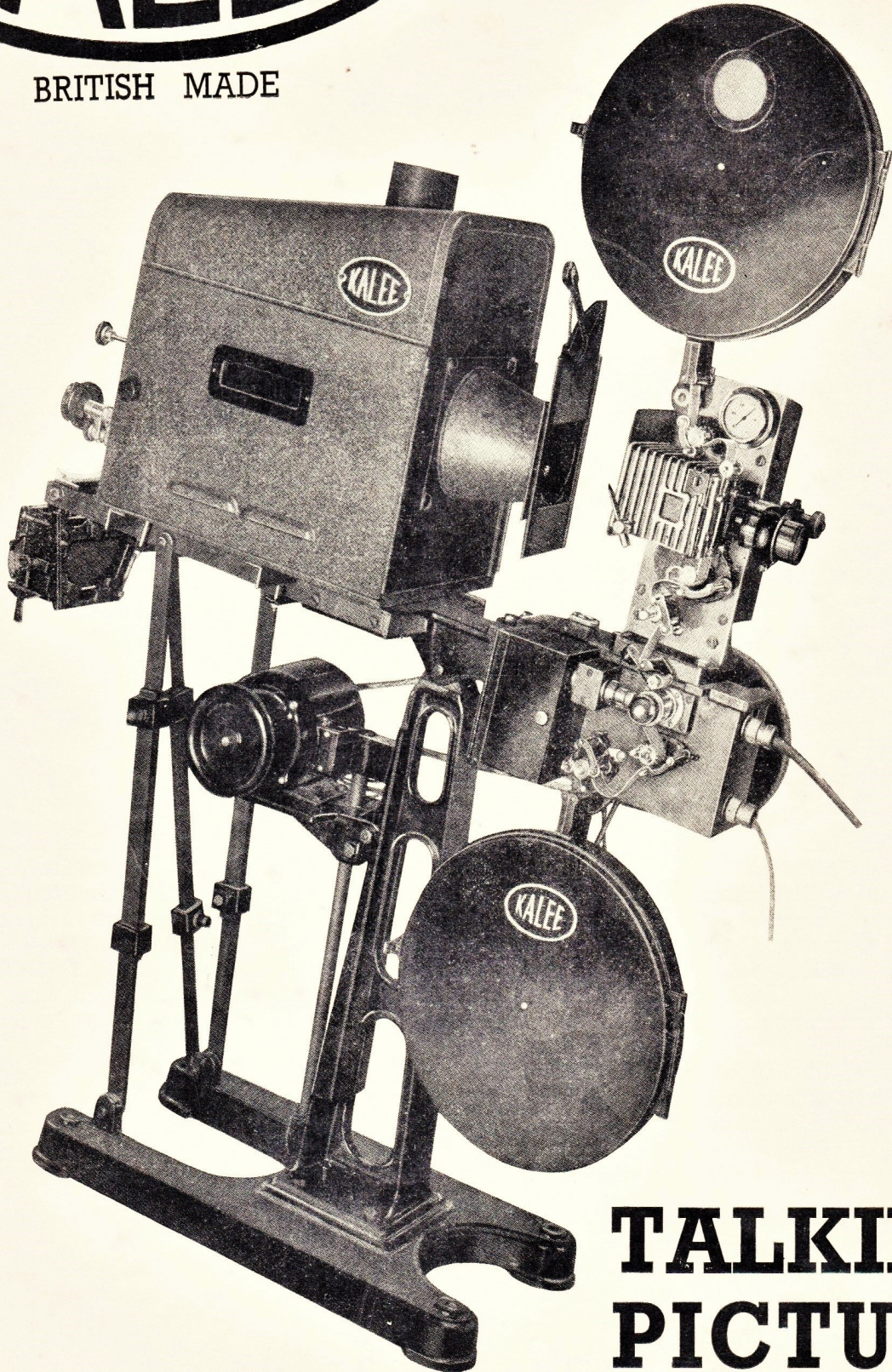


KALEE

BRITISH MADE



INVICTA MODEL
TYPE E

TALKING PICTURE EQUIPMENT

THE KALEE INVICTA PICTURE PROJECTION MECHANISM

This mechanism embodies the most up-to-date features, and everything has been included to facilitate operations and upkeep, and to ensure a **STEADY, BRILLIANT FLICKERLESS PICTURE** with the maximum of **SAFETY**.

Following are some of the more important points contributing to this :—

The mechanism is of the latest **DRUM-SHUTTER** type, which dissipates the heat before it reaches the gate, and sets up a current of air to cool the film.

AUTOMATIC SAFETY SHUTTER which prevents light and heat reaching the film unless the machine is running at safe speed.

