece of card can be held at the position (D), as shown on line drawing.
3. Slacken bolt (E) which will then allow the mirror housing to be moved backward or forward, so that the condenser (K) is just flooded. If the flooding is not central, vertical adjustments are provided for by bolt (F) and screw (G) and horizontal adjustment by screw (H).
4. By moving the whole lamp house bodily on the stand, the circle of light covering the gate mask plate can be adjusted to the correct size, which should fully cover the corners of the mask aperture. If the circle of light is not clearly defined, *i.e.*, should a double or ghost circle appear, then the foregoing instructions have not been correctly carried out and should be verified.

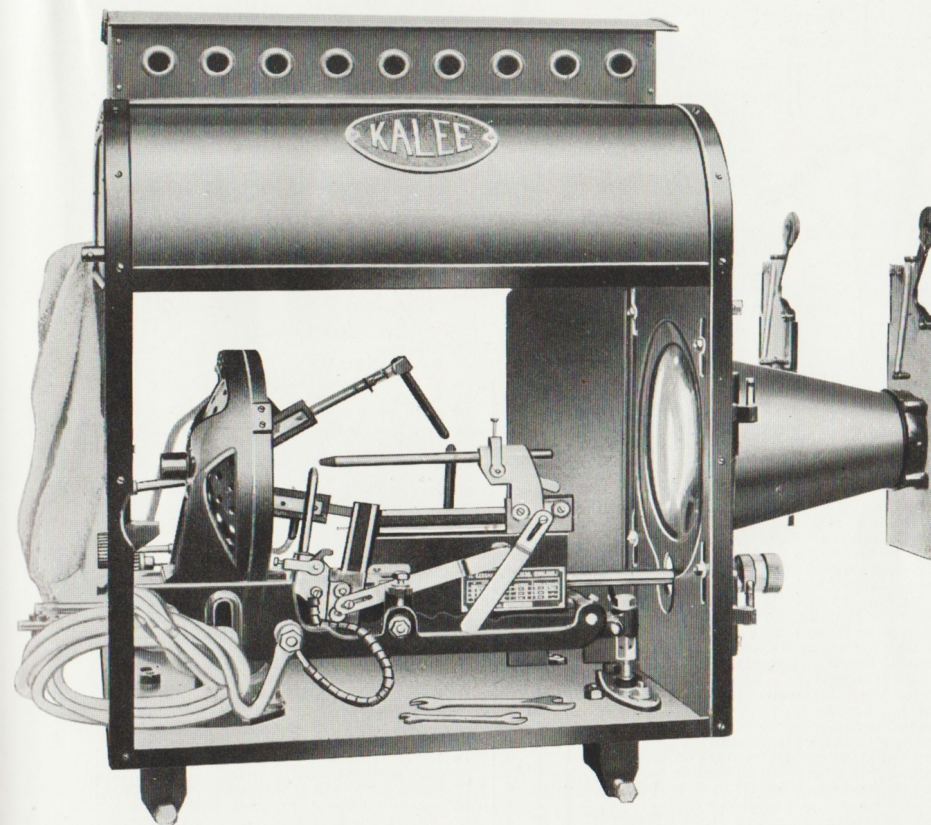
After a little experience all adjustments are quickly and readily made, and when correct, all bolts, nuts, etc., can be definitely locked. The only adjustments then required to work the lamp are the two carbon feed knobs, both of which are on the same spindle. When the crater has been formed by operating each knob separately, they can be locked together, the feeding is then operated by one knob only.

It is essential that only the very best quality of mirror arc carbons should be used.

The carbon holders are made of special pressed steel, to eliminate light obstruction, care should therefore be taken not to burn the carbons too short and thereby damaging the holders.

Strike the arc below normal amperage, increasing gradually to normal until the carbons burn in.

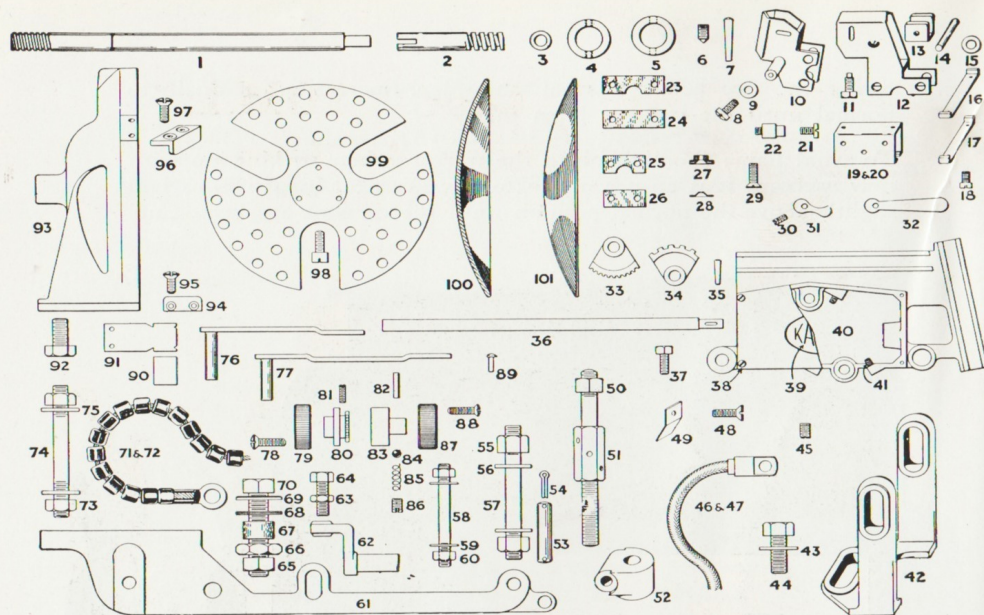
To avoid flame shooting on to the mirror when striking up with new carbons, it is an advantage to have vertical (negative) carbon slightly above the normal position until the carbons are heated up.



Double Lamp House, as supplied with No. 7 B.L.S. Outfit. It is fitted with a "Kalee" High-Power Mirror Arc Lamp, 8in. Mirror and 8 in. Condenser, with Cut-off and Type "S.L." Scissors Arc Lamp, with Condenser Cell, Condenser Lenses, Slide Carrier and Cut-off.

With both lamps burning, the change over from Cinematograph to Slide Projection and *vice versa* can be made instantaneously by closing one cut-off and opening the other cut off.





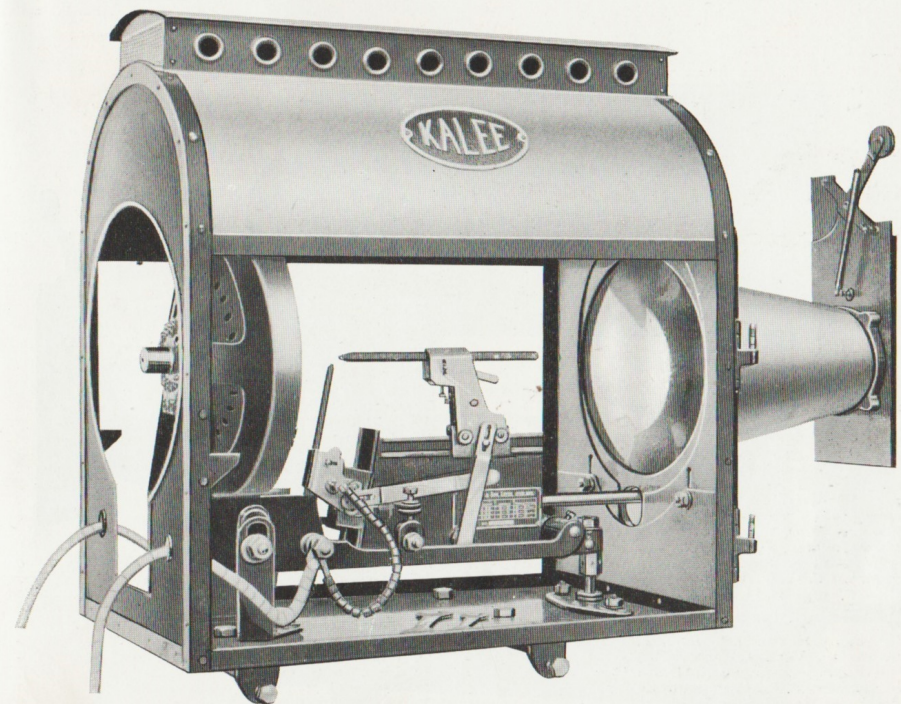
Type "8M.L." ARC LAMP SPARE PARTS.

