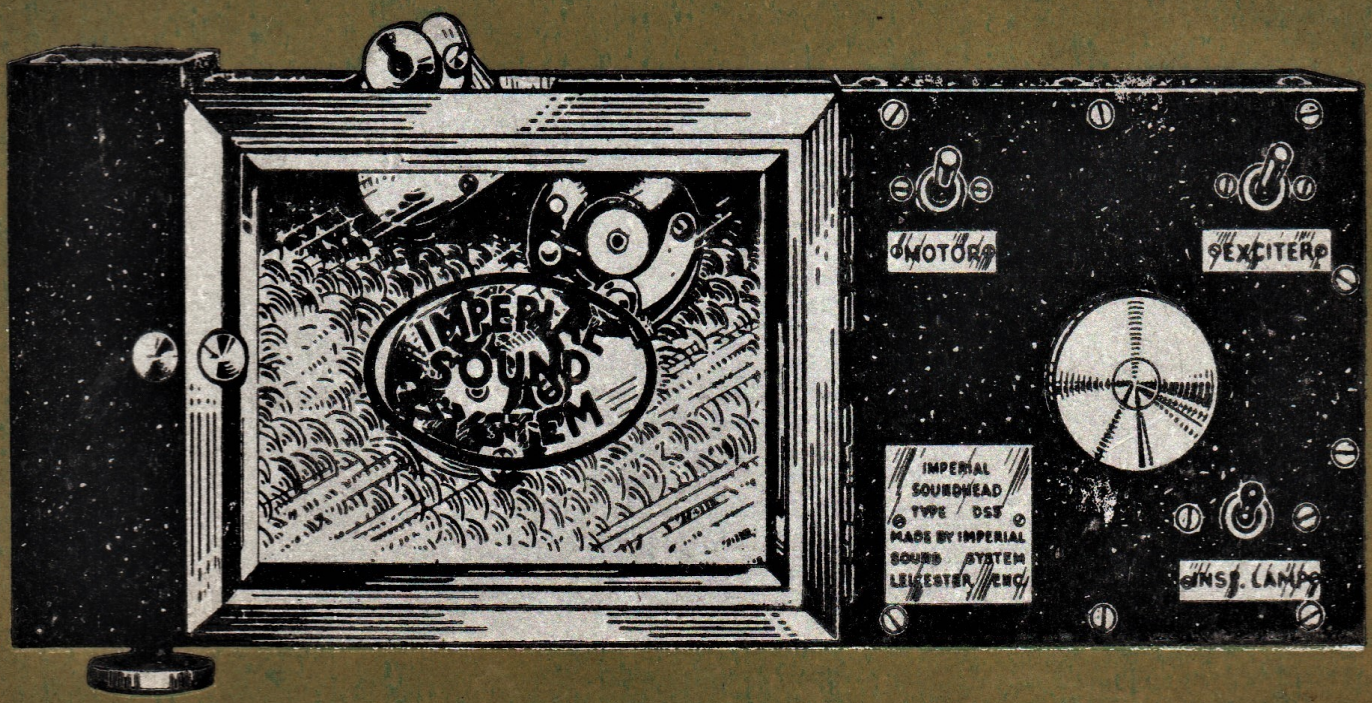
IMPERIAL

IMPERIAL SOUND SYSTEM



IMPERIAL
SOUND SYSTEM

MADE IN
LEICESTER, ENGLAND

Preface

IMPERIAL SOUND SYSTEM have been manufacturing Sound Equipment for use in cinemas since 1927 and Talking Picture Equipment since 1929. During this period much research and experimental work has been accomplished resulting in improvements being made from time to time both in reproduction and design which have always retained for us a place well to the fore of modern sound equipment. To-day, given the same conditions, we claim we can give results, at least, to equal any Sound System on the market, irrespective of price.

This booklet has been compiled and illustrated to give you an added insight into the very intricate and delicate work necessary at all times for first-class reproduction, and we issue it with the utmost confidence in the IMPERIAL SOUND SYSTEM to give that perfect reproduction.

We manufacture the complete Sound Equipment, Projector, Arc Lamphouse, etc., this prevents overlapping, reduces adaptation costs, simplifies construction, increases efficiency, makes servicing less costly together with many other added advantages.

As in the IMPERIAL III Projector booklet, a pocket on the inside of the back cover is provided for retaining any further literature concerning the IMPERIAL SOUND SYSTEM.

TERMS AND CONDITIONS OF SALE

NEW ACCOUNTS

Satisfactory references or cash with order.

EXPORT

20% of total payment when goods are ordered, balance C.O.D. through bankers, or on sight draft. All prices are quoted F.O.B. Packing extra.

BREAKAGES OF GOODS OR LOST IN TRANSIT

All goods are carefully packed and sent carriage paid, by goods. Goods sent passenger train (if so ordered) will be charged for. No claim can be considered by us for damage, breakage, loss or delay in transit. Goods should be signed for after examination or signed for "unexamined" so that purchaser can institute the necessary claim on carriers within three days from receipt of goods.

PACKING AND CASES

If returned in good condition, carriage paid, within 14 days from date of delivery, full allowance will be made.

TIMES OF DELIVERY

These are subject to the usual Strikes, Lockouts and Accident clauses and non-delivery of suppliers material. When ordering equipment state mains voltage, frequency and phase of the supply on which it is to operate. Also any other particulars likely to be of assistance to avoid unnecessary delay.

CONSEQUENTIAL DAMAGE

We cannot be held responsible for any consequential damage said to arise from use of any of our apparatus.

ILLUSTRATIONS

Illustrations show generally the appearance of the respective articles but must not be taken as binding as alterations and improvements are constantly being made.

GUARANTEE

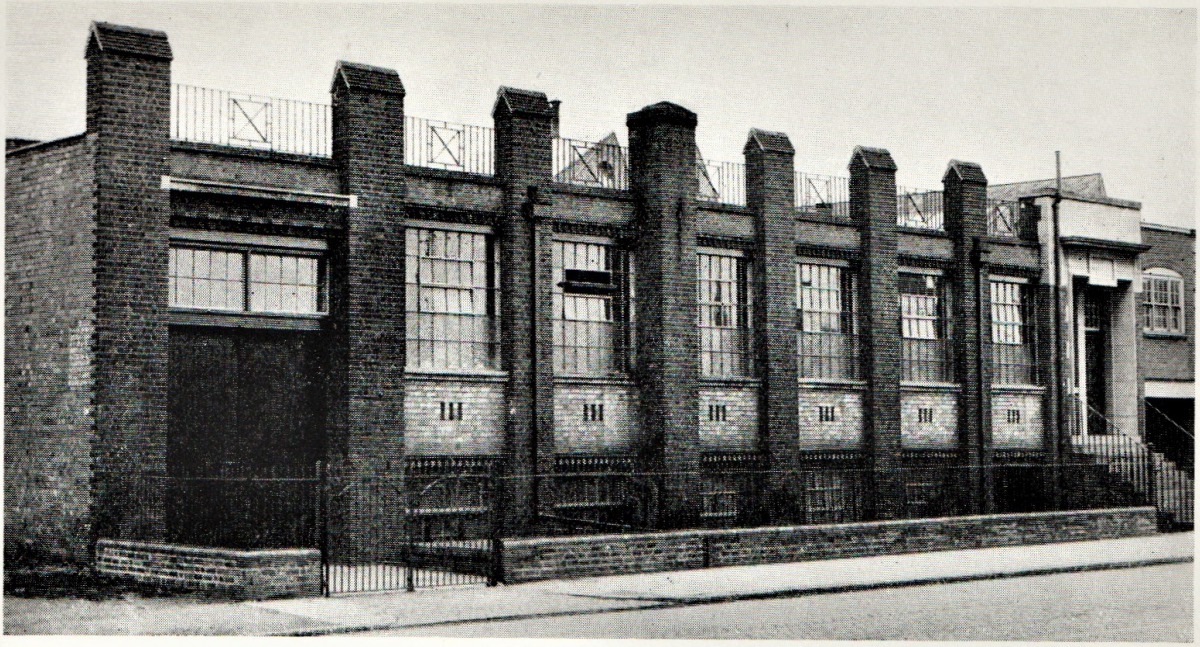
We guarantee to replace or repair, free of charge, all goods of our manufacture found to be faulty in workmanship or material, for one year from date of despatch (misuse and fair wear and tear excluded) on condition that the defective apparatus is returned to our works, carriage paid, for inspection. We do not bind ourselves to repair or replace any defective part which we consider is not warranted. We do not hold ourselves responsible for any repairs made, or attempted, without our sanction. Our decision is final.