LUBRICATION has been simplified to the last degree.

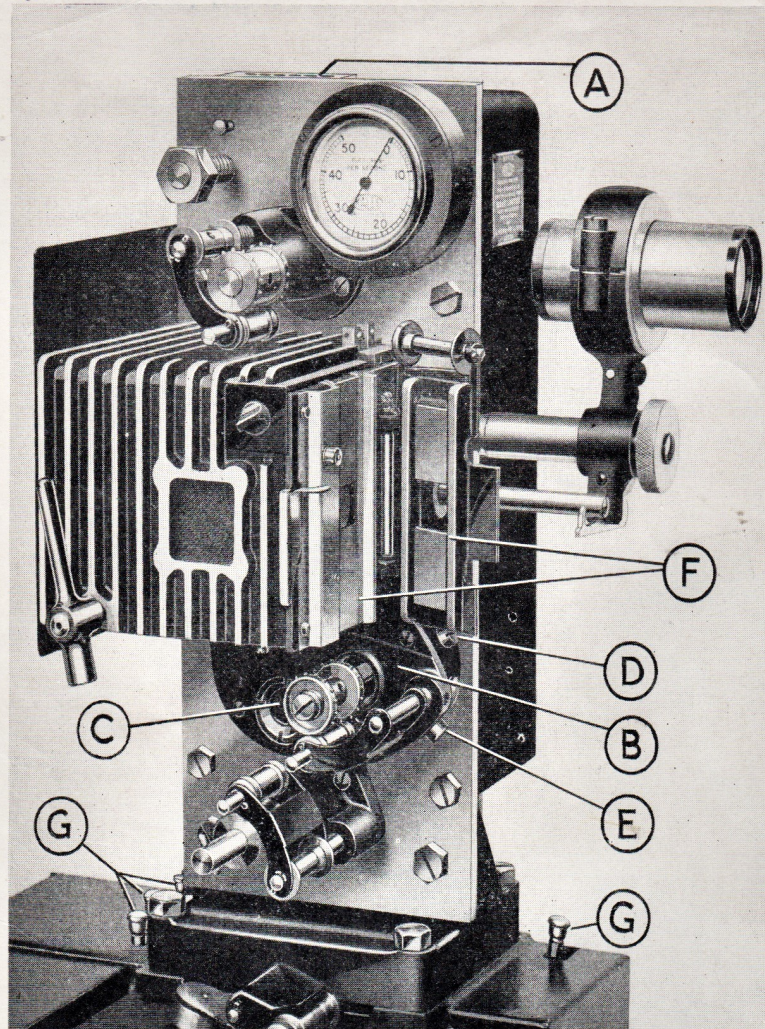
ALL Rollers, sprockets, guides, etc., in contact with the film are cut away at the centre to eliminate film scratch.

The **PICTURE GATE** is of the well-known **KALEE LONG TYPE**. A flanged guide roller device automatically accommodates itself to any irregularity in the width of the film and ensures a steady picture.

The **MALTESE CROSS** which is the heart of the projector, runs entirely enclosed in an oil bath, and is of the extra large type ensuring long life and rock-steady picture.

The **SWINGING LENS HOLDER** combined with a subsidiary **FRAMING LAMP** relieves the operator of all difficulty in the correct threading and framing of the film.

A **MICROMETER FOCUSING DEVICE** is fitted to ensure a sharp picture on the screen.

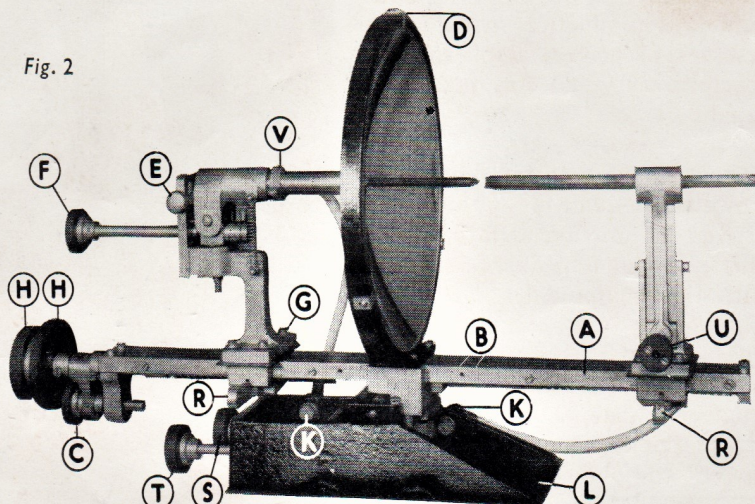


- A. Grouped Oiling Points.
- B. Maltese Cross Chamber.
- C. Oil Level Indicator.
- D. Oil Bath Filling Plug.
- E. Oil Bath Draining Plug.
- F. Gate Runners & Film Skates.
- G. Soundhead Oiling Points.

