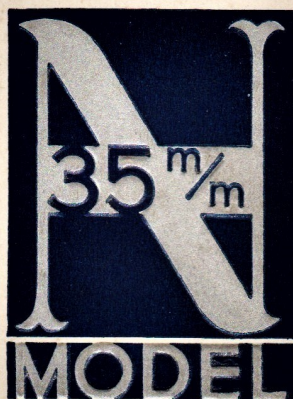


# Introducing

SERIES



IV

A G.B. — KALEE PRODUCT

G.B.—KALEE LTD.

60/66 WARDOUR STREET, LONDON, W.1.





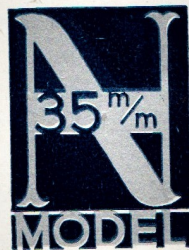


# In explanation . . .

Since its introduction the "N" Type Portable Sound Film Equipment has proved so satisfactory in operation that production has continued in almost unchanged form, and these machines are in use throughout the world.

The universal use to which this Equipment has been put is in itself a testimony to the high grade quality of its material and the engineering skill involved in its construction. Included in the users of this Equipment, in addition to Cinema Exhibitors, are many of the most important Shipping Lines, Public Bodies, Educational Centres and Industrial Concerns.

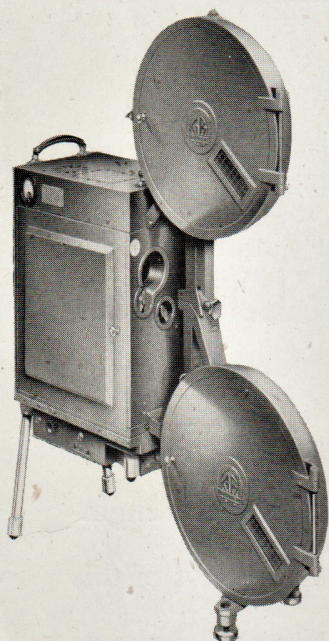
The new "N" Type SERIES IV Reproducer remains fundamentally unchanged but incorporates many new features, details of which will be found in the pages overleaf. When specially required, the Projector may be fitted with an A.C. or D.C. Motor, whilst the Amplifier has been entirely re-designed on the most modern lines. This unit is now not only smaller and lighter in weight than its predecessor, but it gives a considerably greater undistorted output.



THE IDEAL EQUIPMENT FOR PERMANENT AND PORTABLE USE



The COMPLETE EQUIPMENT dismantled for transit comprises four units : Projector, Spool-Boxes, Amplifier and Speaker. Each of the units is compact and light in weight ; the heaviest, the Projector, weighs only 112 lbs., and is equipped with stout handles so that it can easily be carried.



**The PROJECTOR.** The Projector Mechanism is housed in a substantial well - finished weather - and - fire - proof case. The Mechanism is of extremely sturdy construction ; the main working parts are in fact identical in size and finish with those employed in our full-size permanent Theatre Projectors. The whole of the Mechanism has been designed for operation and maintenance by a comparatively unskilled operator. Adaptation for rear projection can be effected in the course of a minute or two by reason of the readily adjustable sound and picture gates.

**The SPOOL-BOXES** accommodate 2,000-ft. reels of film, giving an uninterrupted run of approximately 22 minutes.

**The ILLUMINANT** is normally a 1,000 watt incandescent lamp, in conjunction with the highly efficient optical system which incorporates, in addition to the aspherical condenser, a reflecting-mirror which substantially increases the light-efficiency. This system provides a well-illuminated picture up to 12 ft. by 9 ft. at throws of up to 80 ft. In conjunction with the incandescent lamp, a volt-meter and controlling resistance is used, thus enabling the voltage to be adjusted accurately to permit the best screen illumination consistent with long lamp life. If a larger picture is required,

an arc lamp attachment, or either high or low-intensity, can be supplied ; the arc is capable of giving a brilliant picture up to 20 ft. by 16 ft.