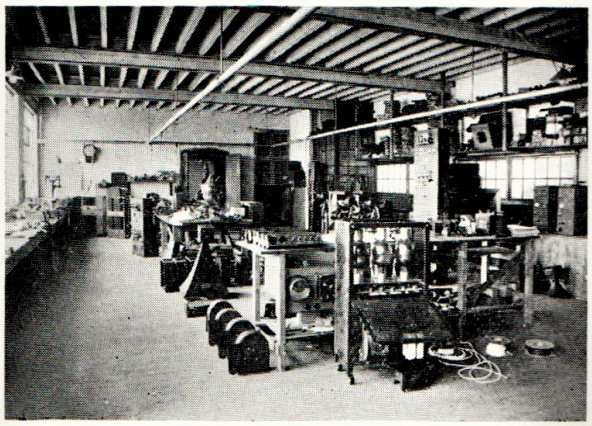
ACCOUNTS

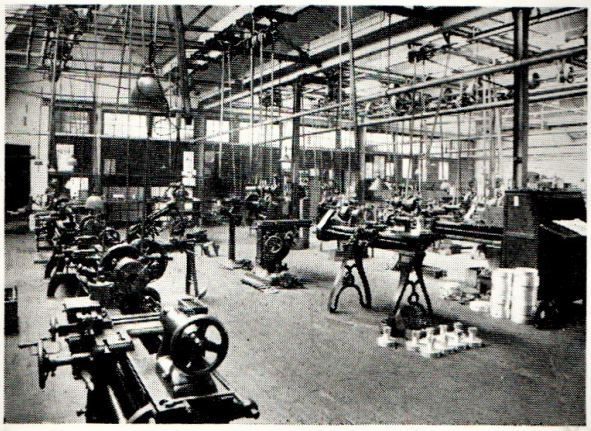
Accounts are payable monthly, subject to cash discount of $2\frac{1}{2}\%$ if paid during the month following delivery. A discount of $3\frac{3}{4}\%$ may be deducted when sending cash with order.

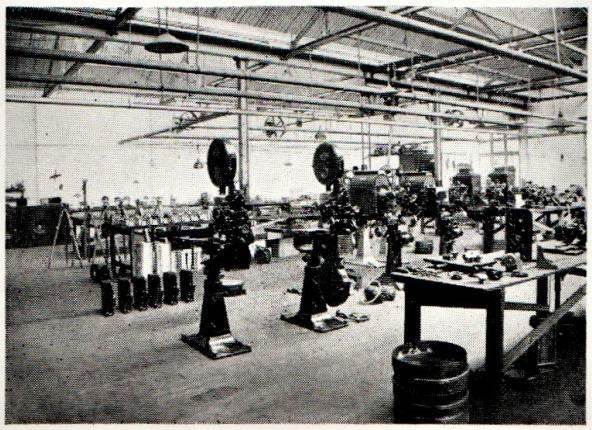
QUOTATIONS

Estimates and specifications are all issued with the understanding that any Errors and Omissions are Excepted.









IMPERIAL SOUND SYSTEM

ST. BARNABAS ROAD, LEICESTER
ENGLAND

TELEPHONE + LEICESTER 27396

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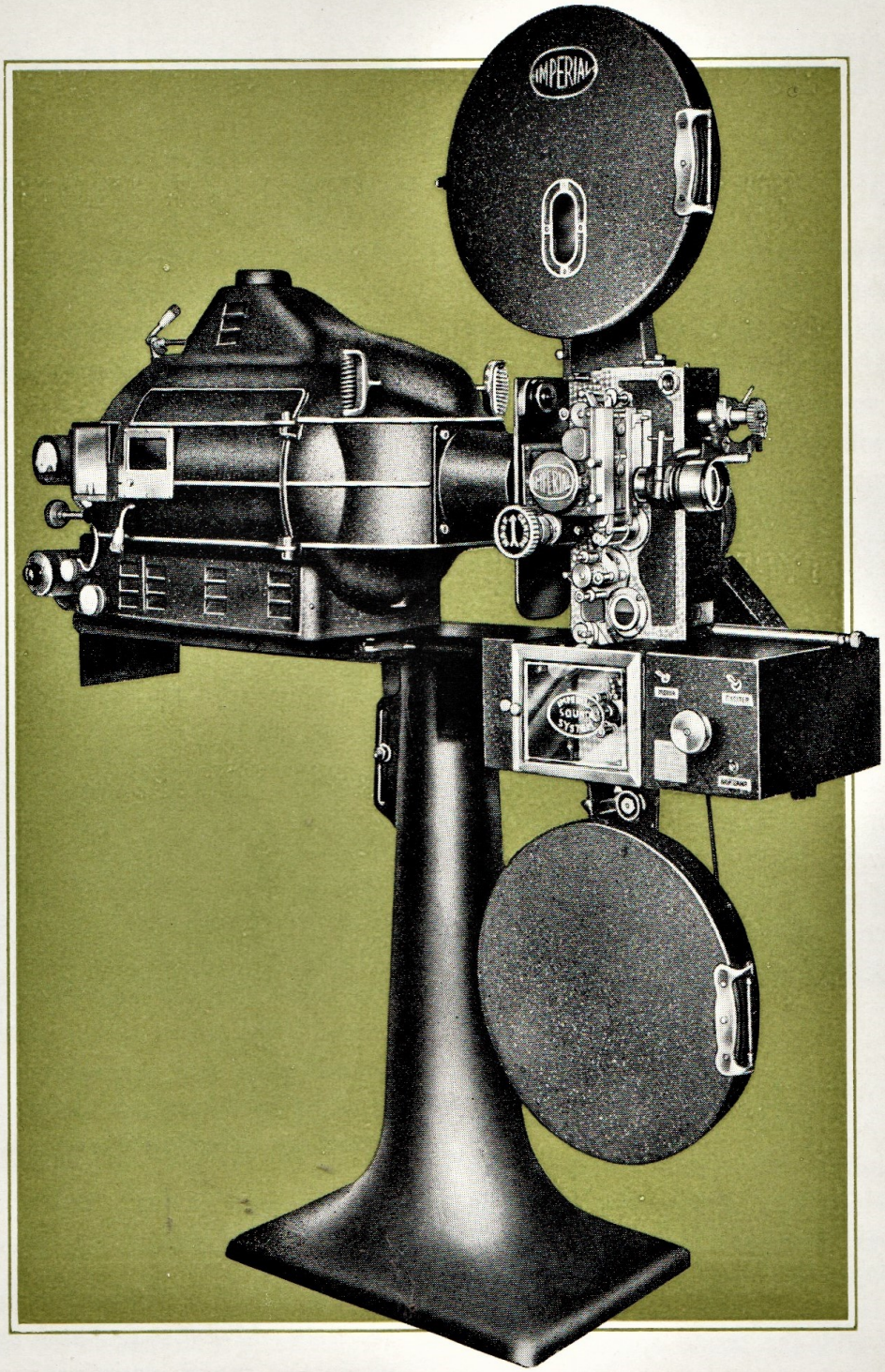
Illustrations show view of the Works, Electrical Department, Machine Shop, Assembling and Fitting Shop.



IMPERIAL DS3 TYPE SOUNDHEAD

Shown with the IMPERIAL III Projector and IMPERIAL 14" Mirror
High Intensity Arc Lamphouse mounted on IMPERIAL Pedestal Stand

THE EVOLUTION OF RECORDED SOUND

RECORDED SOUND

The Soundhead must be considered as the heart of the Talking Picture Equipment because if this fails to reproduce the sound as recorded on the film, no matter how perfect the amplifier and loudspeaker system the result will be indifferent quality of the original recorded sound.

ORIGINAL TYPES

With the original type of driven Soundhead, a sound sprocket was provided which pulled the film through a fixed reproducing gate. The sound sprocket was fixed to a spindle to which was attached a balanced flywheel. A spring or other form of filter was also provided which satisfactorily isolated the speed variations resulting from various causes which affected the smooth running of the sound sprocket, usually driven from the projector.

LATER DESIGNS

In later design of driven soundheads, a spin wheel to which was attached a balanced flywheel was placed between the fixed sound gate and the sound sprocket.

Immediately after the sound sprocket it was usual to provide another sprocket driven direct from the projector which is known as the hold-back sprocket. The purpose of this sprocket was to protect the sound sprocket from the uneven take-up of the bottom spool box drive.

"RIPPLE" OR "FLUTTER"

Another cause of bad quality sound is due to the sound sprocket teeth engaging the film perforations resulting in impulses being imparted into the smooth running of the film passing through the sound gate, this effect is usually referred to as "ripple" or "flutter."

On the original Imperial Symphonic type Soundhead the bottom sprocket of the projector pulled the film round the rotary gate which was revolved by friction contact thereby almost eliminating "ripple."

LIGHT LOSSES

The Imperial Symphonic type Soundhead incorporated a rotary sound gate, but whereas other makers diverted the modulated light by use of a mirror and lenses to the photo cell, usually placed near the sound gate, we placed the photo cell inside the rotary sound gate thus preventing light losses, resulting in increased output and avoiding distortions affecting the sound quality.

PERFECTION

To combine in a soundhead the merits of a separate driven soundhead that practically eliminates speed variations, with a rotary sound gate which completely eliminates the rapid interruptions in film speed, would be a mechanically perfect soundhead. Having these facts in mind, the Imperial DS3 type Soundhead was developed and in practice gave the desired results.