THE KALEE INVICTA ARC LAMP

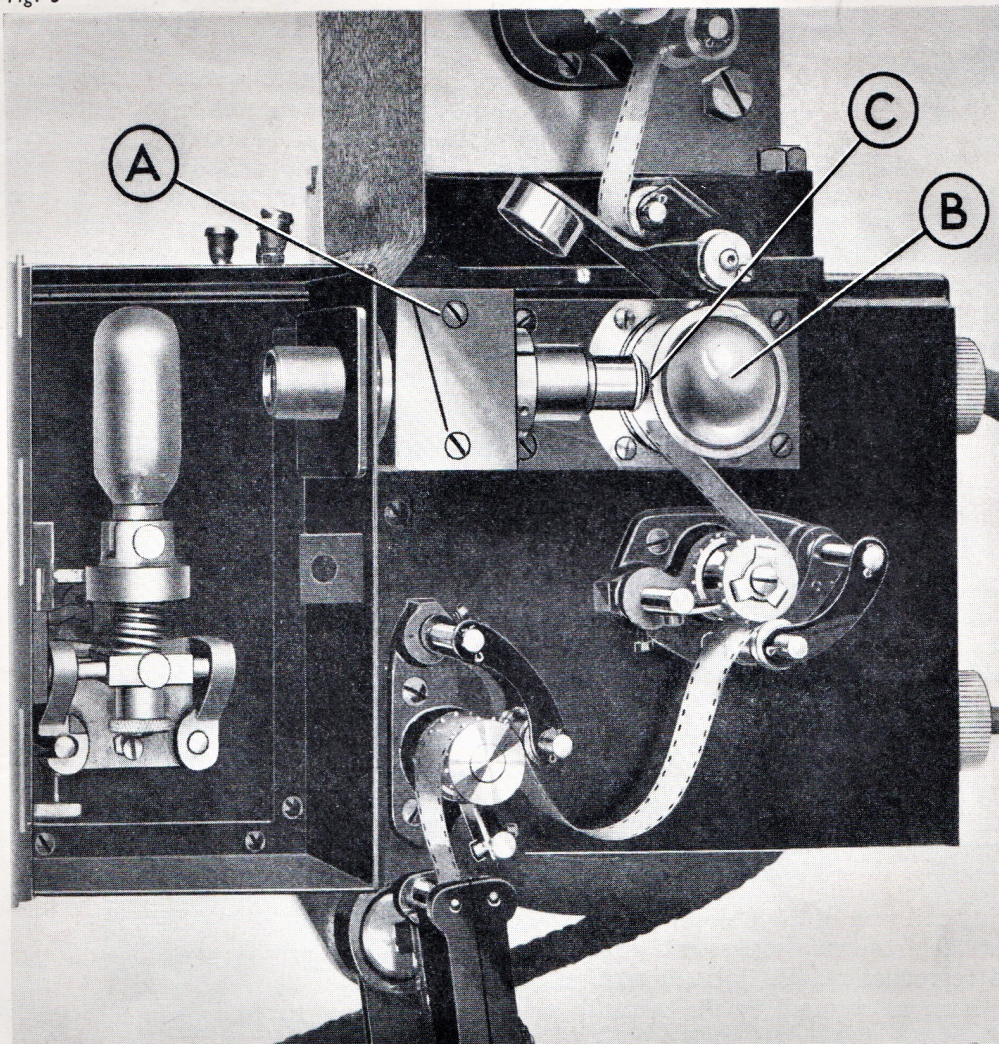
This Arc Lamp has been specially designed to secure **MAXIMUM LIGHT ON THE SCREEN**, combined with **ECONOMY** and **SIMPLICITY**. The large mirror (10 in. diameter) of a special curvature, combined with the accurate centering of the positive carbon, ensures that the maximum light given by the arc is utilised to give full brilliance on the screen. The special design and long travel of the Carbon Holders results in the utmost economy in carbons by eliminating "short ends." The working parts have been reduced to a minimum, and operation is simplicity itself. The amperage required is from 15 to 40 amperes according to the carbon combination selected. This highly efficient type of arc lamp affords a really good standard of screen illumination at a throw of 100-ft. or so, on either a matt or a glass beaded screen of proportionate dimensions. The arc lamp is housed in an all-steel lamp-house of substantial construction, allowing easy access to the lamp through wide doors on each side. Each door is made with an inner lining of asbestos which is mounted with a space between it and the door to facilitate the circulation of air and prevent the overheating of the door. Large coloured glass windows are provided for viewing the arc and the light cone is provided with **INSTANTANEOUS LIGHT CUT-OFF**.