No.	DESCRIPTION.	£	s.	d.	No.	DESCRIPTION.	£	s.	d.
1	Fine Feed Screw	0	9	0	53	Hinge Pin on Block	0	1	0
2	Coarse Feed Screw	0	9	0	54	Split Pins on Part 53	0	0	3
3	Feed Screw Spacer Ring	0	0	6	55	Hex Nut on Hinge Bolt	0	0	4
4	Feed Screw Thrust Washer (Tapped hole)	0	2	0	56	Washer on Hinge Bolt	0	0	3
5	Feed Screw Thrust Washer (Plain hole)	0	2	0	57	Body Hinge Bolt	0	2	0
6	Grub Screw for Part 4	0	0	3	58	Clamp Bolt on Body Cradle	0	1	9
7	Taper Pin for Part 5	0	0	3	59	Washer on Part 58	0	0	3
8	Securing Screw for Beaded Flex	0	0	6	60	Hex Nut on Part 58	0	0	4
9	Washer for Part 8	0	0	3	61	Body Cradle Casting	1	10	0
10	Vertical Carbon Holder (negative)	0	10	0	62	Stop Bracket	0	4	6
11	Adjusting Screw for Carbon Holders	0	1	0	63	Hex Nut on Part 64	0	0	4
12	Horizontal Carbon Holder (positive)	0	12	0	64	Adjusting Screw on Stop Bracket	0	0	6
13	Carbon Clamp Cradle	0	1	6	65	Hex Nut on Terminal Screw	0	0	4
14	Pin for Part 13	0	1	0	66	Thin Locknut on Terminal Screw	0	0	4
15	Washer for Part 13	0	0	3	67	Mica Insulation Bush on Terminal Screw	0	0	9
16	Slide Slip for Horizontal Carbon Holder	0	1	0	68	Mica Washer on Terminal Screw	0	0	4
17	Slide Slip for Vertical Carbon Holder	0	1	0	69	Washer (Metal) on Terminal Screw	0	0	3
18	Adjusting Screws for Parts 16 and 17	0	0	3	70	Terminal Screws	0	0	9
19	Slide for Horizontal Carbon Holder	0	6	0	71	Beaded Lead (long) positive	0	3	6
20	Slide for Vertical Carbon Holder	0	6	0	72	Beaded Lead (short) negative	0	3	6
21	Retaining Screws for Levers	0	0	3	73	Hex Nut on Part 74	0	0	6
22	Driving Studs on Carbon Holder Slides	0	1	0	74	Cradle Clamp Bolt	0	2	0
23	Mica Insulation for Horizontal Carbon Holder	0	0	6	75	Washer on Clamp Bolt	0	0	3
24	Mica Insulation for Horizontal Carbon Holder	0	0	6	76	Lever for Horizontal Movement, positive	0	4	6
25	Mica Insulation for Vertical Carbon Holder	0	0	6	77	Lever for Vertical Movement, negative	0	4	6
26	Mica Insulation for Vertical Carbon Holder	0	0	6	78	Screw securing Vertical Movement Head, negative	0	0	3
27	Mica Bushes on Carbon Holder Slides	0	0	6	79	Vertical (negative) Movement Head	0	2	6
28	Dished Washers on Carbon Holder Slides	0	0	6	80	Multi Tooth Clutch	0	0	6
29	Screws securing Carbon Holders to Slides	0	0	3	81	Grub Screw for Part 80	0	0	3
30	Grub Screws on Cam Handles	0	0	3	82	Driving Pin for Movement Spindle	0	0	3
31	Vertical Carbon Cam Handle	0	1	6	83	Single Tooth Clutch	0	0	6
32	Horizontal Carbon Cam Handle	0	2	0	84	Ball Click	0	0	3
33	Fine Feed Quadrant	0	6	0	85	Click Spring	0	0	3
34	Coarse Feed Quadrant	0	6	0	86	Click Grub Screw	0	0	3
35	Taper Pins for Parts 33 and 34	0	0	3	87	Horizontal Movement Head positive	0	3	0
36	Feed Screw Spindle	0	5	0	88	Screw securing Horizontal Movement Head, positive	0	0	3
37	Screw securing Body to Hinge Bolt	0	0	3	89	Rivet securing Mirror Springs	0	0	3
38	Screw for Cover Plate	0	0	3	90	Spring Pad	0	0	3
39	Cover Plate	0	2	0	91	Mirror Spring	0	0	9
40	Lamp Body Casting	2	0	0	92	Screw securing Mirror Bracket	0	0	6
41	Stop Screws for Quadrants	0	0	3	93	Mirror Bracket	1	4	0
42	Lamp House Cradle for Lamp	0	7	6	94	Mirror Retaining Plate	0	0	9
43	Washer on Part 44	0	0	3	95	Screw securing Retaining Plate	0	0	3
44	Screw Securing Cradle	0	0	6	96	Mirror Retaining Plate (Angular)	0	1	6
45	Grub Screw securing Stop Bracket in Body	0	0	3	97	Screw securing Angular Retaining Plate	0	0	3
46	Asbestos Lead for Single Lamp House (3 ft.) pair	0	12	0	98	Screw securing Mirror Guard	0	0	3
47	Asbestos Lead for Twin Lamp House (4 ft.)	0	15	0	99	Mirror Guard	0	6	0
48	Screw fixing Condenser Clip	0	0	3	100	Concave Mirror 8 in. dia.	2	5	0
49	Condenser Clip	0	0	3	101	Condenser Lens 8 in. dia.	1	15	0
50	Retaining Nut on Part 51	0	0	4					
51	Elevating Screw for Lamp	0	4	6					
52	Elevating Block for Lamp	0	3	0					

## "KALEE" Type "10M.L."

### High-Power Mirror Arc Lamp

(10 in. dia. Mirror and 10 in. dia. Condenser).



"KALEE" Type "10M.L." High-Power Mirror Arc Lamp, complete with Single Lamp House, Light Cone and Steel Curtain Cut-off. Complete as illustration (as supplied with No. 7T.M.L. Outfit).

PRICE ... ..

Code Word: "TEPOW."

"KALEE" Type "10M.L." High-Power Mirror Arc Lamp, Complete with Single Lamp House, Type "10M.L." Kerascope, Light Cone, Steel Curtain Cut-off, Vertical Steel Slide Carrier, and Slide Holder Frames.

(As supplied with No. 7T.L.K. Outfit).

PRICE ... ..

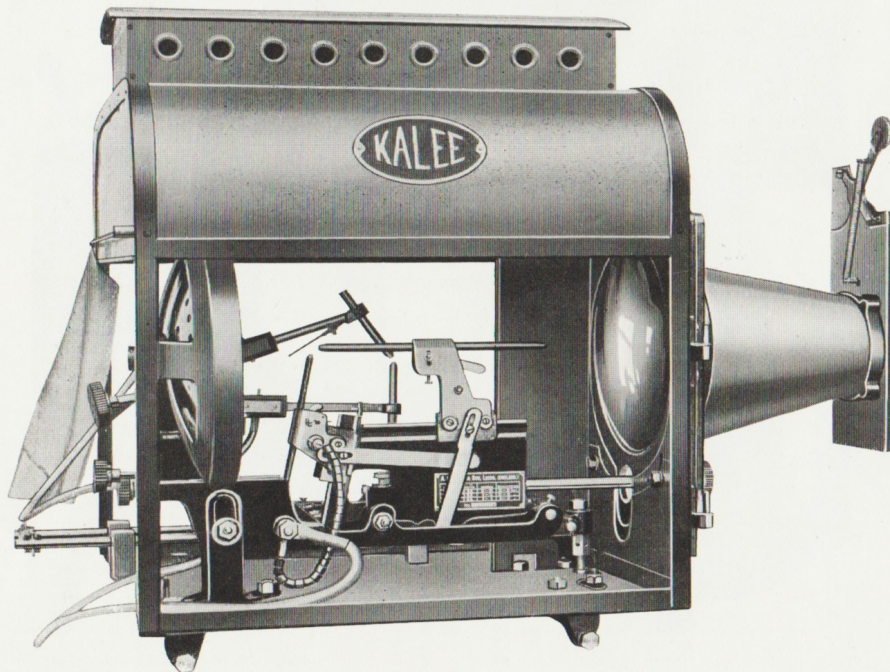
Code Word: "TEKER."



## “KALEE” Type “10M.L.”

### High-Power Mirror Arc Lamp

(10 in. dia. Mirror and 10 in. dia. Condenser).



“KALEE” Type “10M.L.” High-Power Mirror Arc Lamp, Complete with Double Lamp House, Light Cone, and Steel Curtain Cut-off.

Type “S.L.” Scissors Arc Lamp, Mechanical Tray, Condenser Cell, Condenser Lenses, Vertical Steel Slide Carrier, Slide Holder Frames, and Steel Curtain Cut-off.

Complete as illustration (as supplied with No. 7T.L.S. Outfit).

PRICE ... ..

Code Word: “DUTEN.”

## “KALEE” Type “10M.L.”

### High-Power Mirror Arc Lamp.

#### SPECIFICATION, SPARES, Etc.

The General Specification, Method of adjustment, setting up and working is similar to the “Kalee” Type “8M.L.” as set out in detail on pages 69 and 70.

The advantages gained by the use of a 10 in. dia. Mirror of the same focal length as an 8 in. dia. Mirror will be obvious; the increased diameter collects light which would otherwise be lost.

Two types of mirrors are supplied as follows:—

**GLASS.** Best quality heat-resisting glass, heavily silvered and coated with a special hard-protective backing.

**METAL.** Heavy Metal Mirror, with a specially prepared surface of high efficiency reflecting quality.

Metal Mirrors are recommended where the angle of projection in depression is large, and for use with heavy currents.

Each “Kalee” Metal Mirror is supplied in a Swans-down bag, with cleaning outfit, comprising a bottle of cleaning solution, cotton wool, and wiping duster, all of which should be kept perfectly clean.

The reflecting surface is highly resistant to tarnishing, etc., but to maintain its full efficiency of reflection, it is considered advisable to clean the surface carefully at least once a week, and so avoid an accumulation of finger marks and dust.

Precise cleaning instructions are sent with each mirror.