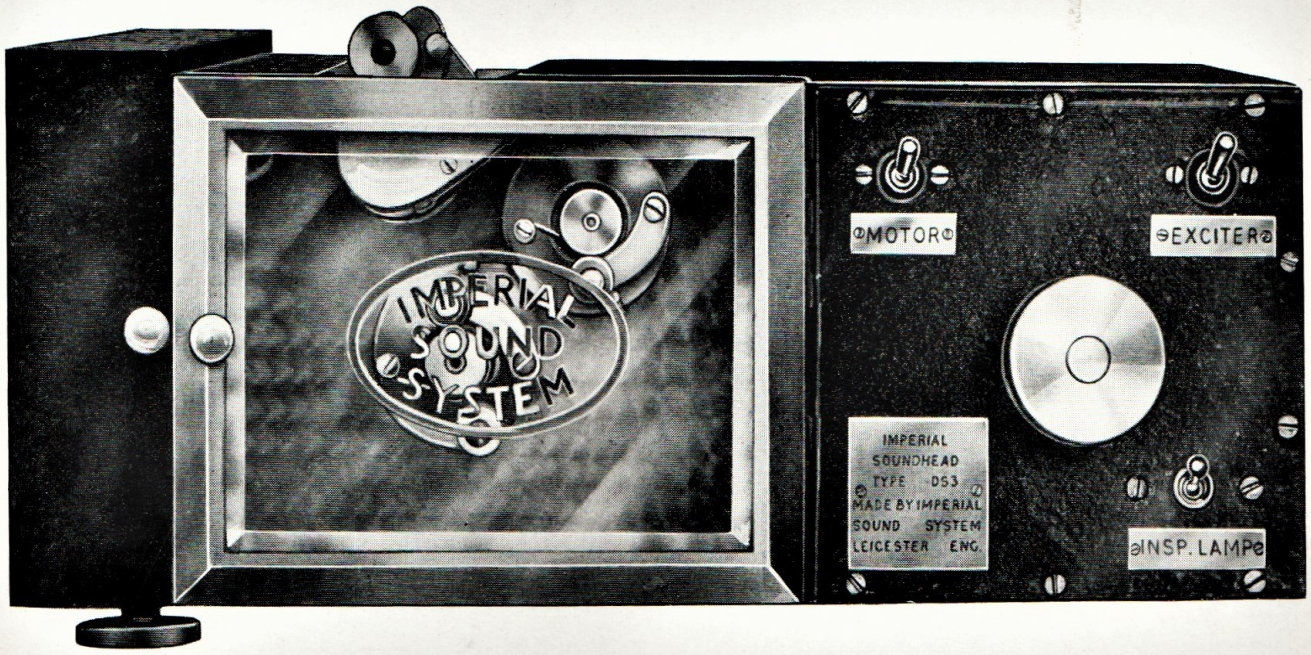
THE IMPERIAL DS3 TYPE SOUNDHEAD

THE DS3 IN OPERATION

The film, after leaving the bottom sprocket of the projector, passes between a pressure shoe and roller, partly round the rotary sound gate to the sound sprocket, a short loop of film, then to the hold-back sprocket and finally to the bottom spool box.

ELIMINATION OF SLIP

The movement of the film in contact with the rotary gate being freely revolved by friction contact would almost eliminate the rapid pulsations caused by the sound sprocket teeth engaging the film perforations. Slight slip is bound to occur between any friction contacts, this is overcome by the arrangement of the sleeve mounted on the rotary gate spindle revolving at a faster speed, imparts by the rotating action of the ball races a slight but constant pull to the rotary sound gate thereby not depending entirely on the friction contact of the film to maintain a constant speed. This completely eliminates all slow speed variations and "ripple," resulting in perfect reproduction of the original recorded sound. Patent applied for.



ROTARY SOUND GATE

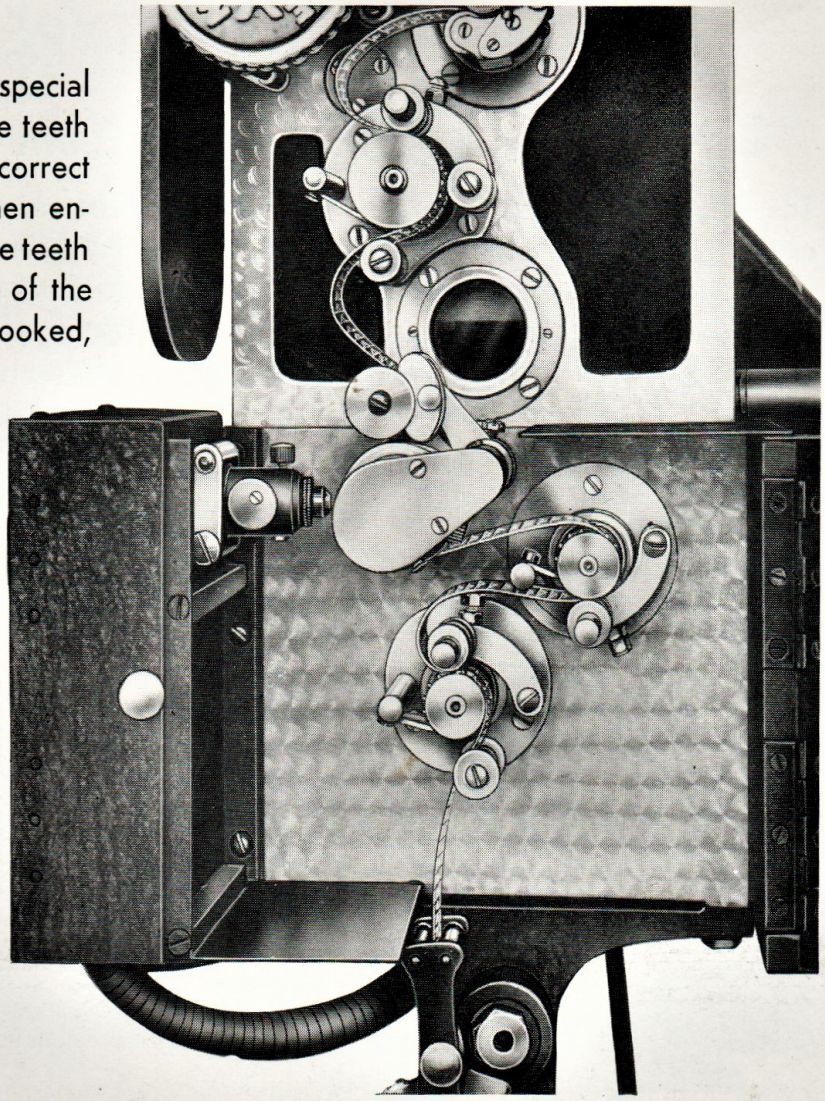
The rotary sound gate is fixed to a cast steel spindle which revolves freely on first class ball races. A balanced flywheel is attached to the other end of this spindle.

Also mounted on the spindle is a steel sleeve which revolves freely on ball races. Fixed to this sleeve is the soundhead driving gear and the gear driving the hold-back sprocket. Separated by a spring filter, the sleeve accommodates the sound sprocket gear which is attached to a balanced flywheel.

The whole arrangement is built into one unit making a complete and compact assembly.

SPROCKETS

Sprockets are manufactured from a special steel most suitable for film work. The teeth are accurately spaced and cut to a correct shape to give a rolling motion when engaging with the film perforations. The teeth will wear evenly throughout the life of the sprocket and will not become hooked, which is usually the cause of damage to the sprocket holes.



SPROCKET ROLLERS

Sprocket rollers are manufactured from cast steel which, after hardening, are ground to revolve true.

Flywheels are of solid brass, turned true and evenly balanced.

Parts are plated to prevent rust and require the minimum of cleaning.

Roller spindles, made from cast steel, are mounted on a solid steel arm. An adjustable stop is provided.

SIDE WAVER PREVENTION

A protruding arm, which is suspended inside the rotary sound gate drum, holds the photo cell into position. Mounted on the arm is an adjustable side pressure shoe, the purpose of which is to prevent side waver to the film when passing through the rotary sound gate.

OPTICAL SYSTEM

The Optical System is manufactured at our works, lenses only being supplied by a reputable optical firm, and are made to our special requirements. The optical slit focused on the sound track is free from colour defects, image distortion, light spread and the light slit is evenly illuminated throughout.

The optical unit is mounted in a lense holder which incorporates focusing, slit alignment and tracking adjustments. The complete unit assembly is easily removed from the sound-head for cleaning or other purposes by removing the tracking adjustment screw, other adjustments need not be interfered with, as these, when once correctly set, will not at any time alter in use.