Fig. 2



- A. Main Channel.
- B. Gauge Position.
- C. Fine Focus.
- D. Mirror Clip.
- E. Neg. Traverse Control.
- F. Neg. Vertical Control.
- G. Carbon Holder Clamping Screw.
- H. Feed Control Knobs.
- K. Arc Supply Terminals.
- L. Base Frame.
- R. Release Lever for Carbon Holders.
- S. Lamp Tilt Control.
- T. Traverse Control.
- U. Pos. Carbon Clamping Screw.
- V. Negative Carbon Clamp.

Fig. 3



THE SOUNDHEAD

This is the portion of the apparatus which translates the sound image on the film into electrical impulses for reproduction as sound through the Loudspeakers. Upon its precision and reliability depends in large measure the high quality of the sound reproduction obtained by this equipment. It is connected to the Amplifier by special cables. The mechanically driven Sound Reproducing Unit embodies a special form of transmission, and a film scanning device which is made so that shoes are not required to guide the film at the scanning point. The cylindrical gate construction round which the film passes, forms a housing for the Photo-Electric Cell, (B), and at the same time maintains the film in accurate relationship to the optical system (C). The shape of the Sound Aperture in the Kalee reproducer prevents the collection of emulsion or dust at

this critical point, so that excellent reproduction may be obtained with all conditions of Sound Film. The absence of pressure shoes simplifies the threading and operation of the soundhead, while materially reducing the wear of the film and all parts with which it comes in contact. The Optical System is pre-set and locked so that apart from general cleaning to remove dust from the outside lenses it will not need adjustment. When it is necessary to clean the lenses the whole unit may be removed by withdrawing the two screws shown at (A). An ingenious saddle device ensures correct replacement of the Optical System without alteration to the critical focussing of the whole assembly. A standard 32-watt Exciter Lamp is used, carried in a pre-set holder designed to facilitate quick replacement and correct setting.

Fig. 4

THE AMPLIFIER

The KALEE Amplifier used with this equipment embodies a special circuit ensuring the highest quality Sound Reproduction with ample reserves of power, and has been specially designed for maximum reliability.

It has an undistorted output of 15-watts, adequate for any hall when used in conjunction with the highly efficient loud-speakers supplied with this equipment.

The Amplifier is entirely driven from the electric mains, no batteries whatever being required. It automatically supplies exciter lamp current and photo-cell voltage for the soundheads.

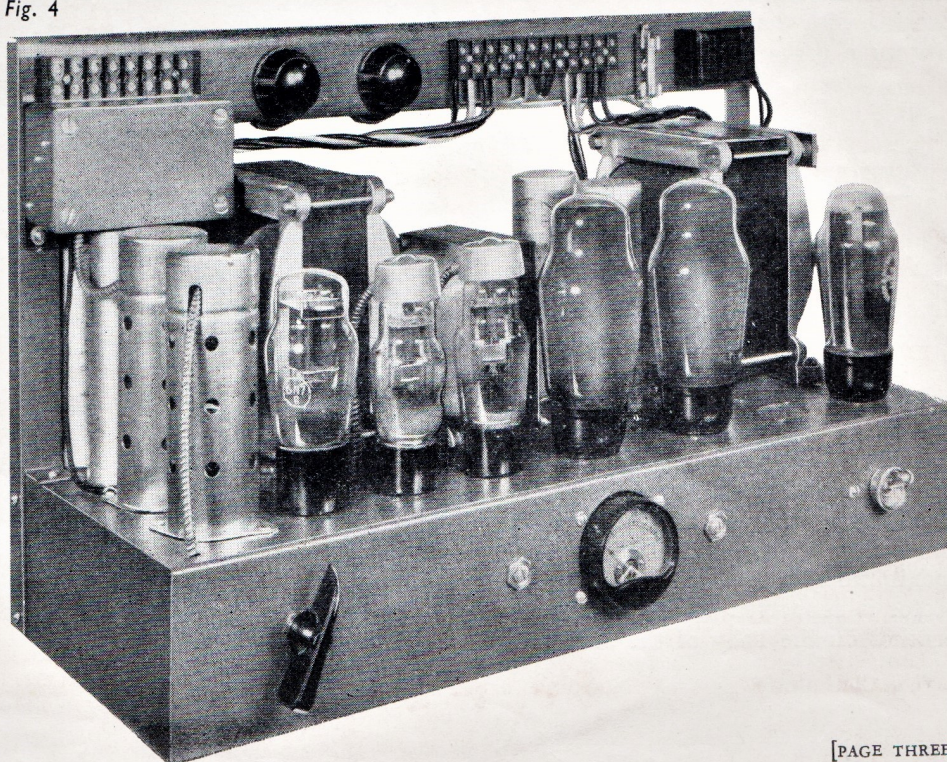
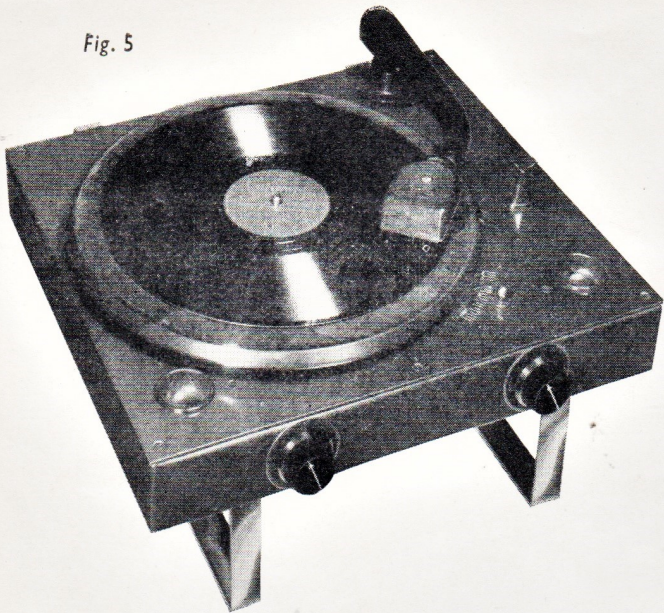