Spare 10 in. Condensers, best quality heat-absorbing glass, transparent and annealed ... each

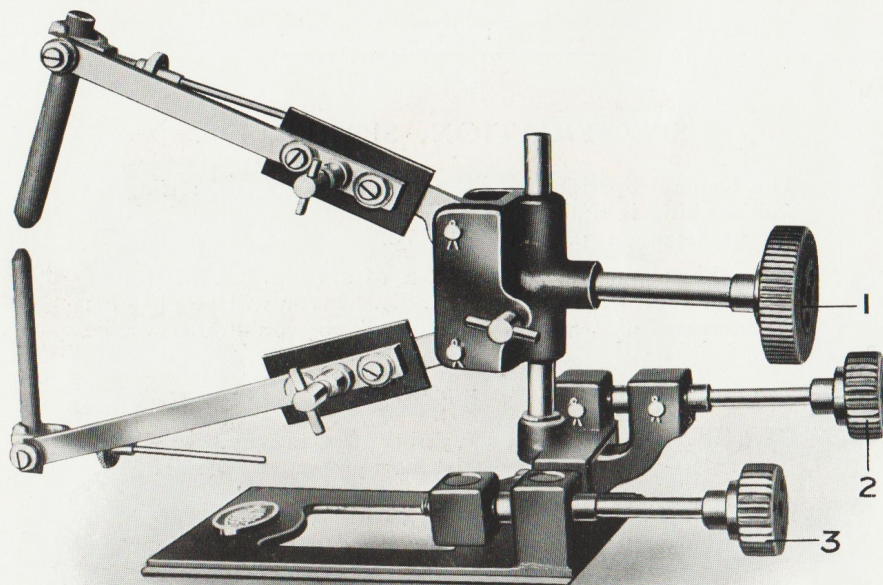
Spare 10 in. Mirrors, best quality glass ... each

Spare 10 in. Metal Mirrors, with cleaning outfit, each

Spare Cleaning Outfits, Bottle of Solution, Cotton Wool, and Wiping Cloth ... .. set



## “KALEE” Scissors Arc Lamp. Type “S.L.”



For Stage Boxes—Spot Lights—Lanterns, etc., Scissors Arc Lamps have been proved to be of most convenient form.

The “Kalee” Type “S.L.” Lamp has been designed on engineering lines, strong, rigid, and capable of withstanding hard, continuous service.

The scissors arms are positively fed by a steel worm connected to feed knob (1), Vertical centering (2), and Horizontal centering (3), is provided.

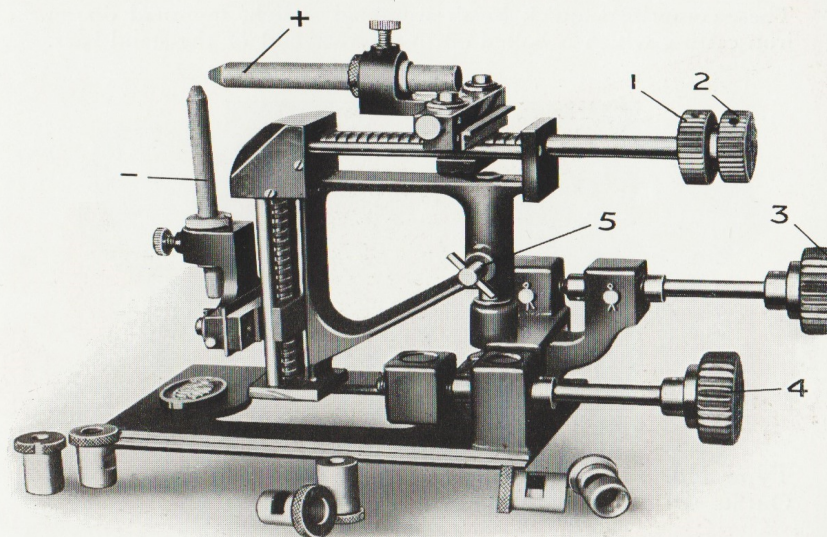
Both carbon holders will take carbons up to 14 mm. dia., and can be tilted, making the lamp suitable either for Direct or Alternating currents.

Castings finished in best black enamel, machined parts dull nickel plated. Approximate weight, 8 lbs.

Price, each,

Code Word: “SLARC.”

## “KALEE” Type “X.L.” Right Angle Carbon Arc Lamp.



An improved type of Right Angle Arc Lamp, embodying many novel features of construction. An ideal lamp for use with Slide Projection Lanterns, Microscopic Projection, etc.

The carbons can be fed separately or simultaneously (1 and 2), Vertical centering (3), Horizontal centering (4), and variation of  $5\frac{1}{2}$  in. to  $6\frac{1}{4}$  in. optical centre height of lantern can be roughly made by (5).

Carbons, 6, 8, 10 and 12 mm. diameter can be used by means of special adapters shown in illustration. Without adapters, the lamp will take 14 mm. diameter carbons.

The Lamp is suitable for either Direct or Alternating Currents. Materials are specially selected, castings are finished in black enamel, machined parts dull nickel-plated.

Insulation: Steatite bushes and heavy mica washers, knobs of hard vulcanised fibre. Approximate weight, 5 lbs.

Price, each,

Code Word: “RIGHT.”

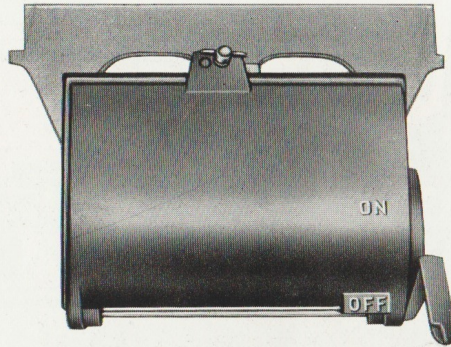
The above price includes two Carbon Holder Bushes, and unless ordered otherwise, one each 8 and 12 mm. is supplied.

Extra Bushes—6, 8, 10 or 12 mm. diameter, each.



## “KALEE” Switch Terminal Blocks.

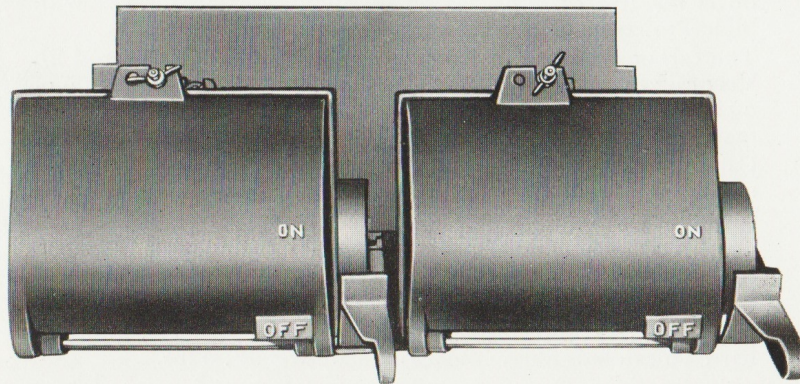
These comprise a quick break iron-clad switch, mounted on an iron casting which is bolted on to the rear end of the stand bars.



**Type No. 1 (single)** as illustration and as fitted to No. 8 Outfits with Mirror Arc Lamps.

Price, each,

Code Word : “SLOCK.”

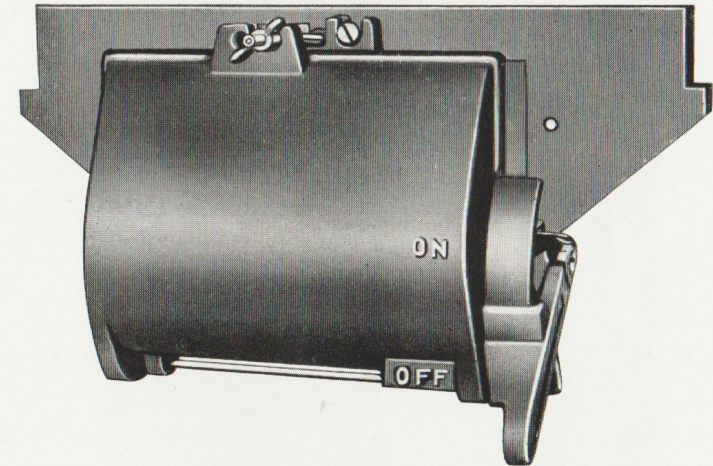


**Type No. 1 (Double)** as illustration and as fitted to No. 8 Outfits with Double Lamp Houses (Mirror and Scissors Arc Lamps).

Price, each,

Code Word : “DUSOL.”

## “KALEE” Switch Terminal Blocks.



**Type No. 2 (Single)** as illustration and as fitted to No. 8 Outfits with Type “Y.L.” Arc Lamps.

Price, each,

Code Word : “LASOL.”

Asbestos-covered and insulated flexible copper leads, for use with “Kalee” Switch Terminal Blocks (as fitted to No. 8 Outfits), each 3 ft. long.

**No. 1 Size** (as fitted to Type No. 1 Switch).

Per pair

Code Word : “LELCK.”

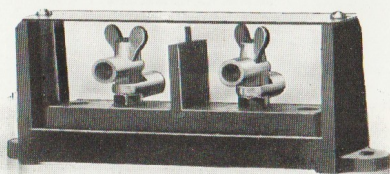
**No. 2 Size** (as fitted to Type No. 2 Switch),

Per pair

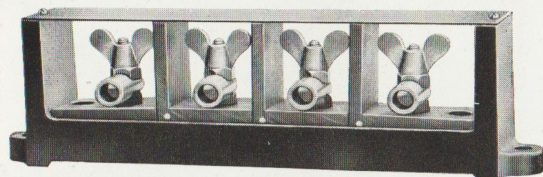
Code Word : “DEECK.”



## “KALEE” Terminal Blocks.



Single Type.



Double Type.

A very useful and handy fitting, as it dispenses with long leads from the control board to the Arc Lamp.

It fixes on to the back of the projector stand, and a pair of flexible copper leads are sweated into one pair of the thimbles, the other ends of the leads fix into the Arc Lamp terminals as usual. The remaining pair of thimbles have the control board leads sweated into them.

Single Type (for one Arc Lamp) ... Price each  
Code Word: “TOCK.”

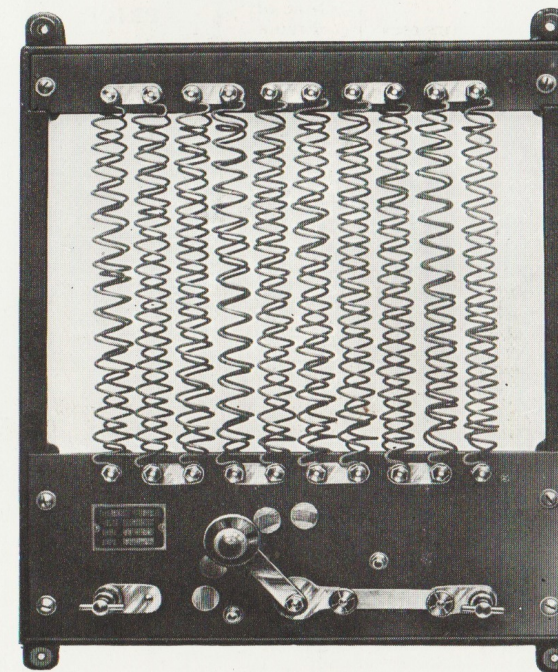
Double Type (for two Arc Lamps) ... Price each  
Code Word: “DOCK.”