**RUSTPROOFING.** In the manufacture of the Projector, extensive use has been made of stainless steel, so as to prevent any deterioration or rusting when the machine is used under tropical or other arduous weather conditions.

**VENTILATION.** Considerable attention has been paid to the provision of adequate ventilation. The 1,000-watt incandescent lamp is cooled by means of a separate high speed (5,000 r.p.m.) blower motor, with provision for separate switching to enable the blower to operate after the lamp has been switched off. This feature results in improved cooling. The projectors before leaving the Works are actually tested in a special temperature controlled room with a temperature of 120° F. The machine may therefore be selected with confidence for operation under extreme tropical conditions.

**HEAD AMPLIFIER.** A single-stage Head Amplifier is built into the Projector Unit and is combined with a Westinghouse metal rectifier which in conjunction with the necessary smoothing circuit supplies direct current to the exciter lamp.

**The POWER AMPLIFIER** is housed in a substantial metal case and comprises three stages of amplification with push-pull output ; the undistorted output is 15 watts. Arrangements have been made for the Amplifier to be connected direct to one or two Projectors, and provision is also made for inputs from a radio receiver, microphone, and gramophone. Connections between the amplifier, projector and the speakers are made by means of substantial non-interchangeable plugs and tough rubber-sheathed cables.

Meter-checking of mains-voltage, and anode currents of all valves, is provided by one meter and a selector-switch.



As with the projector unit, the amplifier construction is well suited to withstand the most arduous conditions of transport and operation.

**SPEAKERS.** Various types of Speakers can be supplied to suit the conditions under which the equipment is used. A Bi-tone speaker, comprising H.F. and L.F. units and associated frequency—distribution unit, is normally supplied. This Bi-tone speaker and distribution-unit are built into one container, an arrangement which improves the portability of the speaker-assembly.

As an optional extra, a wide choice of Loud Speaker equipment is available and the response of the soundhead and amplifying chain is of such a high standard as to justify the use of the DUOSONIC Multicellular Type Speaker Assembly.

**ELECTRIC SUPPLIES.** The machine as standard is suitable for use direct from a 200/250 volt A.C. single phase 50 cycle mains supply. A 100 volt projector lamp is supplied, with the necessary step-down transformer. For operation on 200/250 volts D.C., a special projector driving motor can be supplied to operate direct from the mains. A small converter, approximately 200 watts, is necessary to supply A.C. for the amplifier.

For 100 and 110 volt D.C. supplies, the projector can be fitted with a suitable motor and run direct from the mains. As in the case of the higher voltage D.C. mains, a small converter is necessary for providing A.C. to the amplifier.

Suitable arrangements for operation of the equipment from electric supplies other than those detailed above can be arranged. Details will be gladly given on request.

**SPEEDOMETER.** A Speedometer is not supplied as standard, but is an optional extra with a standard A.C. driving motor. The A.C. motor operates at a constant speed irrespective of the small changes in the supply voltage and a speedometer is therefore not essential. It is, however, always supplied when a D.C. driving motor is fitted. The speed of a D.C. motor varies in direct proportion to the mains voltage, and a speed regulator is therefore provided. This in conjunction with a speedometer enables the machine to be run at the correct speed.

## ACCESSORIES

**STAND.** A neat, readily collapsible and portable stand, shown in the accompanying illustrations, is available as an optional extra. The stand is extremely rigid in construction, and the feet are independently adjustable to provide for use on irregular floors.