Fig. 5



GRAMOPHONE ATTACHMENT

This attachment is available if desired and allows ordinary standard gramophone records to be reproduced through the main auditorium speaker. The attachment comprises an electrically driven turntable and high quality pick-up, fitted with volume control and tone control. The motive power is derived from the amplifier to which the attachment is connected by plugs. The amplifier carries a two-position switch which is turned to the "Disc" position when gramophone reproduction is required.

MICROPHONE ATTACHMENT

The amplifier may also be fitted, if required, with a microphone attachment enabling oral announcements to be made through the main amplifier system.

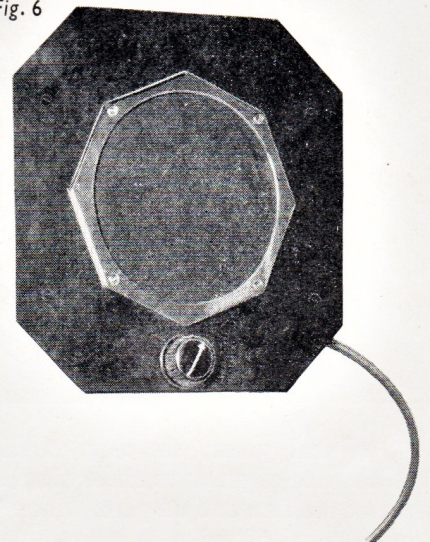
THE MONITOR LOUDSPEAKER

This is a high quality moving coil instrument to enable the operator to monitor his sound at all times during the projection.

THE AUDITORIUM LOUDSPEAKER

This is a special heavy duty moving coil unit of high efficiency, ensuring adequate reproduction throughout the frequency range, and completing the chain of high quality sound reproduction. It is fitted with either acoustic or directional baffle or horn as required by the acoustic conditions of the hall.