100 Ampere Flexible Copper Leads,  
asbestos-covered, 3 ft. long ... per pair  
Code Word: “TOCKEL.”

50 Ampere Flexible Copper Leads,  
asbestos-covered, 3 ft. long ... per pair  
Code Word: “TOCKY.”

## “KALEE” Wall Type Series Resistances.

Type “C.R.”



### SPECIFICATION:

#### *Frame :*

Substantially constructed of welded wrought-iron, black stove enamelled.

#### *Slates :*

Specially selected.

#### *Wire :*

High resistance alloy, having negligible temperature co-efficient.

#### *Switch :*

Gun-metal with brush contact of laminated phosphor bronze. Contact studs, Terminals and Fuse connections are made of hard brass.

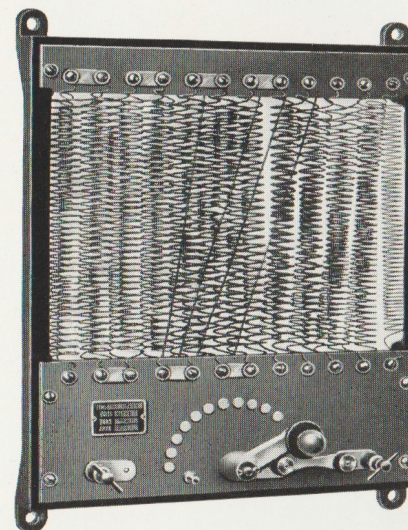
The following are a few types which we are regularly supplying; we shall be pleased to quote for and supply Resistances for any Voltage and Amperage.



## Prices of "KALEE" Type "C.R." Resistances

Type	Supply Volts	Amperes	Size of Frame (inches)	PRICE			Code
				£	s.	d.	
C.R.U.	60	20-50	17 x 20				Resist
C.R.A.M.	60	20-66	17 x 20				Resistob
C.R.N.	60	20-70	17 x 20				Resista
C.R.A.E.	60	20-80	17 x 20				Resistox
C.R.J.	60	20-100	17 x 20				Resistom
C.R.H.	65	10-41	17 x 20				Resister
C.R.B.	65	15-70	17 x 20				Resistat
C.R.A.V.	65	30-80	17 x 20				Resistacit
C.R.A.P.	65	30-90	17 x 20				Resistok
C.R.C.	65	15-100	17 x 20				Resistor
C.R.A.A.	70	10-25	17 x 20				Resistod
C.R.Z.	70	15-30	17 x 20				Restral
C.R.P.	70	15-50	17 x 20				Resistent
C.R.K.	70	20-60	17 x 20				Restrat
C.R.B.A.	70	30-70	17 x 20				Resba
C.R.A.N.	70	20-80	17 x 20				Resan
C.R.M.	70	30-80	17 x 20				Resistus
C.R.I.	70	30-90	17 x 20				Resistap
C.R.B.J.	70	20-100	17 x 20				Resistog
C.R.B.Q.	75	10-15	17 x 20				Resja
C.R.A.H.	75	20-50	17 x 20				Rescul
C.R.A.G.	75	30-100	17 x 20				Resag
C.R.Y.	80	10-35	17 x 20				Resry
C.R.A.L.	80	15-50	17 x 20				Resal
C.R.B.F.	80	20-70	17 x 20				Resbut
C.R.B.I.	80	30-80	17 x 20				Resbi
C.R.A.U.	80	30-90	17 x 20				Resau
C.R.R.	100	10-25	17 x 20				Resistaler
C.R.E.	100	15-50	17 x 20				Resre
C.R.O.	100	20-60	17 x 20				Resro
C.R.D.	100	15-70	17 x 20				Resix
C.R.L.	100	30-80	17 x 20				Resarl
C.R.A.D.	100	20-100	17 x 20				Resard
C.R.A.J.	110	10-25	17 x 20				Resarge
C.R.V.	110	15-50	17 x 20				Resox
C.R.A.T.	110	25-70	17 x 20				Resrat
C.R.X.	110	30-80	17 x 20				Resosit
C.R.B.E.	110	10-90	17 x 20				Resarx
C.R.S.	110	30-100	17 x 20				Resent
C.R.A.	120	10-25	17 x 20				Result
C.R.B.U.	120	30-90	17 x 20				Resurb
C.R.A.K.	200	10-25	20 x 24				Resrak
C.R.B.N.	200	20-70	24 x 26				Resbarn
C.R.A.W.	220	30-80	24 x 26				Resess
C.R.A.I.	230	15-30	20 x 24				Resraw
C.R.B.B.	230	20-60	20 x 24				Resair
C.R.F.	250	10-25	20 x 24				Reston
C.R.G.	250	25-50	20 x 24				Restive

## "KALEE" Wall Type Series Resistances. Type "M.R."



### SPECIFICATION :

Designed for use with Mirror Arc Lamps, but equally suitable for small Arc Lamps used with slide lanterns, spot lights, etc.

**Frame**—Substantially constructed of welded wrought-iron, black stove enamelled.

**Slates**—Specially selected.

**Wire**—High resistance alloy having negligible temperature co-efficient.

**Switch, etc.**—Gun-metal, with brush contact of laminated phosphor bronze, 11 contact studs, connections, etc., of hard brass.

### Prices of "M.R." Type Resistances.

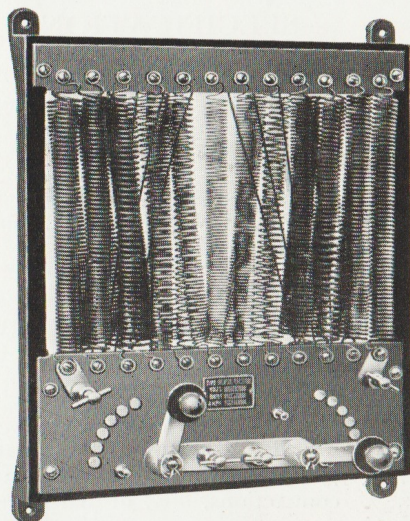
Type	Supply Volts.	Amperes	Size of Frame (Inches)	PRICE			Code
				£	s.	d.	
MRA	60	5—30	17 x 20				Merap
MRB	70	do.	do.				Merab
MRC	80	do.	do.				Mercy
MRD	110	do.	do.				Merdy
MRE	200	do.	20 x 24				Merek
MRF	220	do.	do.				Merfy
MRG	230	do.	do.				Mergy
MRH	60	5—40	17 x 20				Merha
MRI	70	do.	do.				Merin
MRK	80	do.	do.				Merky
MRL	110	do.	do.				Merly
MRM	200	do.	20 x 24				Meram
MRN	220	do.	do.				Merny
MRO	230	do.	do.				Meroy

The above are standard types. Resistances can be supplied for any Voltage and Amperage.



## “KALEE” Duplex Wall Type Series Resistances.

Type “D.M.R.”



### SPECIFICATION.

Similar Resistances to Type “M.R.,” substantially built of the same kind of materials, fittings, etc., but arranged for controlling Two Arc Lamps.

The 5–30 Ampere types have 6 contact studs to each switch.

The 5–40 Ampere types have 8 contact studs to each switch.

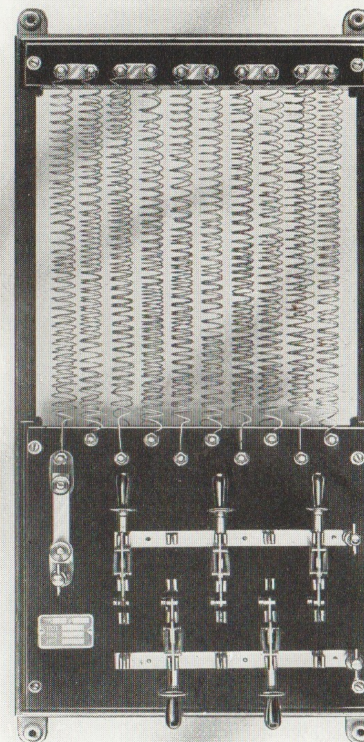
### Prices of “D.M.R.” Type Resistances.

Type	Supply Volts	Amperes	Size of Frame (Inches)	PRICE £ s. d.	Code
DMRA	60	5—30	17 × 20.		Daram
DMRB	70	do.	do.		Darab
DMRC	80	do.	do.		Darad
DMRD	110	do.	do.		Darac
DMRE	200	do.	2–20 × 24		Darak
DMRF	220	do.	do.		Darap
DMRG	230	do.	do.		Darag
DMRH	60	5—40	17 × 20		Darar
DMRI	70	do.	do.		Darat
DMRK	80	do.	do.		Daraw
DMRL	110	do.	20 × 24		Daray
DMRM	200	do.	2–20 × 24		Darax
DMRN	220	do.	do.		Daraz
DMRO	230	do.	do.		Daral

The above are standard types. Resistances can be supplied for any Voltage and Amperage.

## “KALEE” Wall Type Tandem Parallel Resistances.

Type “T.R.”



This type of Resistance offers many advantages. One Resistance only is required for controlling two Arc Lamps. Overloading the Motor Generator is an impossibility, only the maximum current for which the Resistance is designed can flow. When the amperage on one of the Arcs is increased, the amperages on the other Arc is decreased by a like amount.