**GRAMOPHONE ATTACHMENT** can be provided with one or two turntables as required.

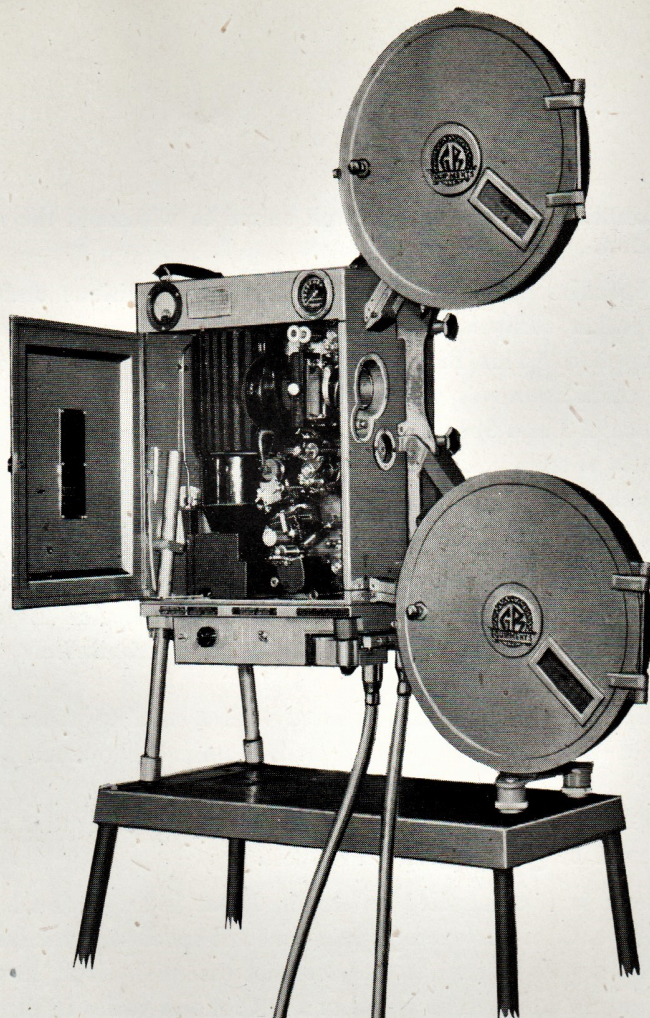
**MICROPHONE.** A moving coil microphone can be supplied and this permits the amplifier and speaker portion of the equipment to be used for Public Address purposes or for a running commentary to a silent film.

A PYRENE AUTOMATIC FIRE EXTINGUISHER is now a standard fitting, but may be omitted if desired. This complete unit comprises a gun-cotton fuse mounted immediately above the projector-gate, and in conjunction with simple mechanical links is coupled to the switchgear and a gas cylinder. If a fire were to take place within the projector, the gun cotton fuseable link would immediately burn out and the link movement would simultaneously (a) stop the projector-motor, (b) extinguish lamp, (c) discharge at high-pressure, carbon-dioxide gas within the projector-case and within the spool-boxes, immediately extinguishing the fire, without causing damage to any part of the projector. The fire extinguishing mechanism can be re-set and the projector be ready for operation again in two or three minutes.

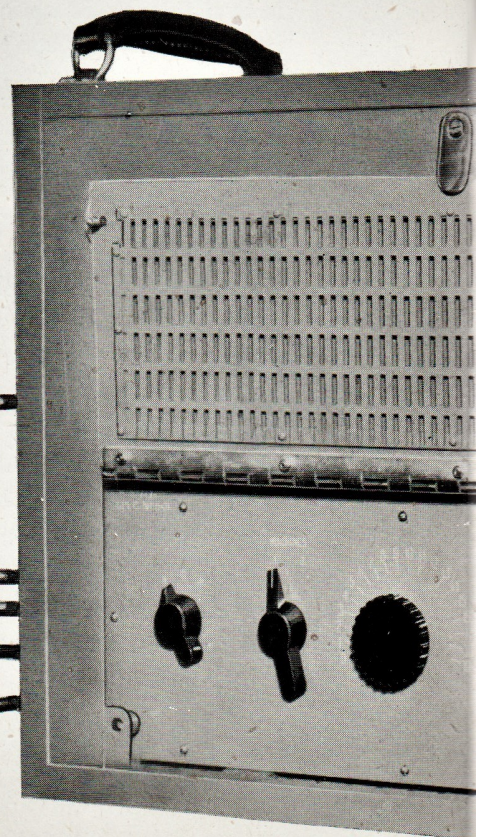
A COMPLETE RANGE OF FILM PROJECTION ACCESSORIES—Rewinders, Spools, Film Splicers, Screens, Film Cement, Film Transit Cases, etc., are normally held in stock. Further details will be given on request.