Fig. 6

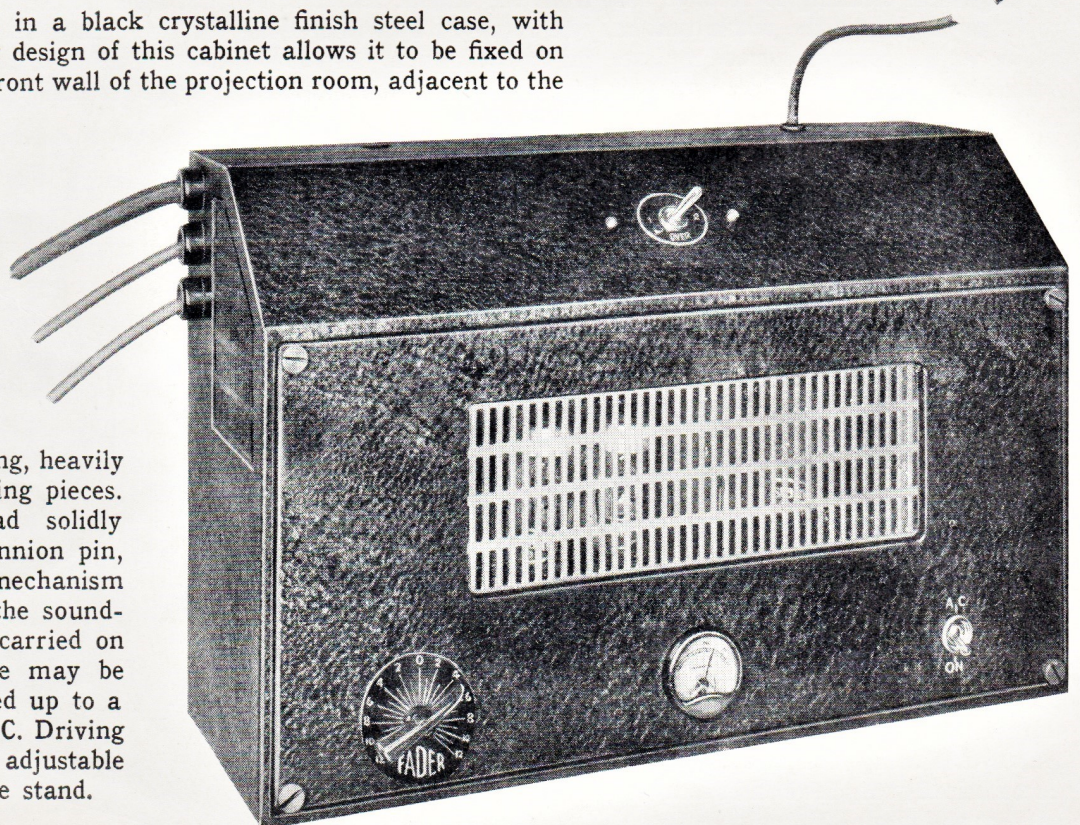


THE AMPLIFIER CABINET

The Amplifier is mounted in a black crystalline finish steel case, with sloping top. The compact design of this cabinet allows it to be fixed on brackets or a shelf on the front wall of the projection room, adjacent to the machines, a most efficient arrangement, dispensing with the necessity for a pre-amplifier.

PEDESTAL STAND

This is a high quality casting, heavily braced by adjustable bracing pieces. It carries the soundhead solidly bolted in front of the trunnion pin, and the picture projector mechanism in turn bolted on top of the soundhead. The lamphouse is carried on steel rails, and the whole may be tilted to any angle required up to a maximum of 15°. The A.C. Driving Motor is supported on an adjustable bracket on the body of the stand.



**THE
ALL BRITISH
KALEE INVICTA
STANDARD OUTFIT**

TYPE E

comprises the following :—

SOUND SYSTEM

- 2 KALEE INVICTA fully mechanically driven Soundheads, pedestal stands with driving motors and all accessories, 15-watt (undistorted) Amplifier, Type 66, High Efficiency Auditorium Loudspeaker Assembly, Monitor Speaker.

PROJECTORS

- 2 KALEE INVICTA Projectors with latest type Drum Shutter, Centralised Lubrication, and all modern refinements.
- 2 Pairs Top and Bottom Spool Boxes.
- 4 Spools, each 2,000-ft. capacity.

ARC LAMPS

- 2 KALEE INVICTA 10-in. Mirror Arc Lamps.

LENSES

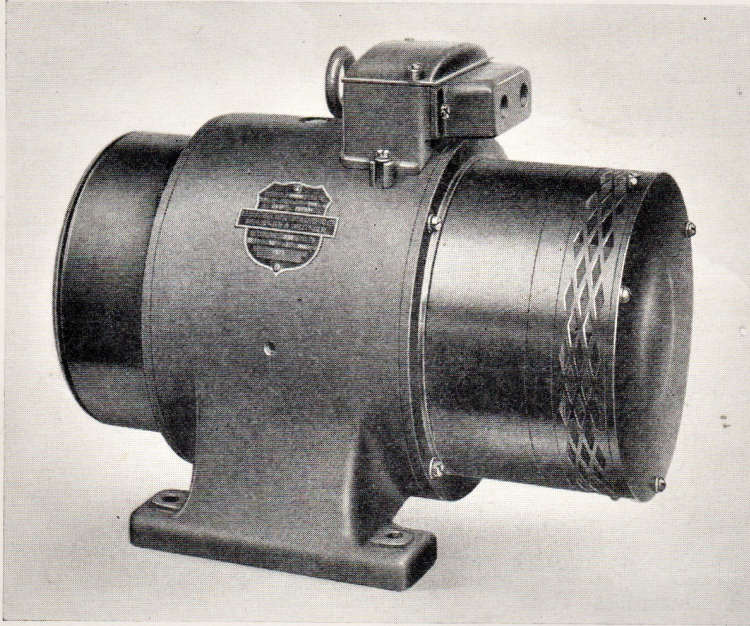
- 2 Wide Aperture Projection Lenses of required focal length.