IMPERIAL

PHOTO CELL

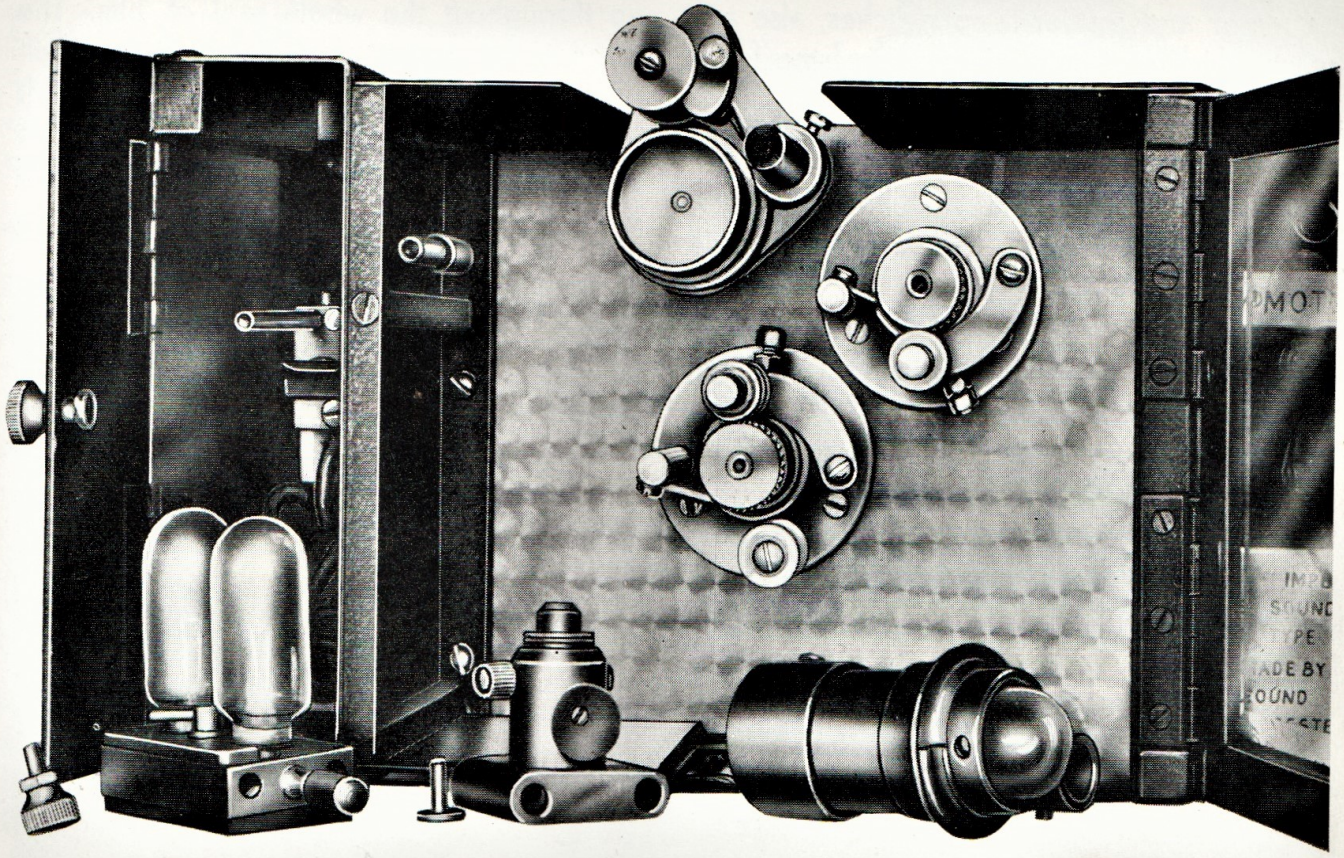
Photo cell is easily accessible and is mounted on spring suspensions which completely eliminate microphonic troubles.

Photo cell output is passed on to the main amplifier through a Co-Ax cable which effectively prevents high frequency losses.

controlled by a suitable sized knob extending outside from the bottom of the exciter lamp compartment.

EXCITER COMPARTMENT

The exciter lamp compartment is constructed to allow of easy access to all internal parts, the whole of which, together with the optical assembly, can be taken from the soundhead by removing two fixing screws. The compartment is well provided with ventilation to reduce heat generated by the exciter lamp.



EXCITER LAMPS

Exciter lamps, two of which are provided, are mounted side by side on a holder which slides into correct position, either of which can be put to use almost instantly. Switching over is automatic and electrical contacts are not interfered with when the complete exciter lamp assembly is removed from the soundhead. A spare holder can be held on hand in case of other lamps failing. Exciter lamp height adjustment is provided, this is

POINTS TO NOTE:

CLEAN, STRAIGHT-FORWARD LAYOUT OF ALL WORKING PARTS.

EASY AND SIMPLE FILM THREADING.

REMOVABLE OPTICAL UNIT.

EASE IN DISMANTLING FOR CLEANING PURPOSES AND FITTING SPARE PARTS

DRIVING MOTOR

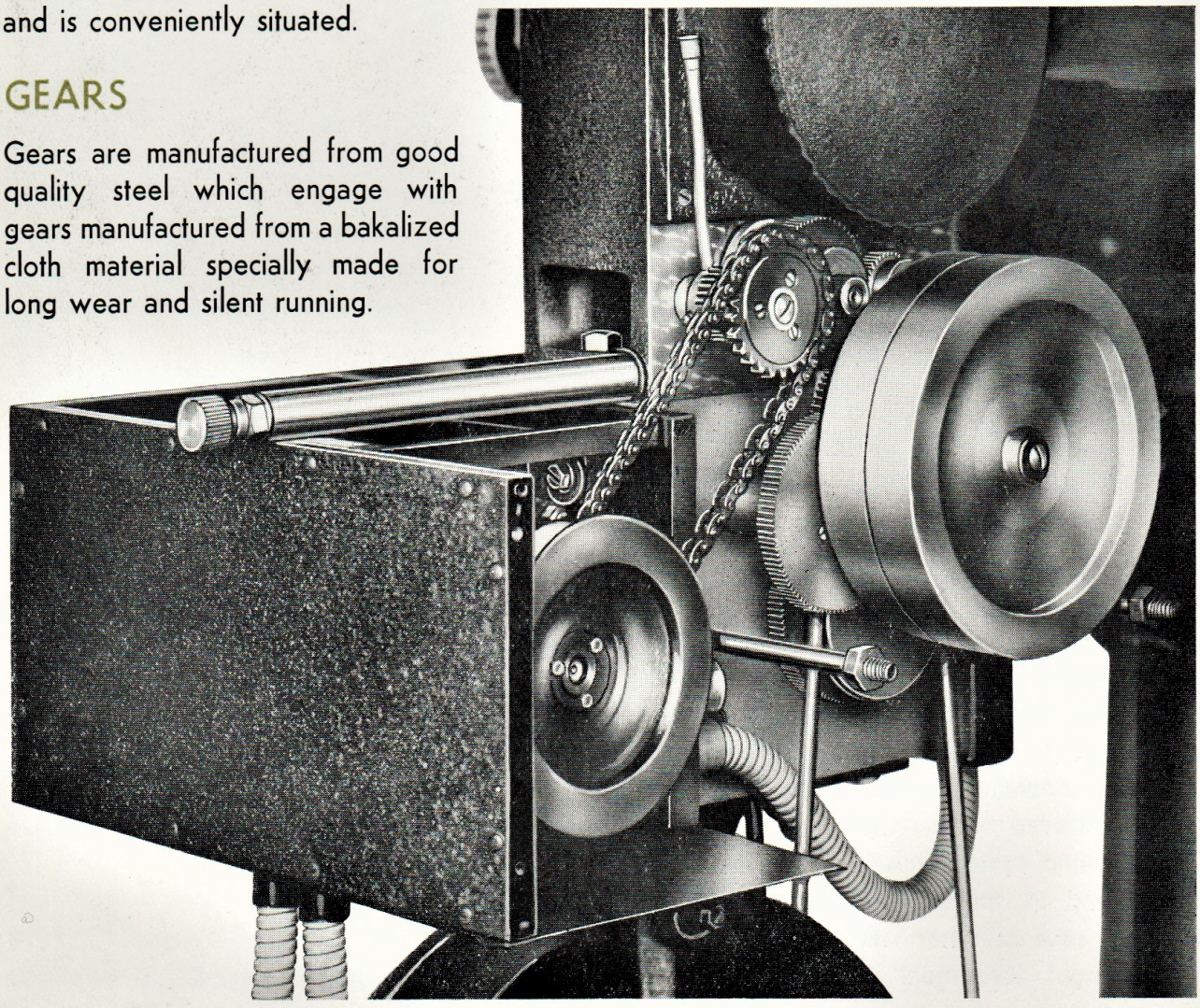
The driving motor for the projector and soundhead is mounted on rubber cushions to reduce vibrations. This is contained in the front compartment of the soundhead which is constructed from sheet iron panels to enable easy access to be made to any parts requiring attention. The front panel contains the motor and exciter lamp switches, also a switch which controls an inspection lamp for illuminating the interior of the soundhead for ease in film threading, etc. Protruding from the front panel is a suitable knob fixed to an extension of the motor spindle, this is for turning the mechanism by hand and is conveniently situated.

GEARS

Gears are manufactured from good quality steel which engage with gears manufactured from a bakalized cloth material specially made for long wear and silent running.

BOTTOM SPOOL BOX

The bottom spool box is part of the soundhead, is 18" in diameter and made from stout gauge sheet iron. A robust door hinge, spring-operated door catch and a good design of fire trap are fitted. The spool box drive is solidly constructed, the driving tension is adjustable to allow an even take-up throughout the whole reel of film. The drive is by means of a round leather belt driven from the hold-back sprocket shaft of the soundhead. A chain drive can be supplied, if specially ordered, to comply with regulations.