## SPECIFICATION :

### Frame :

Cast-iron, of substantial construction, black stove enamelled.

### Slates :

Specially selected, black enamelled.

### Wire :

High resistance alloy, having negligible temperature co-efficient, and wound in five sections.

### Switches :

Five, quick, long break knife pattern switches are provided, made with hard drawn copper blades and phosphor bronze contact clips. Each switch controls a section of the resistance windings and each section allows the minimum current to flow, so that the current to Arc Lamps varies with the number of switches in circuit.

### Terminals :

Connector Clip Bars and Fuse Connections are made of hard brass.

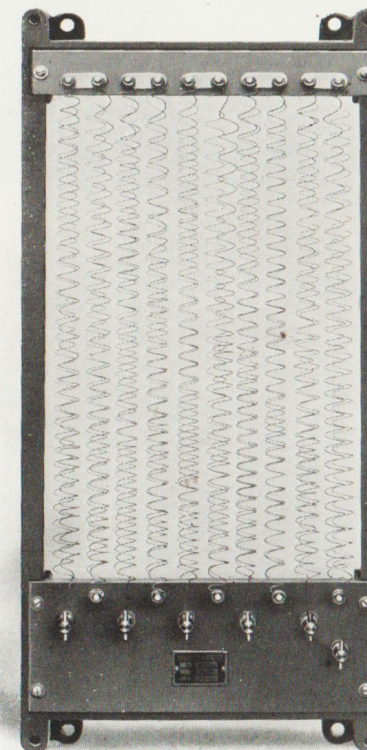
## Prices of "T.R." Type Resistances.

Type	Supply Volts	Amperes	Size of Frame (Inches)	PRICE £ s. d.	Code
TRD	70	14-70	Single 15 × 34		Tand
TRE	70	16-80	Single 15 × 34		Tandre
TRA	70	20-100	Single 15 × 34		Tanra
TRF	80	14-70	Single 15 × 34		Tanraf
TRG	80	16-80	Single 15 × 34		Tanrag
TRB	80	20-100	Single 15 × 34		Tanrab
TRH	100	14-70	Double 15 × 34		Tanher
TRI	100	16-80	Double 15 × 34		Tanir
TRJ	100	20-100	Double 15 × 34		Tanraj
TRK	110	14-70	Double 15 × 34		Tanrak
TRL	110	16-80	Double 15 × 34		Tanrel
TRC	110	20-100	Double 15 × 34		Tanrac

The above types are a few which we are regularly supplying; we shall be pleased to quote for other sizes.

## "KALEE" Wall Type Parallel Resistances.

### TYPE "P.R."



Similar in construction to the "T.R." type, except that it is designed to be used with separate control panels. Single control panel for one arc lamp, tandem control panel for two arc lamps. This system allows of the control panel only being fixed in the projecting room, the Resistance being fixed in any convenient place in the theatre, thereby reducing the risk of fire, and also adding to the comfort of the operator by not overheating the projection room.



## SPECIFICATION :

### Frame :

Cast-iron, black stove enamelled.

### Slates :

Specially selected.

### Wire :

High resistance alloy, having negligible temperature co-efficient and wound in five sections.

### Terminals :

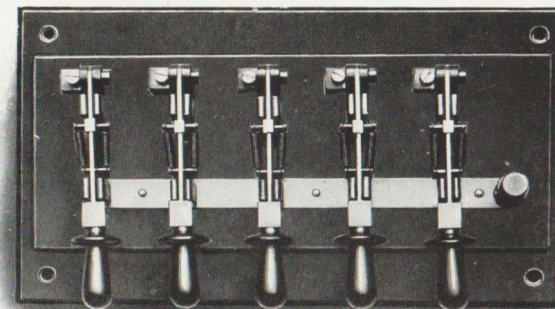
Hard brass.

## Prices of "P.R." Type Resistances.

Type	Supply Volts	Amperes	Size of Frame (Inches)	£	PRICE s. d.	Code
PRD	70	14-70	Single 15 × 34			Para
PRE	70	16-80	Single 15 × 34			Parace
PRA	70	20-100	Single 15 × 34			Parable
PRF	80	14-70	Single 15 × 34			Parart
PRG	80	16-80	Single 15 × 34			Paragon
PRB	80	20-100	Single 15 × 34			Part
PRH	100	14-70	Double 15 × 34			Park
PRI	100	16-80	Double 15 × 34			Party
PRJ	100	20-100	Double 15 × 34			Parlon
PRK	110	14-70	Double 15 × 34			Parop
PRL	110	16-80	Double 15 × 34			Parwin
PRC	110	20-100	Double 15 × 34			Parcel

We are regularly supplying the above sizes ; we shall, however, be pleased to quote for other sizes.

## "KALEE" Single Control Panel.



Price each

Code Word : "SING."

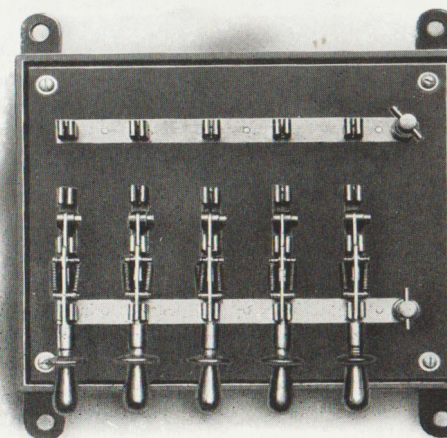
For use with "P.R." Type Resistances where only one arc lamp is required to be controlled. When coding Resistance and Control Panel, prefix the code word of Resistance required before the code word "Sing."

## "KALEE" Tandem Control Panel.

Price each

Code Word :  
"TAN."

For use with "P.R." Type Resistances where two arc lamps are required to be controlled. When coding Resistance and Control Panel, prefix the Code word of Resistance required before the code word "TAN."



### SPECIFICATION :

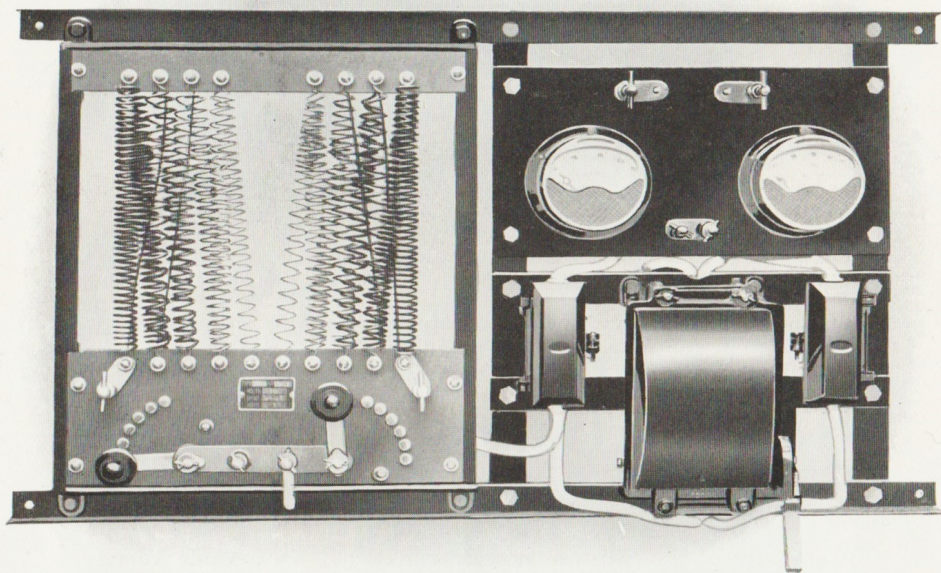
**Frame:**—Cast-iron, black stove enamelled.

**Slate:**—Specially selected, black enamelled.

**Switches:**—Five quick long break knife pattern switches, made with hard drawn copper blades and phosphor bronze contact clips. Terminals and Contact Clip Bars made of hard brass.



## “KALEE” Combined Switchboard and Resistance.



This Switchboard has been designed to meet the demand for a simple, inexpensive, substantially-built, combined Switchboard and Resistance for controlling Two Mirror Type Arc Lamps, or other types of Arc Lamps.

### SPECIFICATION:

**Voltmeter:**—Reading up to 120 Volts.

**Ammeter:**—Reading up to 80 Amperes.

**Switch:**—Heavy double pole, quick-break, iron clad.

**Fuses:**—Two single pole, iron clad.

**Resistance:**—Type D.M.R.B., 70 Volts, 5 to 30 Amperes, for controlling Two Arc Lamps.

The Voltmeter and Ammeter are mounted on an enamelled slate base, forming a separate unit. The units are mounted on a substantial wrought-iron frame, 3 ft. 3 in. by 2 ft., wired up with insulated and asbestos-covered cable.

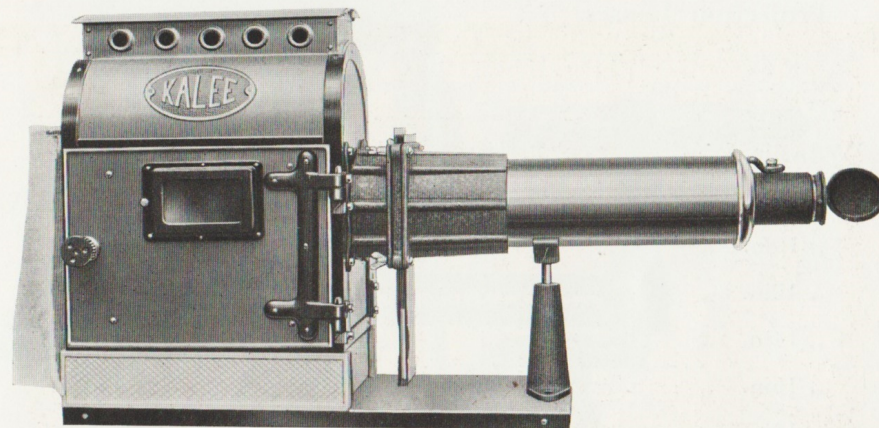
Type D.M.B. Switchboard, as above specification.