SE  
DUAL  
COU  
SINGLE PO



*The projector erected with door opened, showing the simplicity and accessibility of the mechanism which is a special feature of the "Series Four" portable.*



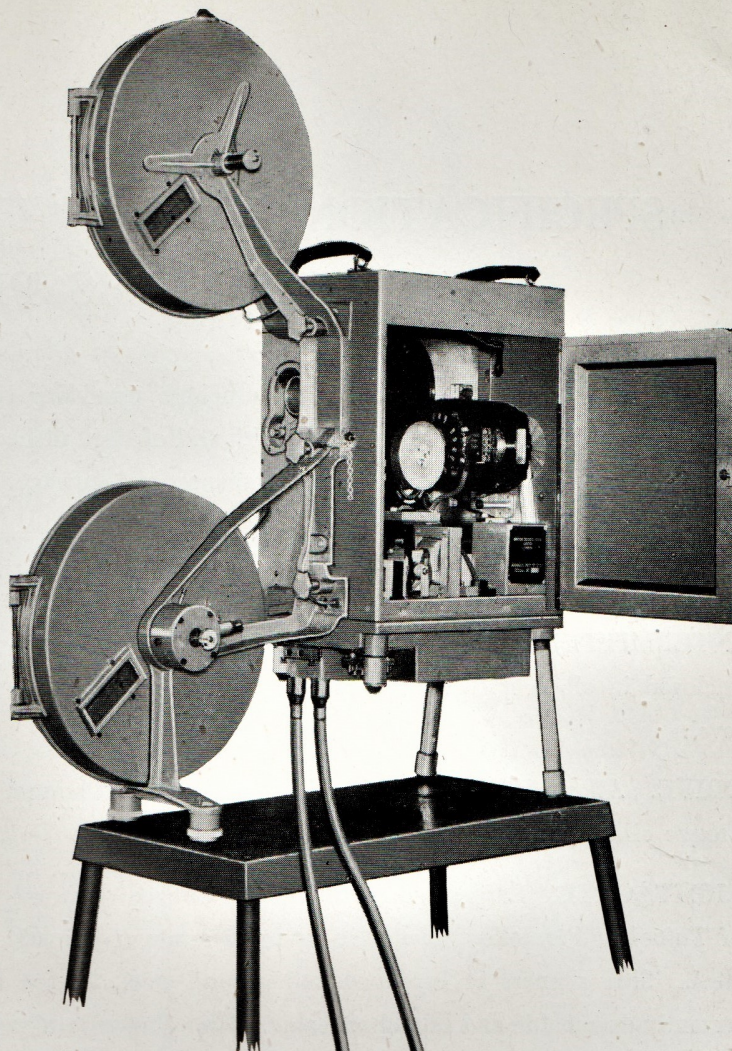
*The amplifier unit coupled to the projectors by for change-over from one machine to another, al*