IMPERIAL

INSPECTION LAMP

A low wattage lamp run direct off the mains supply is provided for ease in threading the film round the sprockets, etc. The lamp is fixed inside the motor compartment which also forms a light shield. The light switch is placed on the front of the motor compartment panel.

BACK COVER

A chain and gear cover is fitted to the back of the soundhead which can be easily and quickly removed when required.

PEDESTAL STAND

The pedestal stand is solidly constructed. The stand top is adjustable to suit the angle of projection and, when set, can be securely locked into position. The soundhead height is adjustable to suit most arc lamphouse centres.

FINISH

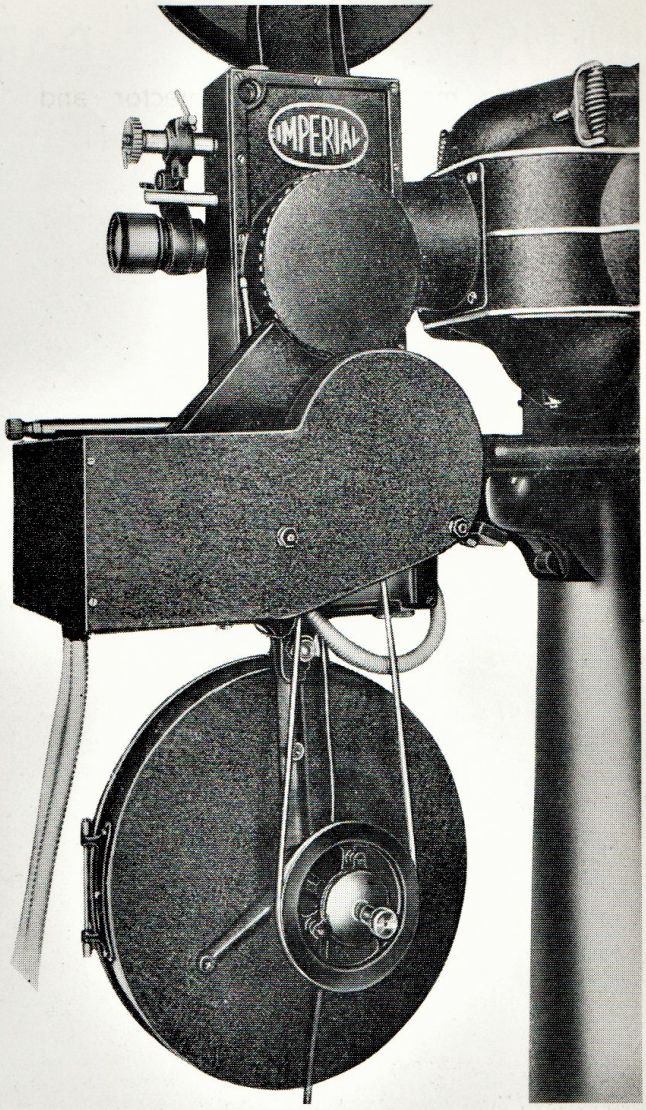
The general finish is first class. The main casting is machined all over. Spool box, with arm, exciter lamp, and motor compartments etc. are enamelled with a black rivelling lacquer of great durability. The soundhead has a neat and most attractive appearance.

A front door to the soundhead is provided, this contains a bevel glass window.

MANUFACTURE

IMPERIAL SOUND SYSTEM is manufactured practically throughout at our works from the very best materials procurable. Great care is taken in assembling the machines to give the maximum results and ensure, as far as is humanly possible, trouble-free running.

Each machine is thoroughly tested before leaving the works and is made by highly skilled craftsmen under personal supervision. Given ordinary care and attention, every confidence can be placed in all the goods of our manufacture.



ADVANTAGES

EASY ACCESSIBILITY TO ALL PARTS.

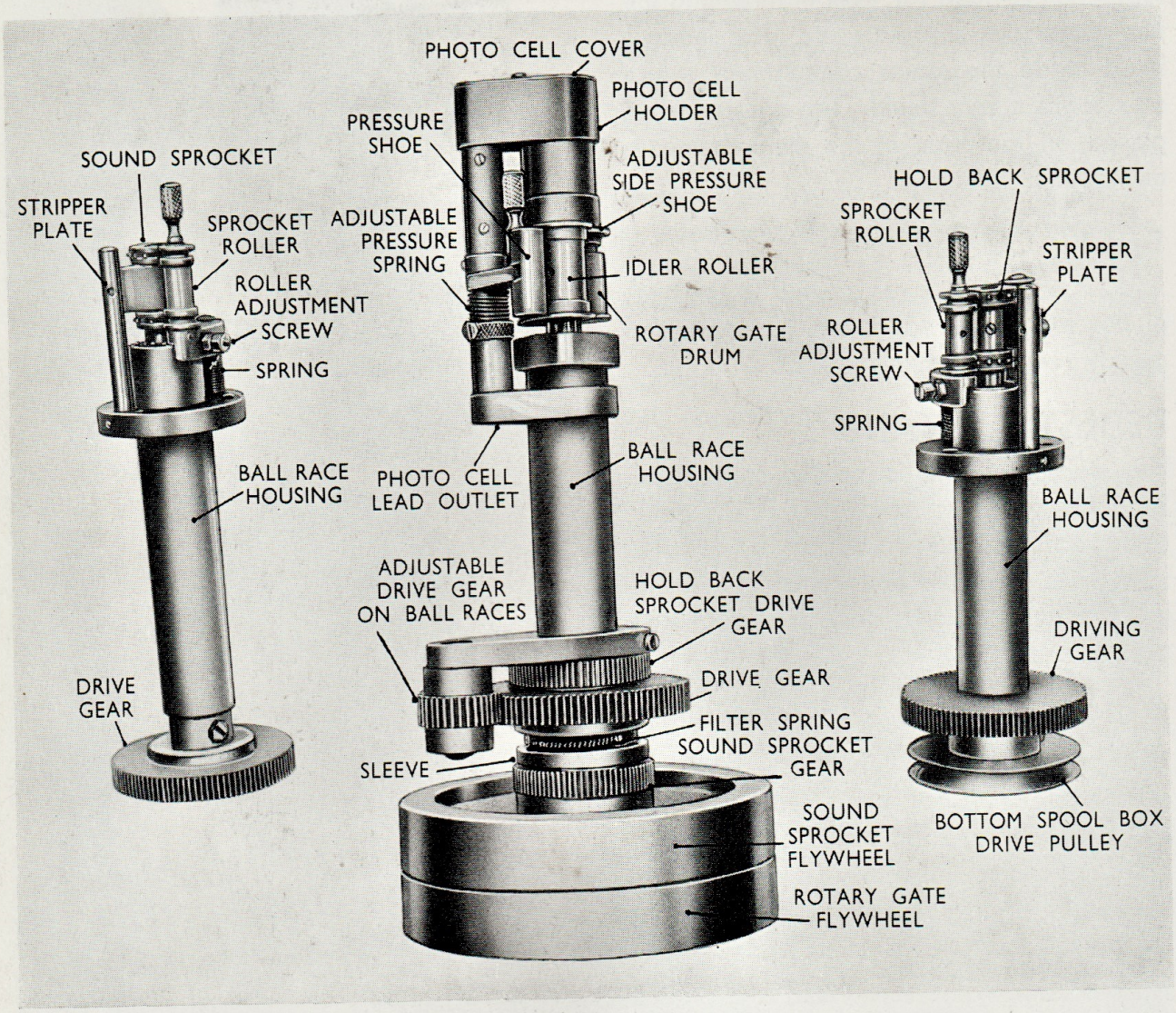
DUAL EXCITER LAMPS WITH EXTERNAL HEIGHT ADJUSTMENT.

CLEANLINESS IN OPERATION.

MINIMUM OF MAINTENANCE COSTS.