Price ... ..

Code Word: “DABEM.”

This Switchboard can be fitted with any of the type D.M.R. Resistances for Two Arc Lamps or Type M.R. Resistances for one Arc Lamp. The price varies according to the list prices of these Resistances which can be arrived at by using the price of the D.M.R.B. Resistance as a basis price.

## “KALEE” No. 2 SLIDE LANTERN.



The “KALEE” No. 2 Slide Lantern is built on entirely new lines, substantial construction to withstand hard, continuous service.

**Lamp House and Base,** is formed by a wrought-iron frame work with blue planished steel panels.

**Front,** and Condenser housing, constructed of aluminium castings, crystalline black finish.

**Condenser,** pair of  $4\frac{1}{2}$  in. dia. Meniscus and Bi-convex Condenser Lenses.

**Slide Carrier,** Vertical Type, made of Steel, with separate slide carrier frames.

**Lens Jacket,** lever focussing with clamping nut.

**Projection Lens,** “Kershaw” Lantern Lens, Series “T.”



## “KALEE” No. 2 SLIDE LANTERN.

Complete as specified, with condenser, slide carrier, curtain, and the following “Kershaw” Series “T” Projection Lenses.

	PRICE			Code Word
	£	s.	d.	
With 6in. focus “Kershaw” Projection Lens				BANTE
„ 8in. „ „ „				CANTE
„ 10in. „ „ „				FANTE
„ 12in. „ „ „				KANTE
„ 14in. „ „ „				PANTE
„ 16in. „ „ „				SANTE
„ 18in. „ „ „				VANTE
„ 20in. „ „ „				TANTE
„ 22in. „ „ „				MANTE
„ 24in. „ „ „				NANTE
„ 26in. „ „ „				WANTE
„ 28in. „ „ „				HANTE
„ 30in. „ „ „				LANTE

Please state focus of lens when ordering.

Longer focal lengths can be supplied at extra cost.

Lanterns with lenses up to 10 in. focus are not provided with the extra support shown on illustration, this support is provided with all Lanterns having lenses 12 in. and longer focus.

Above prices do not include illuminants; suitable Arc Lamps (Types “S.L.” and “X.L.”) and Resistances can be supplied.



**“KALEE” Model No. 8 STEREOPTICON LANTERN.**



## The "KALEE" Model No. 8 Stereopticon Lantern.

A perfect Lantern for projecting Lantern Slides, and specially suitable for advertising purposes.

It is thoroughly well-made, of ample proportions, robust, vibrationless, all metal construction, and will last a lifetime.

The universal movements of the pedestal stand along with the swivelling slide carrier front, provide for centering and squaring the projected picture in absolute coincidence with the masked screen.

Further, the cut-off is located between the condenser and the slide carrier; slides are therefore not exposed to the light rays until they are actually in projection.

### SPECIFICATION.

**Lamp House**—Made of blue planished steel on a substantial wrought-iron frame work. Two large doors with large inspection windows. Mechanical tray for moving the Arc Lamp to or from the condenser. Ample ventilation is provided.

**Condenser**—Pair of  $4\frac{1}{2}$  in. diameter Condenser Lenses, each carried in a separate cast-iron screw cap cell, fitted into "U" shaped holders, mechanical means provided for separation adjustment.

**Slide Carrier**—Vertical type, made of steel, with separate slide carrier frames.

**Curtain Cut-off**—Made of steel, attached to the slide carrier.

**Lens Jacket**—Rackwork type, made of brass, cut steel pinion and brass rack, fitted with flasher and tinter slot. The jacket is screwed into a brass extension tube which is carried by a rigid cast-iron support.

**Projection Lens**—"Kershaw" Lantern Lens, Series "T."

**Stand**—Heavy cast-iron pedestal type with universal movements.

**Arc Lamp**—Type "C.L." for currents up to 50 amperes,

**Leads**—Pair of 50 ampere Asbestos-covered Flexible Copper Leads.

**Switch**—No. 1 Double Pole Switch and Adapter.

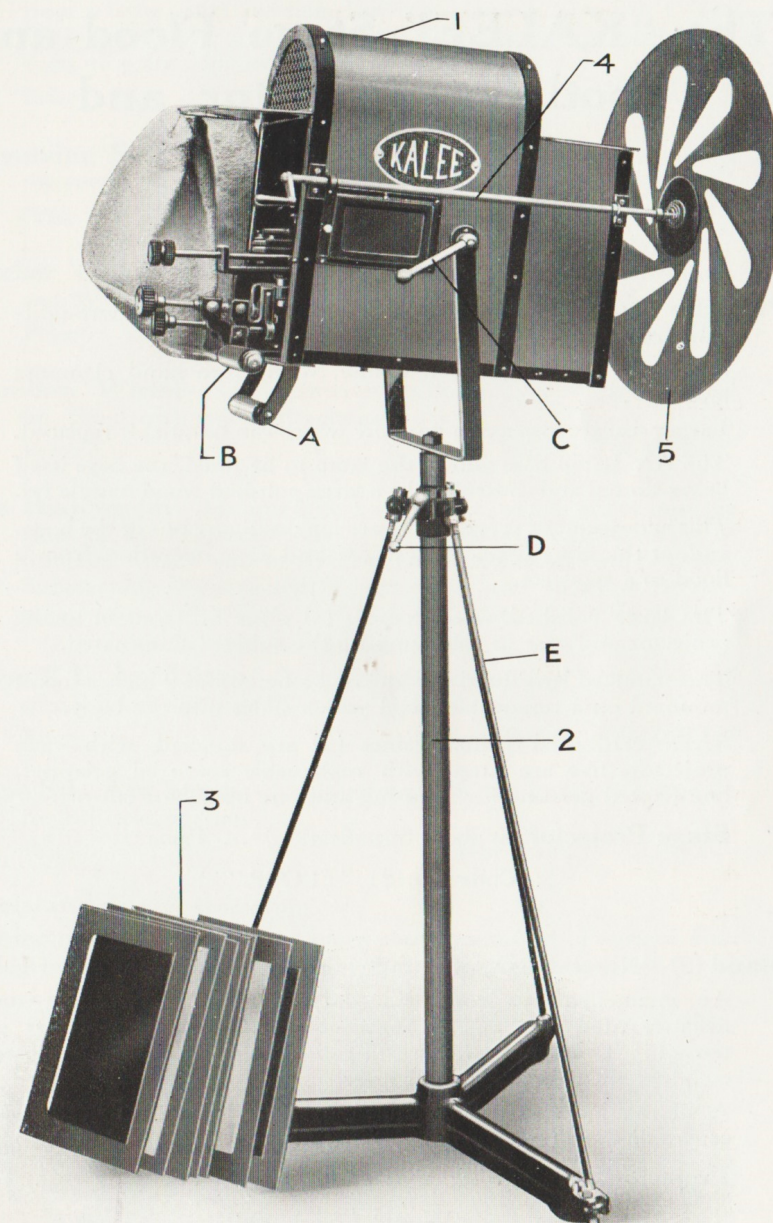
**"KALEE" Model No. 8 STEREOPTICON LANTERN**, complete as above specification and as illustration, with Kershaw Series "T" Lantern Lens, 8 in. to 18 in. focus.

Price ... ..

Code Word: "STECO."

For every one inch longer focus above 18 in., add extra cost of  
When coding, follow Code Word with Lens Code Word (see Lens list).

## "KALEE" Stage Flood and Spotlight Projector with Accessories.





# Specification and Prices of The "KALEE" Stage Flood and Spotlight Projector and Accessories.

**Projector** (1)—The Body is a substantially constructed wrought-iron framework with blue planished steel panels.

Swung in a wrought-iron cradle, with large hand clamping lever (c).

Larger size arc inspection window which can be quickly replaced.

The Arc Lamp base allows the lamp to be fixed, the base itself being slotted and controlled by a large polished wood handle (b).

This arrangement prevents the arc lamp slipping out of the body, and, at the same time, allows free and easy operation from a flood to a spot, etc.

The large polished wood handle (a) gives full control to the projector and ease in following up the subject illuminated.

The standard lens fitted is 6 inches diameter and 9 inches focus, mounted on a removable panel which slides into the body.

Seven cardboard tinter frames (3) are supplied with each projector, five are fitted with replaceable coloured gelatines, one frosted gelatine for defusing and one blank for cut-off.

**Stage Projector** (as above Specification) ... Price

Code Word: "FLOSP."

**Stand** (2)—Novel design, of sound construction and extremely rigid.

An enamelled cast-iron base and head with a wrought-iron distance tube held rigidly together by three steel rods (e) in tension. The stand can be readily dismantled for transit purposes, etc., and then occupies small space.

A sliding internal tube clamped by lever (d) allows the optical centre of the Projector to be adjustable from 4 ft. to 5 ft.

**Projector Stand** (as above Specification) ... Price

Code Word: "STALO."

**Projector Clamp**—When it is required to swing the projector from a beam, etc., an enamelled iron clamp is supplied. The Projector cradle can be either above or below the body. Two nuts are supplied for cradle spindle.

Price

Code Word: "CLAST."

**Revolving Spindle** (4)—Made of steel, with substantial handle, for revolving flicker or Rainbow Wheels.

Price

Code Word: "RESPI"

**Flicker Wheel** (5)—Made of blue planished steel, turned over, and Wired edge with centre boss.

Price

Code Word: "FLEEL."

**Rainbow Wheel**—Similar in construction to the Flicker Wheel but fitted with coloured gelatines.

Price

Code Word: "RANEL."

**Iris Diaphragm**—Mounted on a steel plate, which slides into the front of the Projector body. It allows of a clear aperture of 6 inches, which can be gradually reduced to an entire cut-off. Substantially constructed of gun-metal and phosphor bronze.