**N**  
35<sup>m</sup>/<sub>m</sub>  
**MODEL**

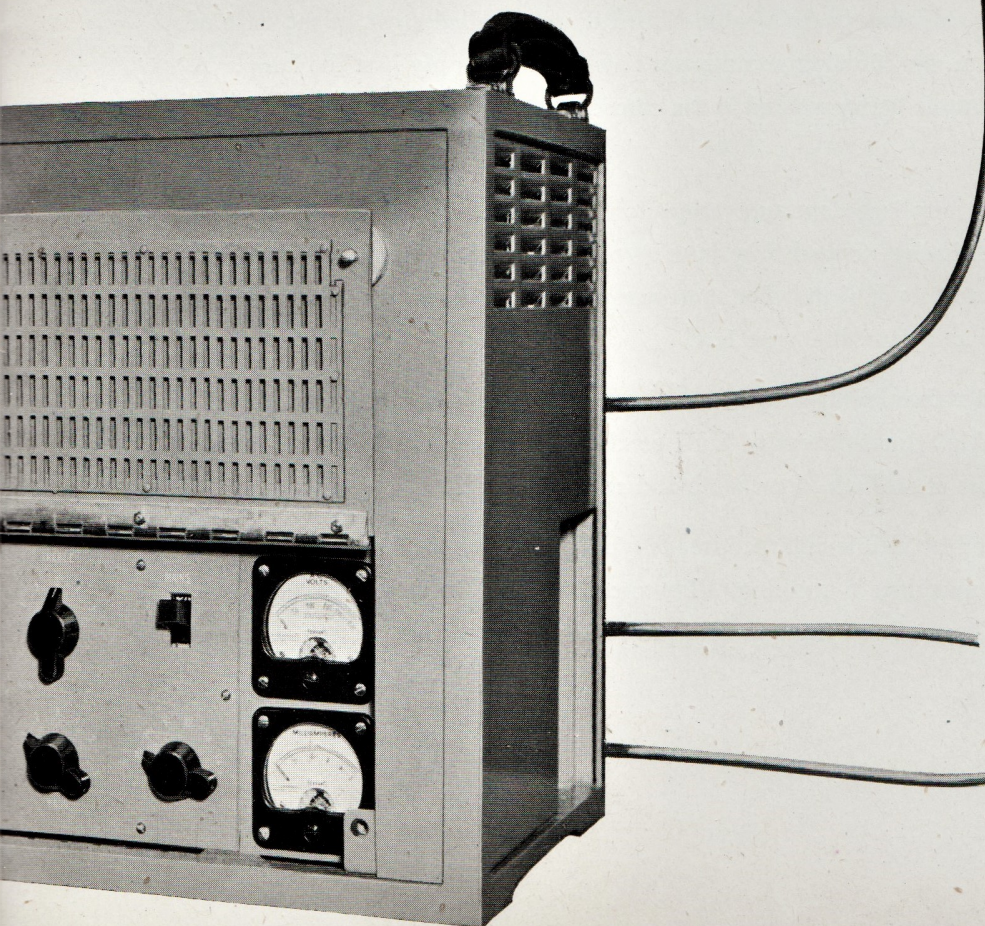


# IES 4 MACHINES

PLED TO  
VER AMPLIFIER  
UNIT



*The back of the projector with door opened, showing the rigid construction of the mechanism and compact pre-stage head amplifier and exciter unit.*



*...y cables. Note the single control  
the accurately graded fader control.*



# SPECIFICATION OF "N" TYPE SERIES IV

## COMPONENT ITEMS PROJECTOR

**CASE.** Box section heavy cast aluminium base providing rigid foundation. Remainder of case heavy gauge sheet metal. Doors full width and of rigid dished shape. Finished in Battleship grey enamel. Rectangular outline facilitates transport and stowage.

**MOTOR.** To choice, 200-250 volt 50 cycle A.C., 200-250 volt D.C., or 90-120 volt D.C. Direct coupled to main gearbox unit.

**INTERMITTENT MOVEMENT.** Full size Maltese cross, cam and double bearing roller pin enclosed in oil-tight cast-iron box with continuous lubrication. Large sight window to verify oil level.

**DRIVE.** All shaft and gear drive, including drive to bottom spool-box. All bearings manganese bronze oilite type.

**LIGHT GATE.** Large size,  $4\frac{1}{2}$  in. long. Convenient front opening type. Sprung front runners of Tufnol or Permalloy, unaffected by temperature or climatic changes. Aperture plate of stainless steel. Side runners of hardened and ground steel. Front and side runners and aperture plate instantly detachable and interchangeable. Rear shutter reduces heat on gate by 50 per cent.

**PROJECTOR LAMP.** For direct operation from A.C. or D.C. mains, either 100 or 110 volt 1,000 watt Mono-plane.

Projector lamp is enclosed within an instantly detachable ribbed double walled cowl, at the base of which is a motor-driven 5,000 r.p.m. fan blowing a continuous air cooling supply past the lamp. A voltmeter indicates whether the lamp is being worked at the correct voltage, and a variable resistance gives critical voltage control.