TEST IT IN YOUR OWN CINEMA AND COMPARE EXISTING SOUND EQUIPMENT

ILLUSTRATION OF PARTS OF IMPERIAL DS3



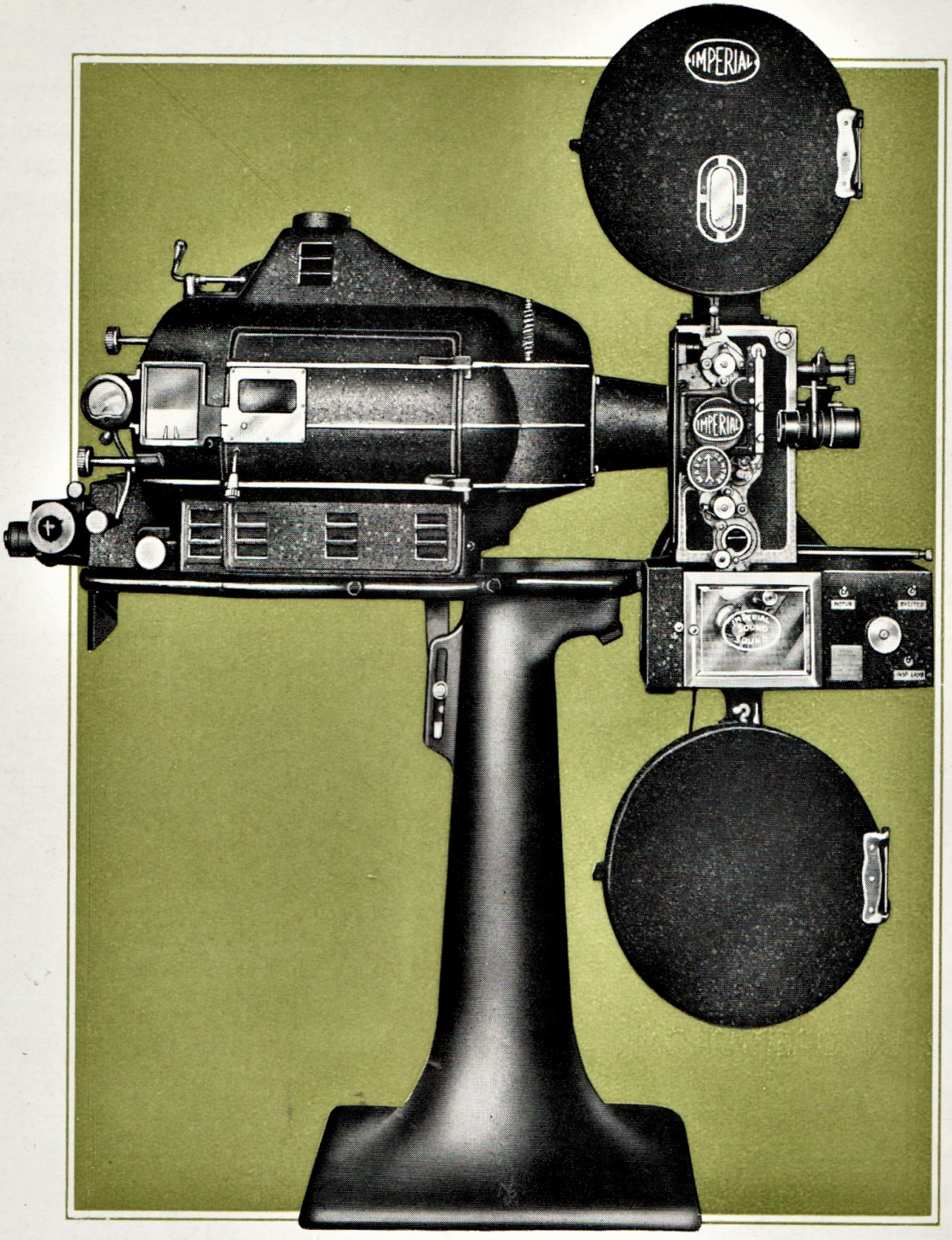
WORKING PARTS

All working parts are built to form separate and complete units which are easily dismantled from the soundhead should need arise. All spindles are manufactured from cast steel and revolve true on first class ball races thereby requiring less power to drive, preventing seizing through lack of oil and needing very little attention.

All parts are easily accessible should need arise. The soundhead is practically free from any mechanical troubles, and the only parts occasionally requiring replacement are the pressure shoes and sprockets.

All metal parts are plated to prevent rust. The soundhead should require very little mechanical attention apart from greasing the ball races once a year and a few drops of oil occasionally to sprocket rollers.

EASE IN DISMANTLING FOR CLEANING PURPOSES AND FITTING SPARE PARTS



IMPERIAL DS3 TYPE SOUNDHEAD

Complete with IMPERIAL III Projector and IMPERIAL 14" Mirror
High Intensity Arc Lamphouse mounted on IMPERIAL Pedestal Stand

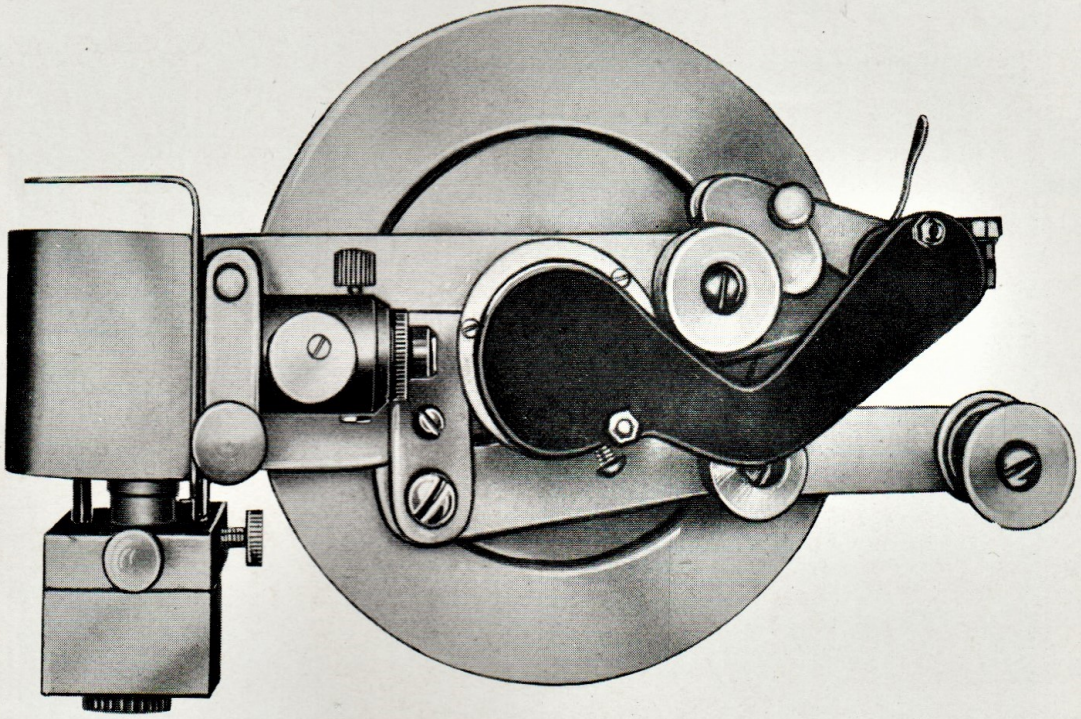
THE IMPERIAL S2 TYPE SOUNDHEAD

The Imperial S2 type Soundhead is easily adapted to most types of projectors, simple to install and adaptation costs reduced to a minimum.

The soundhead is usually fixed at the back of the projector just below the arc lamp-house front cowl.

The Imperial S2 type Soundhead is practically free from "ripple" which results from high speed pulsations imparted to the film by the feed sprocket.

An adjustable spring tension is applied to the pressure shoe pressing on the idler roller, the purpose of this is to eliminate the beat of the film after leaving the intermittent sprocket and to impart a friction grip to the rotary sound gate, thereby practically eliminating "ripple," resulting in very much improved reproduction.



THE S2 IN OPERATION

The rotary sound gate is fixed to a spindle to which is also attached a balanced fly-wheel, the complete unit revolves on first class ball races. The film, after leaving the intermittent sprocket of the projector, passes between the pressure pad and roller of the soundhead, partly round the rotary gate drum and then over and under the two tension rollers mounted on the lifting arm, to the bottom feed sprocket of the projector before finally passing to the bottom spool box.

EVEN TENSION

The lower arm, on which two idler rollers are mounted, gives an even and correct amount of tension to the film round the rotary gate, the correct amount of tension is controlled by the adjustable spring pressure applied to the top pressure shoe.

SIDE WAVER PREVENTION

A protruding arm, which is suspended inside the rotary sound gate drum, holds the photo cell into position. Mounted on the arm is an adjustable side pressure shoe, the purpose of which is to prevent side waver to the film when passing through the rotary sound gate.

OPTICAL SYSTEM

The optical system, apart from the lenses, is manufactured at our works—this is important, as improvements and adjustments can be made during manufacture and under working conditions. The optical unit projects a full slit of almost pure white light free from slit distortion and light spread.