Price

Code Word: "IRAGM."

**Type X.L. Arc Lamp**—A right angle type of Arc Lamp, for full specification see page 77.

Price

Code Word: "RIGHT."

**Type S.L. Arc Lamp**—A scissors type of Arc Lamp, see page 76 for full specification.

Price

Code Word: "SLARC."

**Resistances**—All types supplied.

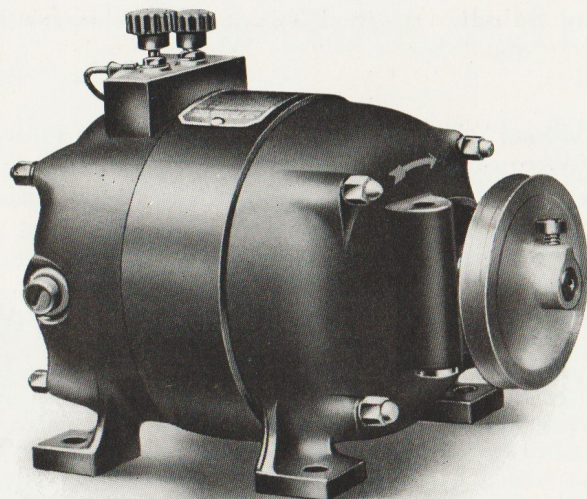
**Projector Lenses**—Spare Lenses can be supplied of various foci. They are made of best quality glass, optically ground.

Diameter.		Focus.		Price each			Code Word.
				£	s.	d.	
6 ins.	...	6 ins.	...	...			"SLINS."
6 ins.	...	7 ins.	...	...			"SEVIS."
6 ins.	...	8 ins.	...	...			"EIGNS."
6 ins.	...	9 ins.	...	...			"NILEN."
6 ins.	...	10 ins.	...	...			"TENEN."
6 ins.	...	12 ins.	...	...			"TWENS."



# "KALEE" Cinematograph Driving Motors

For D.C. and A.C. Circuits.



"Kalee" Motors are British Made, specially designed and built for driving Cinematograph Projectors.

Selected materials are used in their construction, neat and attractive in appearance, reliable in operation, they will operate continuously at full load with a low temperature rise.

## Specification :

**Armature**—The coils are wound directly into the slots of the laminated armature core, and are treated with a special moisture-proof varnish. The core slots are set spiral to give silence when running at high speed. The commutator is constructed from best selected bar copper and mica.

**Ventilation**—Amplly provided for by means of small fan fixed on the pulley end of the armature shaft.

**Bearings**—Made from phosphor bronze.

**Lubrication**—Provided for by large waste packed oil reservoirs cast on the end shields. They are drip proof, the motors can be used either way up without the necessity of altering the position of the end shields.

**Field Coils**—These are former wound and treated with moisture-proof varnish. The field magnets are laminated, firmly riveted together, and form the main frame of the motor.

**Brushes**—Made of carbon, held in box type brush holders.

## SPECIFICATION—cont.

**Pulley**—A standard  $3\frac{1}{2}$  in. diameter pulley is provided unless otherwise stated. The diameter of the pulley shaft is  $\frac{1}{2}$  in., on which is milled a flat to allow of single screw fixing. The direction of rotation is clockwise, viewed at pulley end.

**Terminal Block**—A substantial terminal block is fixed on the end shield to facilitate connecting up.

## PRICES OF "KALEE" MOTORS.

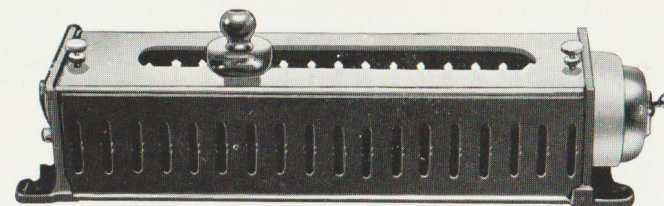
H.P.	Voltage	D.C. or A.C.	Frame No.	Price (each) £ s. d.	Code Word
$\frac{1}{8}$	60/70	D.C.	1236		Kabea
$\frac{1}{8}$	80	D.C.	1236		Kabib
$\frac{1}{8}$	100/110	D.C.	1236		Kabac
$\frac{1}{8}$	200/240	D.C.	1236		Kabod
$\frac{1}{8}$	200/230	A.C. 50 cycles	1246		Kabuh
$\frac{1}{4}$	60/70	D.C.	1246		Kabem
$\frac{1}{4}$	80	D.C.	1246		Kabin
$\frac{1}{4}$	100/110	D.C.	1246		Kabap
$\frac{1}{4}$	200/230	D.C.	1246		Kabor
$\frac{1}{4}$	240/250	D.C.	1246		Kabuz

The above prices include a standard pulley,  $3\frac{1}{2}$  in. diameter.

## PULLEYS.

Diameter inches.	m/ms.	Bore inches	m/ms.	Price (each) £ s. d.
$2\frac{3}{4}$	70	$\frac{1}{2}$	12.7	
3	76	$\frac{1}{2}$	12.7	
$3\frac{1}{4}$	83	$\frac{1}{2}$	12.7	
$3\frac{1}{2}$	89	$\frac{1}{2}$	12.7	
4	102	$\frac{1}{2}$	12.7	
5	127	$\frac{1}{2}$	12.7	

## "KALEE" MOTOR SPEED REGULATORS.

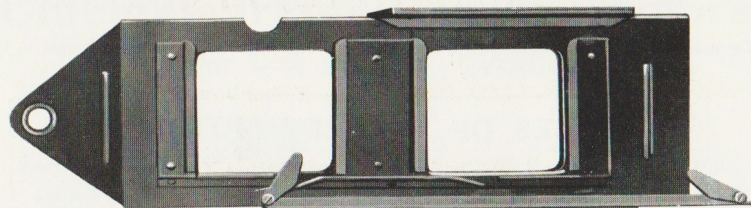


This type of Sliding Regulator is most suitable for adjusting the speed of "Kalee" Motors, fine adjustment and wide range of speed is obtained. Supplied for D.C. or A.C., and fitted with tumbler switch.

H.P.	Voltage	D.C. or A.C.	Price (each) £ s. d.	Code Word
$\frac{1}{8}$	60/80	D.C.		Regad
$\frac{1}{8}$	100/110	D.C.		Regip
$\frac{1}{8}$	200/250	D.C.		Regok
$\frac{1}{8}$	200/230	A.C.		Regul
$\frac{1}{4}$	60/80	D.C.		Regry
$\frac{1}{4}$	100/110	D.C.		Regmo
$\frac{1}{4}$	200/250	D.C.		Regli



## "KALEE" Steel Slide Carriers.



Substantially constructed of Steel Plate, black stove enamel finish; suitable for Cinematograph or Optical Lanterns,

**Horizontal Type**, as illustration. Price, each,

Code Word: "TELID."

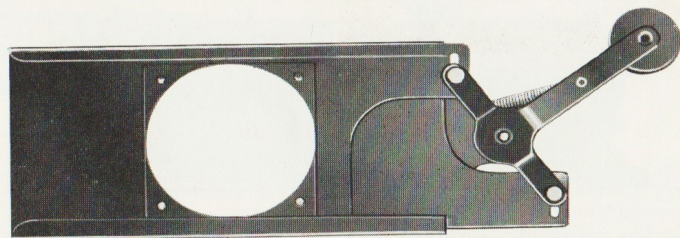
**Vertical Type**, with 3 slide holders, as supplied with "Kalee" No. 7 Outfits. Price, each,

Code Word: "VESID."

**Spare Slide Holders** ... Price, each,

Code Word: "SPAID."

## "KALEE" Steel Curtain Light Cut-off.



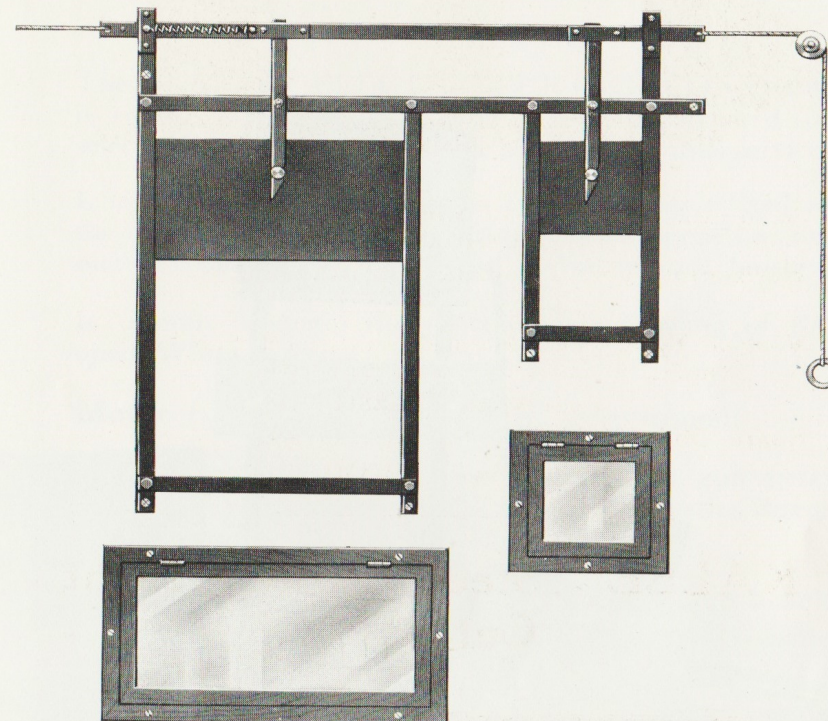
Made entirely of steel, black stove enamel finish. Opens and closes with a quick action. As illustrated and as fitted to "Kalee" No. 8 Outfits (except outfits supplied with Type 10 M.L. Arc Lamps).

Price, each, Code Word: "STOFF."