**LENS MOUNT.** Accommodates any large aperture projection lens, and also the special stepped T.T. & H. Ultimium lens and the similar stepped Ross lens. Working aperture of lenses varies from  $f/2.1$  for a lens of 3 in. focal length to  $f/2.5$  at  $6\frac{1}{2}$  in. For short rear projection throws, a reducing sleeve is supplied to hold the necessary 42.5 mm. diameter lens.

**SPROCKETS.** Upper, lower and intermittent—all of four picture type. Upper and lower, detachable, reversible and interchangeable. Intermittent of high precision type, contour and tooth shape accurate to one ten-thousandth part of an inch, detachable and reversible.

**SOUNDHEAD.** Optical system of the visible enlarged image type, permitting focusing and masking to be checked even whilst the machine is running. Photo-cell Osram CMG25 or Baird GSr8. Exciter lamp 6 volts 1 amp. Change from front to rear projection accomplished in two minutes without tools.



**HEAD AMPLIFIER AND EXCITER SUPPLY UNIT.** Combined in one chassis accommodated within projector case on non-operating side.

**SPOOL-BOXES.** 2,000 ft. capacity. Attached to projector by three substantial hand bolts. The captive hinge is detachable, permitting top spoolbox only to be removed if it is required to move complete machine on stand through a low door. Large wired glass inspection windows on upper and lower boxes.

**ARC ATTACHMENT.** Optional extra. In place of the 1,000 watt incandescent lamp, a 5 in. mirror arc lamp can be supplied. The arc lamp can be operated, according to the type of carbon used, on any amperage from 15 to 40. Carbons fed by one knob control.

**SPEEDOMETER.** Optional extra. Calibrated in pictures per second.

**AMPLIFIER.** Has inputs and switching for input from two projectors, gramophone attachment, radio and microphone. Incorporates 20 stud click action main fader control, and change-over switch. Bass and Treble response separately controlled. Push-pull output stage with negative feed-back, speech output 15 watts with less than 2 per cent. harmonic distortion. Meter and switch reads anode current of all valves, and value of A.C. supply. Overall frequency response to S.M.P.E. standards for first grade theatre reproduction. Protected and waterproof Niphan sockets. Six volt valves are used throughout.

**STAND.** All steel construction. Accommodates projector and amplifier. Quickly demountable and packs flat for transport, but rigid as a non-demountable stand when erected. Dimensions erected : 2 ft. 4 in. high, 3 ft. long, 1 ft. 10 in. wide. Collapsed : 3 ft. long, 1 ft. 9 in. wide, 3 in. thick.

**NON-SYNCHRONOUS GRAMOPHONE ATTACHMENT.** A.C. Motor with gear drive. Piezo-electric crystal pick-up with corrected response. Output matching transformer. Volume control. Variable scratch filter for use on worn records. Case of heavy gauge sheet steel with carrying handle. Protected and waterproof Niphan sockets. Complete with two leads for connection to mains and amplifier.

**LEADS.** Tough rubber sheathed C.M.A. grade cable, either 4 core 40/.0076 or 2 core 110/.0076 according to circuit, complete with necessary waterproof Niphan couplings to fit Niphan sockets on equipment.