PHOTO CELL

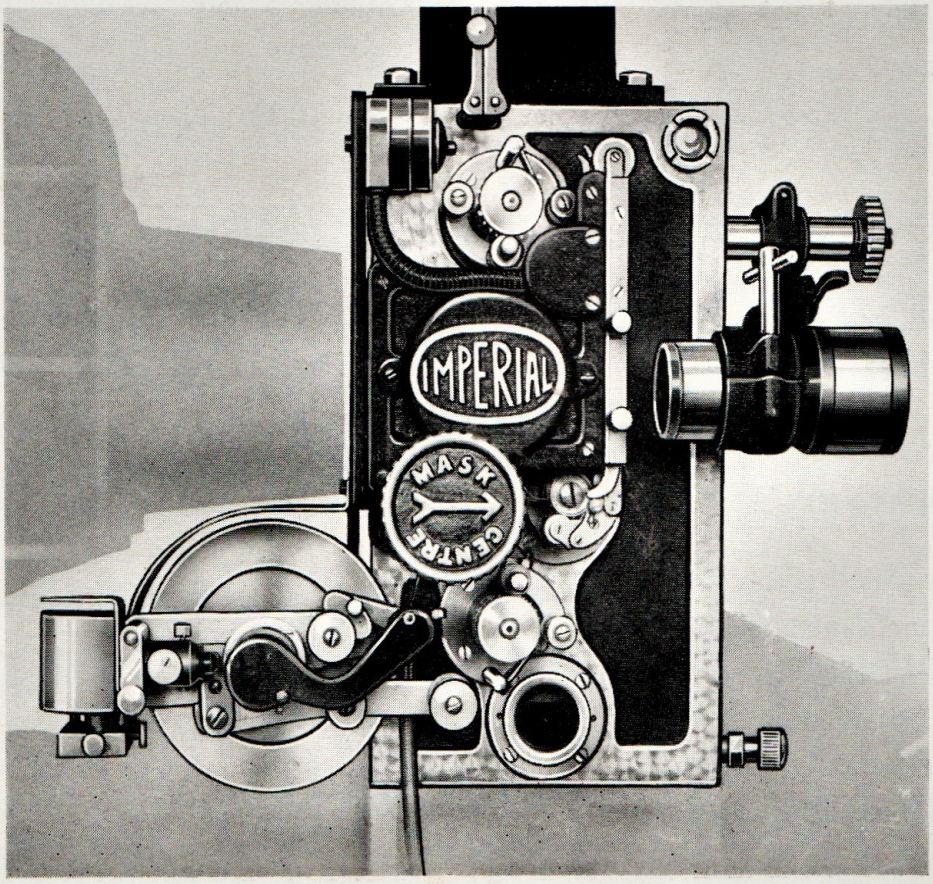
Photo cell is easily accessible and is mounted on spring suspensions which completely eliminate microphonic troubles.

Photo cell output is passed on to the main amplifier through Co-Ax cable which effectively prevents high frequency losses.

EXCITER LAMP

The exciter lamp is placed in a convenient position and is provided with a light shield. The exciter lamp height is adjustable, and the complete unit is easy to remove from the soundhead by continuing the unscrewing of the height adjustment.

Ample ventilation is provided, which considerably prolongs the life of the lamp.



COMPLETE SOUND PROJECTOR

THE IMPERIAL S2 type SOUNDHEAD fitted to the IMPERIAL III PROJECTOR forming a complete sound projector.

Each independent but working as a whole unit.

FIRST CLASS CRAFTSMANSHIP AND MATERIALS ONLY USED THROUGHOUT

IMPERIAL

AMPLIFIERS AND LOUD SPEAKERS

AMPLIFIERS

Amplifiers are of the latest design and built to give ample volume without distortion. All valves and components invariably run at 50% below rating. Imperial amplifiers are not built down to a price but rather with the view to preventing fault developing, break-downs, and reduction in service costs — which is a big consideration where servicing cannot easily be obtained.

Dual amplifiers can be supplied if required, these are arranged as a complete unit. A change-over switch is incorporated which automatically changes over all lines at the same time and therefore each amplifier can be put into service immediately with the minimum of effort and delay.

OTHER UNITS

Non-Sync, Monotor speaker and other units are assembled to our own design, being the result of experience gained from numerous installations, suggestions from users, and under working conditions.

LOUD SPEAKER SYSTEM

The Loudspeaker System is varied according to the acoustic properties and dimensions of the hall in which it is being installed. Usually a main speaker with wide angle horns used in conjunction with high frequency speakers having a high-low pass filter circuit is fitted as standard.

SERVICE

Service can be arranged when required or on a contract basis with regular service calls. The latter is advisable in order that the equipment does not deteriorate in quality, also, improvements can be incorporated if desired, thereby assuring that the equipment is always up-to-date.

SPARE AND REPLACEMENT PARTS

Spares are invariably carried in stock and can usually be obtained immediately they are required.

To avoid delay, please state concisely the part or parts needed.

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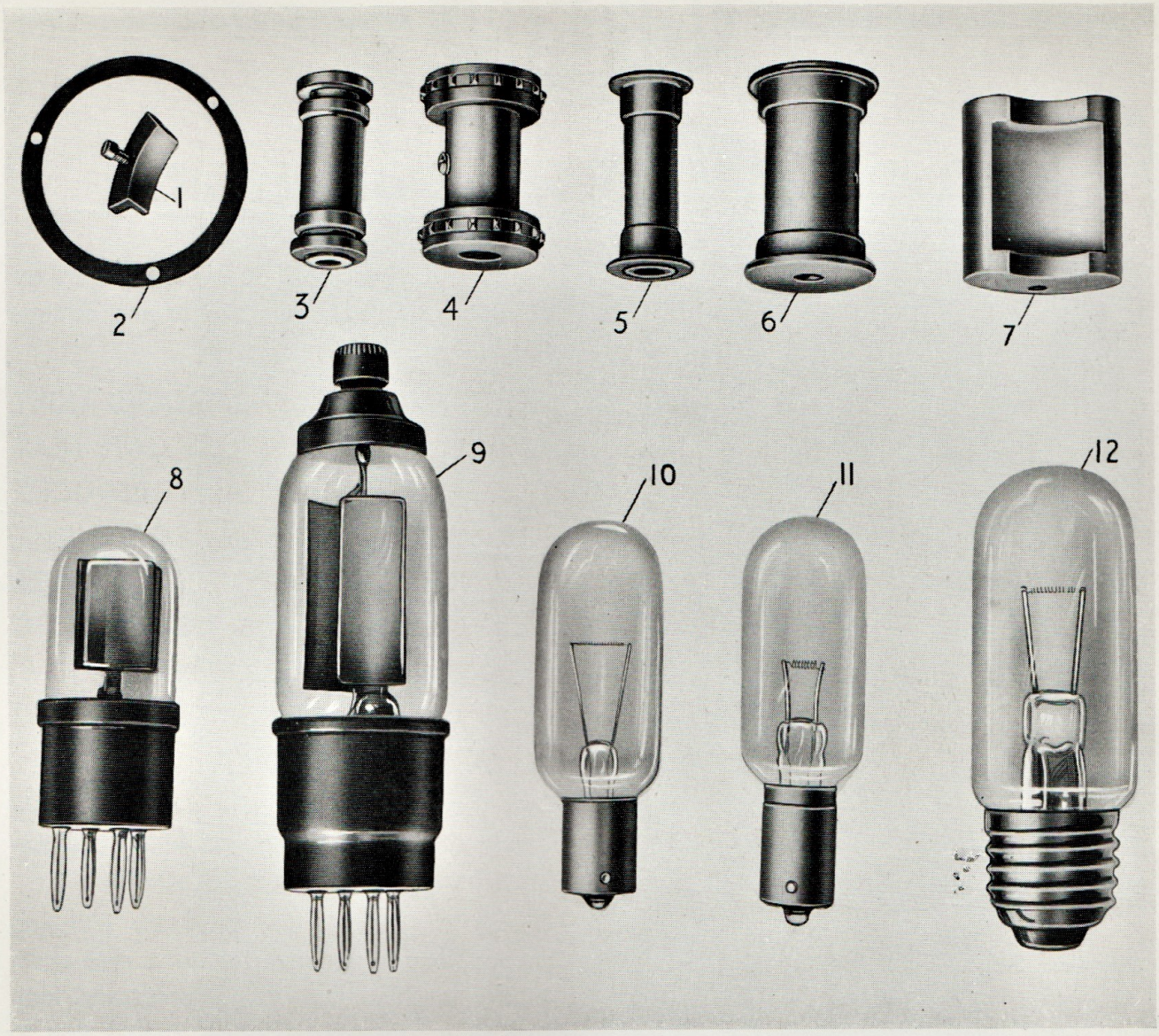
ADAPTABILITY

IMPERIAL SOUND SYSTEM IS ADAPTABLE TO ANY MAKE OR TYPE OF PROJECTOR.

PERFECT MECHANICAL ADAPTATION IS GUARANTEED.

WE ARE TALKING PICTURE SPECIALISTS AND CAN GUARANTEE RESULTS EQUAL, IF NOT BETTER, TO ANY SOUND EQUIPMENT ON THE MARKET.

LET US DEMONSTRATE IT IN YOUR OWN CINEMA.



REPLACEMENT PARTS FOR IMPERIAL SOUNDHEADS

1. Adjustable side pressure shoe.
2. Adjustable side pressure spring.
3. Sprocket roller.
4. Sound and hold-back sprocket.
5. Idler sprocket roller.
6. Pressure shoe roller.
7. Top pressure shoe.
8. C.M.G. 22 photo cell.
9. C.M.G. 8 photo cell.
10. 32 watt 8 volt exciter lamp.
11. 50 or 75 watt 10 volt exciter lamp.
12. 100 watt 10 volt exciter lamp.

DIMENSIONS

PEDESTAL STAND

Height of stand top from base, 39"
Length of stand top from back of projector, 36"
Length of arc lamp rails, 25" (variable).
Distance between rails, $10\frac{1}{4}$" (inside measurement).
Size of rails, $1\frac{1}{2}$" x $\frac{1}{2}$".
Base of pedestal stand, 26" x 18".
Aperture centre between rails :–
4" from front rail, $6\frac{1}{4}$" back rail (inside).