Larger Size, as fitted to Type 10M.L. Arc Lamps.

Price, each, Code Word: "TENOF."

## "KALEE" Fire Shutters for Projection Rooms.



"Kalee" Fire Shutters are substantially constructed of mild steel bars with steel plate shutters, finished in black stove enamel. The larger aperture allows of sufficient width for both Cine and Title projection, and the smaller aperture is for observation. Both shutters are held up by hooks controlled by the top spring sliding bar. One, two or more sets can be joined together so that all will release simultaneously.

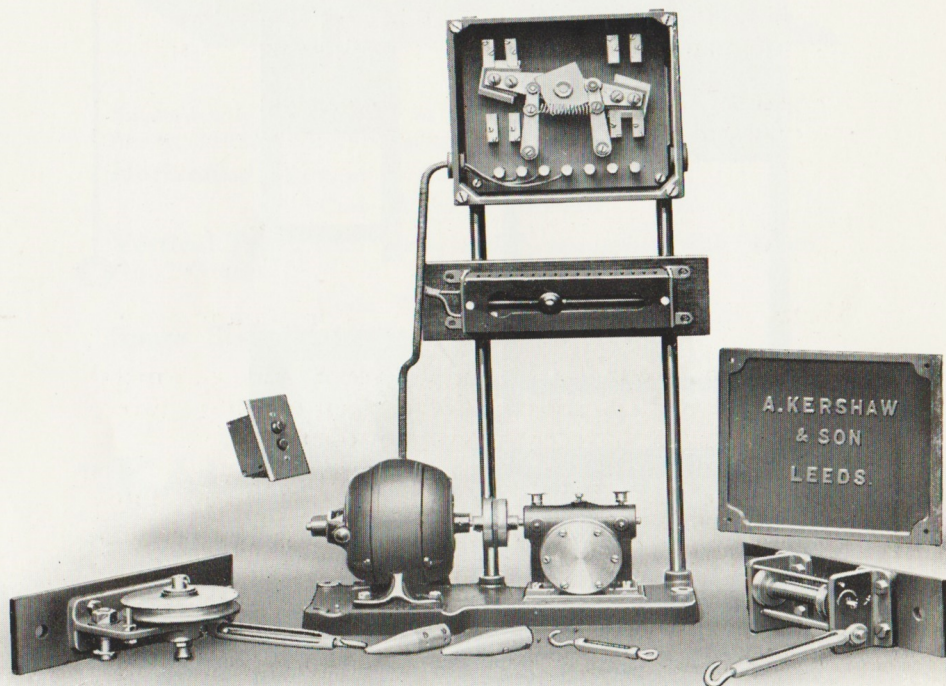
The aperture windows are of substantial plate-glass, mounted in hinged, polished oak frames.

"Kalee" Fire Shutter, complete with large aperture window (18 in.  $\times$  8 in.) and small observation window (6 in.  $\times$  6 in.), pulley cord and ring. Price, per set ...

Code Word: "FITER."



# The "KALEE" Electric Curtain Control.



Complete Electric Control Unit, as illustrated, including pulley brackets,  $\frac{3}{8}$  in. and  $\frac{1}{8}$  in., steel cable with strainers, and two-way operating switch.

Price ... ..

Code Word: "CUROL."

(When ordering, please state voltage).

Estimates given for installing, also for supplying suitable curtains.

## SPECIFICATION.



The "KALEE" ELECTRIC CURTAIN CONTROL is robust in design, and substantially constructed of selected materials to withstand hard, continuous service.

It is controlled by means of a two-way switch fixed in the operating room. The curtain can be opened as the picture commences, and closed as the picture finishes.

It entirely obviates the objectionable showing of the open White screen.

**Motor (A).** The Motor is  $\frac{1}{8}$  h.p., series wound.

**Reduction Gear (B).** Steel worm and gun-metal wheel type, entirely enclosed in an oil bath; direct coupled to the motor, silent in operation.

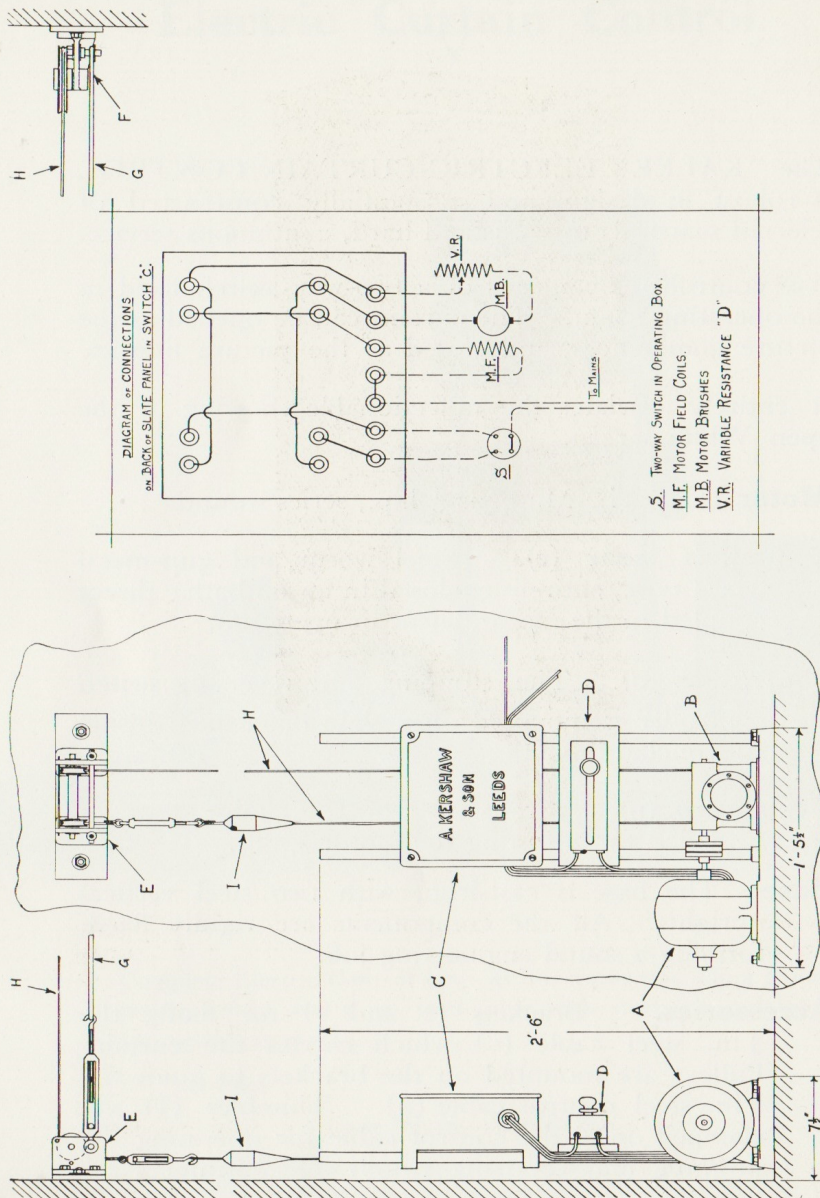
**Controller (c).** The stopping and reversing switch controller is mounted on a slate base, fixed inside an ironclad box.

**Resistance (D).** A resistance of the sliding type is provided for adjusting the motor speed.

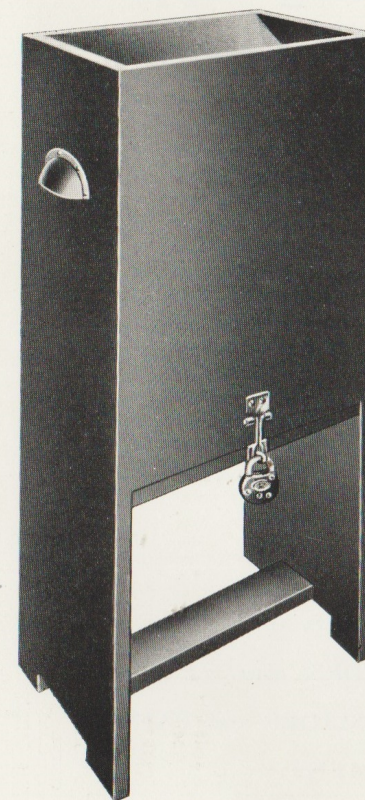
**Base.** The base is cast-iron, with two steel vertical uprights. All the components are rigidly fixed, forming a sound engineering job.

**Accessories.** Brackets (E and F) for fixing the  $\frac{3}{8}$  in. steel cable (G) which carries the curtain. Pulleys are mounted on the brackets to guide the  $\frac{1}{8}$  in. steel control cable (H). Thimbles (I) are clamped on to the control cable for operating the stopping and reversing switch (c). Strainers are provided for tensioning both cables.





## "KALEE" CHECK BOXES.



"Kalee" Check Boxes are substantially constructed, made from selected wood, stained to mahogany colour, complete with fittings. Outside sizes, 28" x 12" x 8".

PRICE .... each.

Code Word: "CHECK."

"Kalee" Check Boxes as above, but made in solid mahogany.

PRICE .... each.

Code Word: "CHEMA."



# Everything supplied for the Cinema.

*Send us your enquiries for—*

CARBONS, all makes.

CONDENSER LENSES.

PROJECTION LENSES, all makes.

SCREENS.

STAGE LIME OUTFITS.

PROGRAMME BOARDS.

EXIT BOXES.

BARRIER ROPES.

KING SLIDES, unbreakable.

KING SLIDES, glass.

OPAQUE SLIDES and PAINT.

FILM CEMENT.

FILM STORAGE CABINETS.

FIRE EXTINGUISHERS.

TICKET MACHINES.

MOTOR GENERATORS.

AUTOMATIC ELECTRIC SCREEN CURTAINS.

DIMMERS.

SLIDE PROJECTOR for use with Mirror Arc Lamps.

SEATING, Etc., Etc.



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