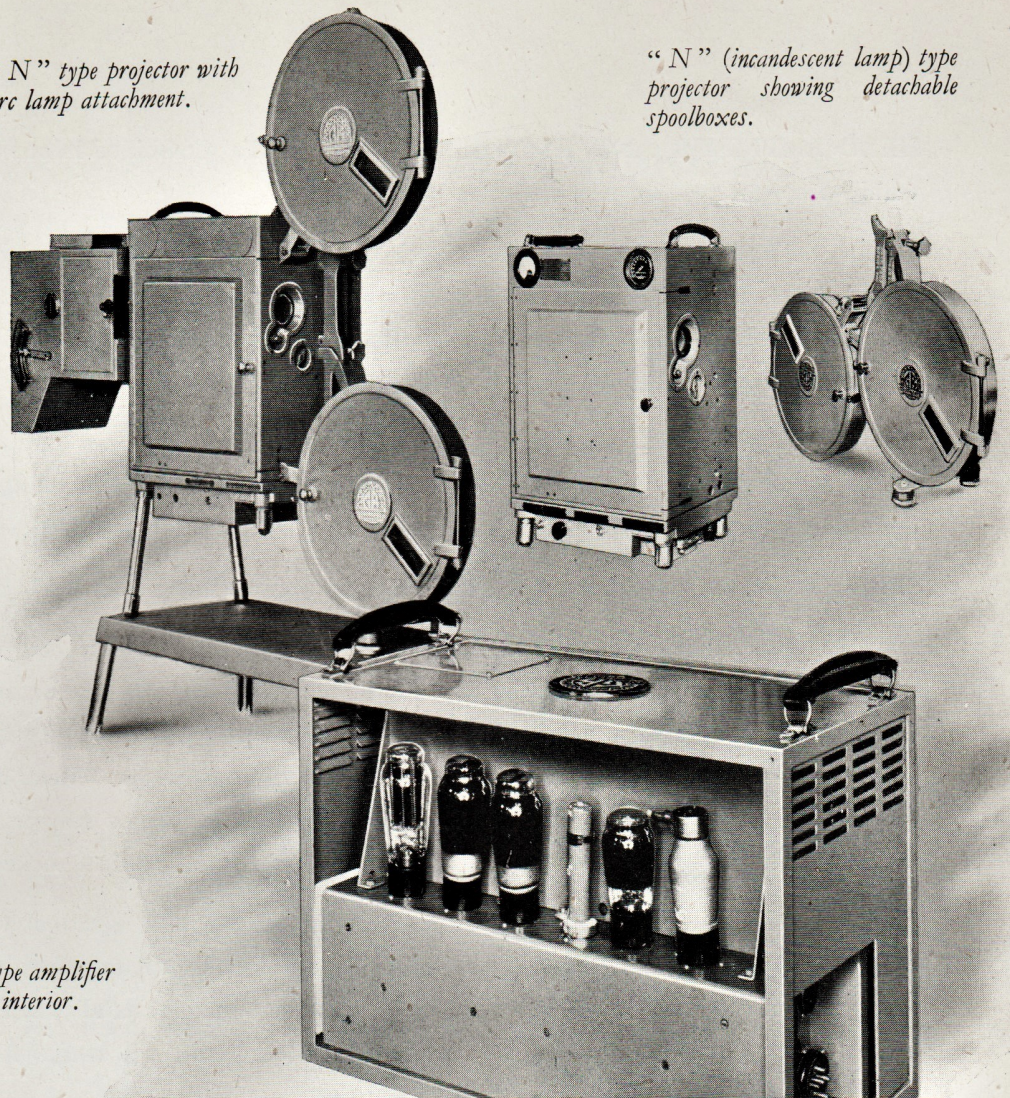
#### WEIGHTS AND DIMENSIONS

	Height	Width	Length	Weight
PROJECTOR ... ..	2 ft. 0 in.	1 ft. 6 in.	1 ft. 0 in.	112 lbs.
AMPLIFIER ... ..	1 ft. 0½ in.	11 in.	1 ft. 7½ in.	61 lbs.



*"N" type projector with  
arc lamp attachment.*

*"N" (incandescent lamp) type  
projector showing detachable  
spoolboxes.*



*"N" type amplifier  
showing interior.*



*A section of the Factory showing "N" type assembly.*

**N**  
35<sup>m</sup>/<sub>m</sub>  
**MODEL**







A  
G.B.—KALEE  
PRODUCT

G.B.—KALEE LTD.  
60/66 WARDOUR STREET, LONDON, W.1.  
*Telephone :* GERRARD 9531.

Printed in England by  
Vacher & Sons, Ltd.,  
Westminster — 10965