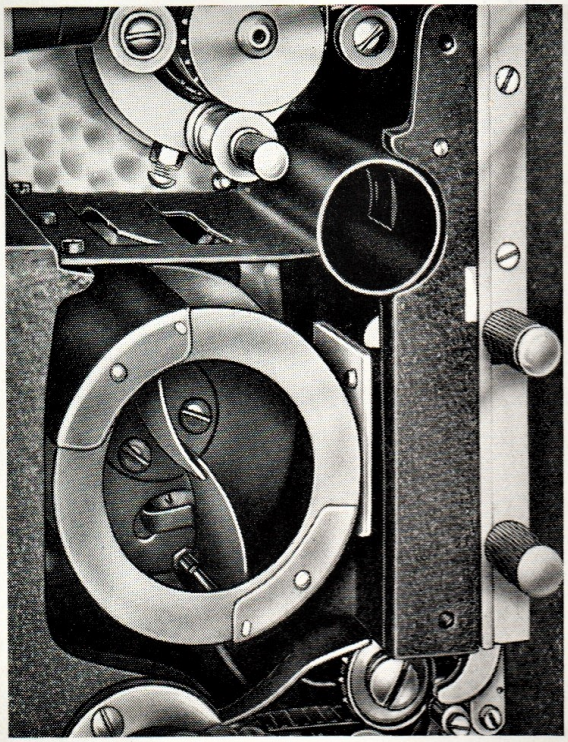
DS3 type SOUNDHEAD

Overall length $18\frac{1}{2}$", width 15", depth $7\frac{1}{4}$".
Height from stand top, variable: $1\frac{1}{2}$" above, $\frac{1}{2}$" below.

IMPERIAL III PROJECTOR

Height of aperture centre from base, $8\frac{1}{2}$".
Overall: height 15", width $15\frac{1}{2}$", length $13\frac{1}{2}$".
Main drive shaft: 7/16" dia., 720 revs. per minute,
distance from base $1\frac{3}{4}$", from front 3".

REAR DRUM SHUTTER CONVERSION



Rear Drum Shutter on the IMPERIAL III Projector.

We specialise in converting Front Shutter Projectors into Rear Drum Shutter Machines.

A rear drum shutter is absolutely necessary if film damage is to be avoided when using high amperage arcs. Gate heat, which cannot be avoided with front shutter projectors, causes film softening resulting in the intermittent sprocket pulling the sprocket holes causing an unsteady projected picture and possibly incurring liability for film damage.

The projected picture is most noticeably improved, especially if a direct comparison is made with a front shutter projected picture – the blacks are better preserved and the picture is sharper in focus, also the light is considerably improved.

Modernise your Front Shutter Projectors by converting to Rear Drum Shutter and achieve the following advantages :–

APPROXIMATELY 15% INCREASED LIGHT.
APPROXIMATELY 40% LESS GATE HEAT.
FIRE RISKS APPRECIABLY REDUCED.
PREVENTION OF FILM SOFTENING.
A MUCH BETTER PROJECTED PICTURE.
LESS LOAD ON THE GEARING, ETC.
PREVENTION OF ACCIDENTS.

RECONDITIONING

We undertake the servicing of most types of projectors, supplying and fitting replacement parts of our own manufacture.

During the time your projector is being reconditioned or converted to a rear drum shutter machine, we will, if necessary, loan to you a spare projector to enable you to carry on with the minimum of expense and inconvenience.

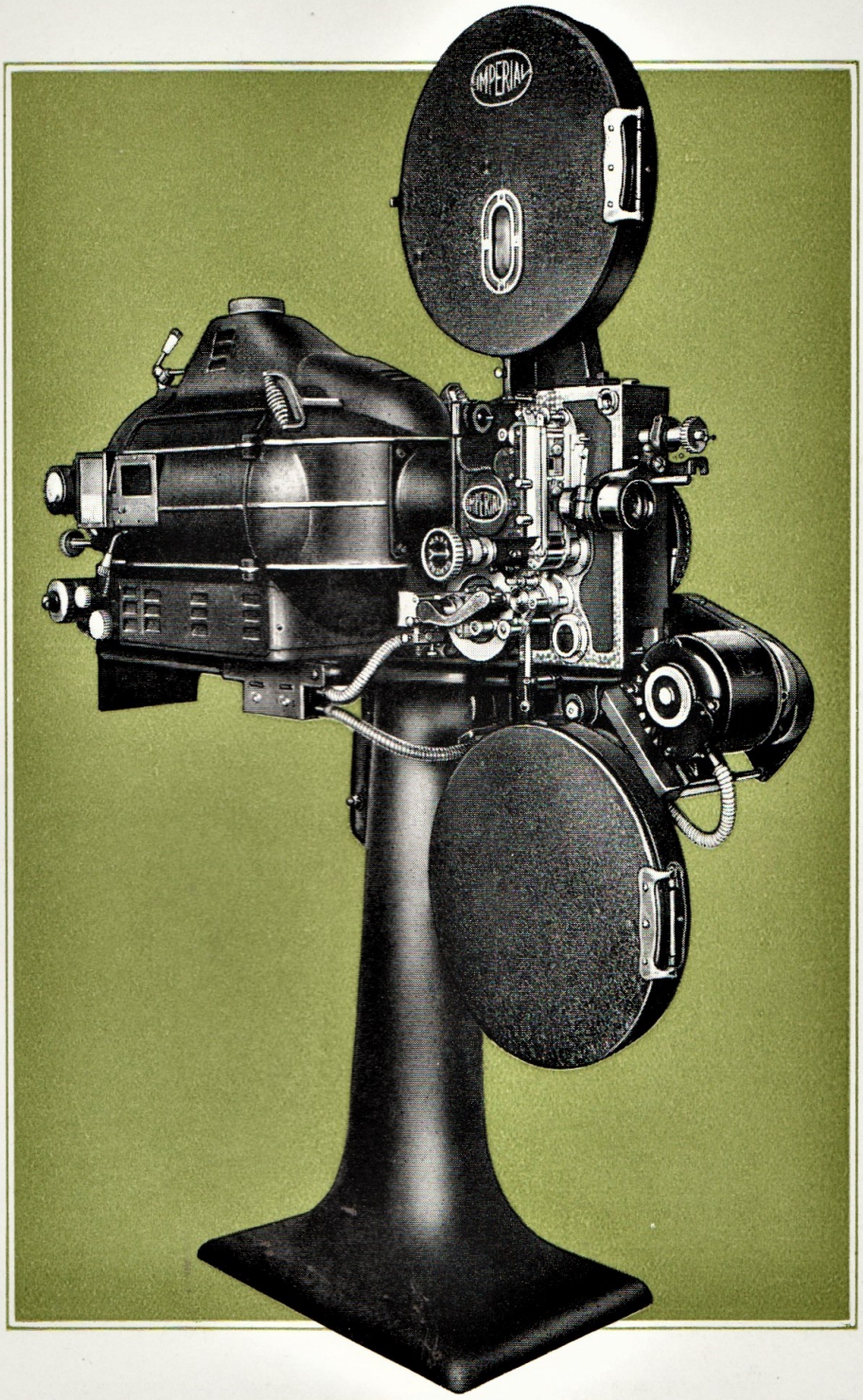
IMPERIAL III PROJECTOR

If you require an entirely new projector, may we draw your attention to the claims of the Imperial III.

This Projector was wholly designed by us and is manufactured at our own works. It incorporates all the various improvements gained by research and experience over many years of servicing various types of projectors.

Send for the Imperial III Projector booklet which freely explains and illustrates the various advantages of the Projector.

IMPERIAL SOUND SYSTEM CAN BE ADAPTED TO ANY MAKE OF PROJECTOR



IMPERIAL S2 TYPE SOUNDHEAD

Shown with the IMPERIAL III Projector and Arc Lamphouse
mounted on IMPERIAL Pedestal Stand

IMPERIAL SOUND SYSTEM

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MANUFACTURED AT OUR WORKS :–

TALKING PICTURE EQUIPMENT THROUGHOUT including Soundheads, Amplifiers, Loudspeakers, Non-Sync and miscellaneous units.

Projectors, Arc Lamphouses, Projector 1,000 watt Lamphouses, Pedestal Stands, Rewinders, etc.

Special Machines for the Studio, Camera Magazines, Tripods.

Advertising Machines.

Sprockets to fit most makes of Soundheads and Projectors (approximately 40 different types).

Spare Parts to fit several types of Projectors.

Conversions from Front to Rear Drum Shutter Projectors.

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IN ADDITION WE CAN SUPPLY :–

Arc Rectifiers, Arc Resistances, Spools, Lenses, Projector Lamps (1,000 watt), Projector Lamp Transformers, Projector Motors, Photo Cells, Exciter Lamps, Valves, and numerous Electrical and other Components.

Reconditioned Projectors and Arc Lamphouses, etc.

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OPERATING BOX REQUIREMENTS :–

We are practically self-contained and our sole business is with the Cinema Industry, therefore we are in a position to advise and supply all your Operating Box requirements.

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IMPERIAL SOUND SYSTEM

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