Although this Equipment is designed for operation on any Standard alternating current electrical supply, it may also be used on a direct current circuit by the addition of suitable conversion equipment.

The Sound Equipment is designed so that two Projectors may be used with the one Amplifier, providing continuity of programme in the usual way. For non-professional halls, however, a Single Projector Equipment can be supplied if considerations of economy so require, and with the standard 2,000-ft. spoolboxes specified by English fire regulations will run a 20-minute programme. The normal time taken to reload the projector will be less than three minutes, as the operation of this machine is extremely simple.

ELECTRICAL EQUIPMENT

Fig. 7



CONVERSION EQUIPMENT FOR D.C. SUPPLY

As the whole of the Sound Film Equipment is designed to work on alternating current, it is necessary to provide conversion equipment in cases where the electric supply is direct current. This equipment consists of a rotary converter and a static transformer with suitable control gear, which supplies the necessary alternating current.

ARC RECTIFIER

The Arc Lamp requires Direct Current for its efficient operation. Where the mains supply is alternating current it is therefore necessary to change this into direct current and this is usually carried out by means of a Rectifier such as the Oxide Cathode Rectifier, which is illustrated, with its cover removed, in Fig. 8.

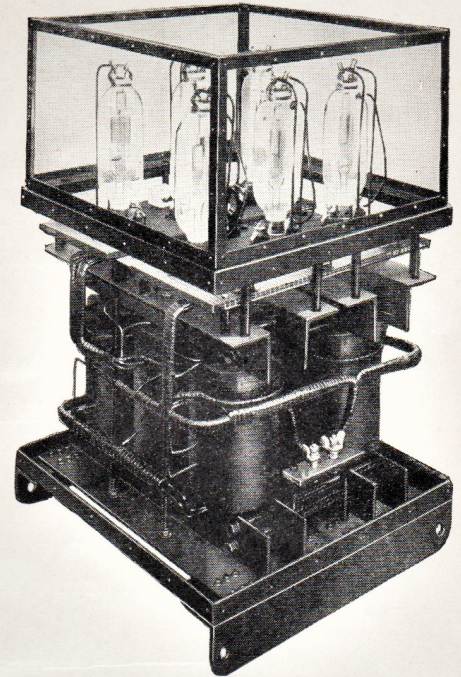
RESISTANCES

The usual ballasting resistances are required in order to maintain a steady arc. They can be supplied in either of two forms :—

Series type for mounting on the wall of the projection room, where permitted by local regulations ;

Parallel type for installation in an adjoining room, remotely controlled by switchboxes from the projector stands.

Fig. 8

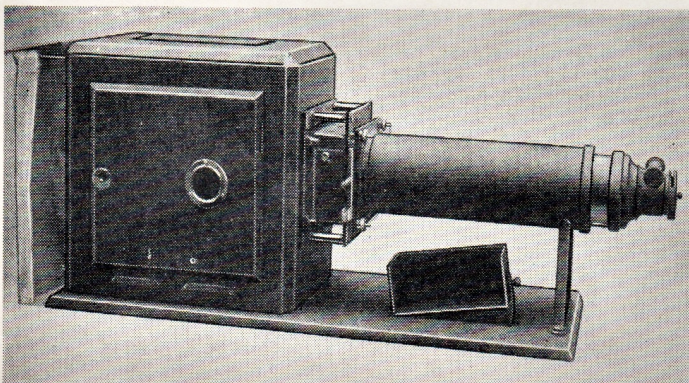


SLIDE LANTERN No. 2a.

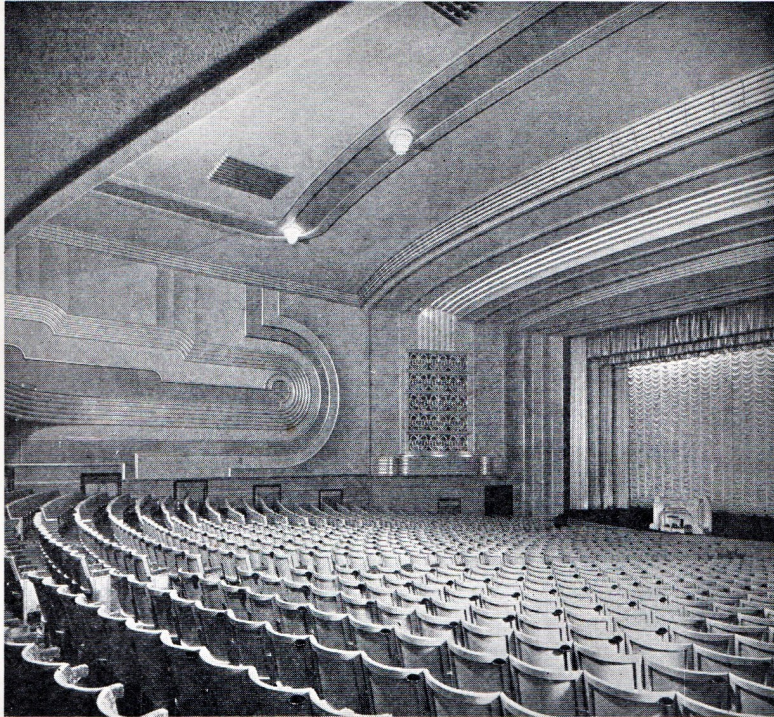
An efficient Slide Lantern fitted with arc lamp, $4\frac{1}{2}$ -in. diameter condensers in removable mount, all metal slide carrier for $3\frac{1}{4}$ -in. x $3\frac{1}{4}$ -in. slides, telescopic front for lenses from 18-in. to 30-in. focus, and 2-in. diameter cylindrical lens of required focal length, with rack and pinion focussing. Mounted in well ventilated sheet steel body, black crystalline finish.

Alternatively, a compact vertical type Slide Lantern can be supplied to fit alongside one of the projector lamp-houses, utilising the same projection aperture and thus saving space.

Fig. 9



COMPLETE CINEMA FURNISHING



SAVOY CINEMA.

COVENTRY

Being actual manufacturers we are particularly well organised to equip a cinema completely. Our personnel includes specialists in seating, draperies, carpets, lighting, etc., and their services are at your command. Colour schemes, quotations, etc., gladly submitted free of all cost.

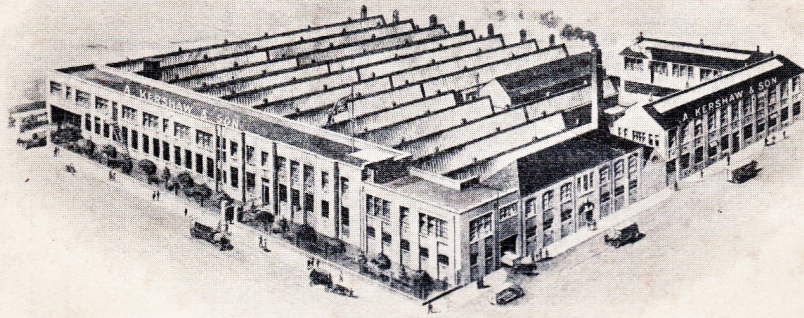
THE



ORGANISATION

controls the output of the following factories :
A. KERSHAW & SON, Leeds (Cinema Projection Apparatus), SOUNDCRAFT LTD., Wimbledon (Cinema Sound Equipment), PIXTONS LTD., High Wycombe (Theatrical Furniture), KALEE LTD., Clapham (Stage Curtains and Equipment), and is therefore in an unequalled position to offer at keenly competitive prices, with complete assurance of satisfaction and service,

EVERYTHING FOR CINEMAS, THEATRES &
PUBLIC HALLS



Since the earliest days of the cinematograph, 30 years ago, the engineering works of Messrs. A. Kershaw & Son, at Leeds, have been building cinematograph projectors and associated KALEE equipment. These works, illustrated above, have become increasingly specialised, and their product has acquired a higher and higher reputation as the years have gone by, until to-day the trade mark KALEE is a household word throughout the cinematograph industry, and the works are the largest in the country for the manufacture of this specialised machinery.

The accumulated experience, combined with unique factory resources, ensures high precision and trouble-free apparatus, which is the reason why KALEE projectors are to-day installed in three out of every four of the cinemas in the British Isles and throughout the Empire.

This is the history of the organisation behind the Talking Picture Equipment described in these pages.

The KALEE INVICTA TALKING PICTURE EQUIPMENT, while maintaining a high reputation, and incorporating the most up-to-date developments, is produced at a price which places it not only within the reach of the smallest cinema, but even of the hospital, school, church or institution.

Only the experience, organisation and factory resources behind KALEE could make such quality available at a moderate price.



INCORPORATING THE BUSINESSES
KERSHAW PROJECTOR CO. & E. A. LANGRISH & CO.
NATIONAL HOUSE
60-66 WARDOUR STREET, LONDON, W.1
Branches
Belfast, Birmingham, Cardiff, Dublin, Glasgow, Leeds, Manchester, Newcastle