

Bauer



BAUER LTD.
WARPER HOUSE,
135, WARDOUR ST.
LONDON, W.1.

EUGEN BAUER GMBH
STUTTGART-UNTERTÜRKHEIM



PROJECTOR

For Arduous Conditions

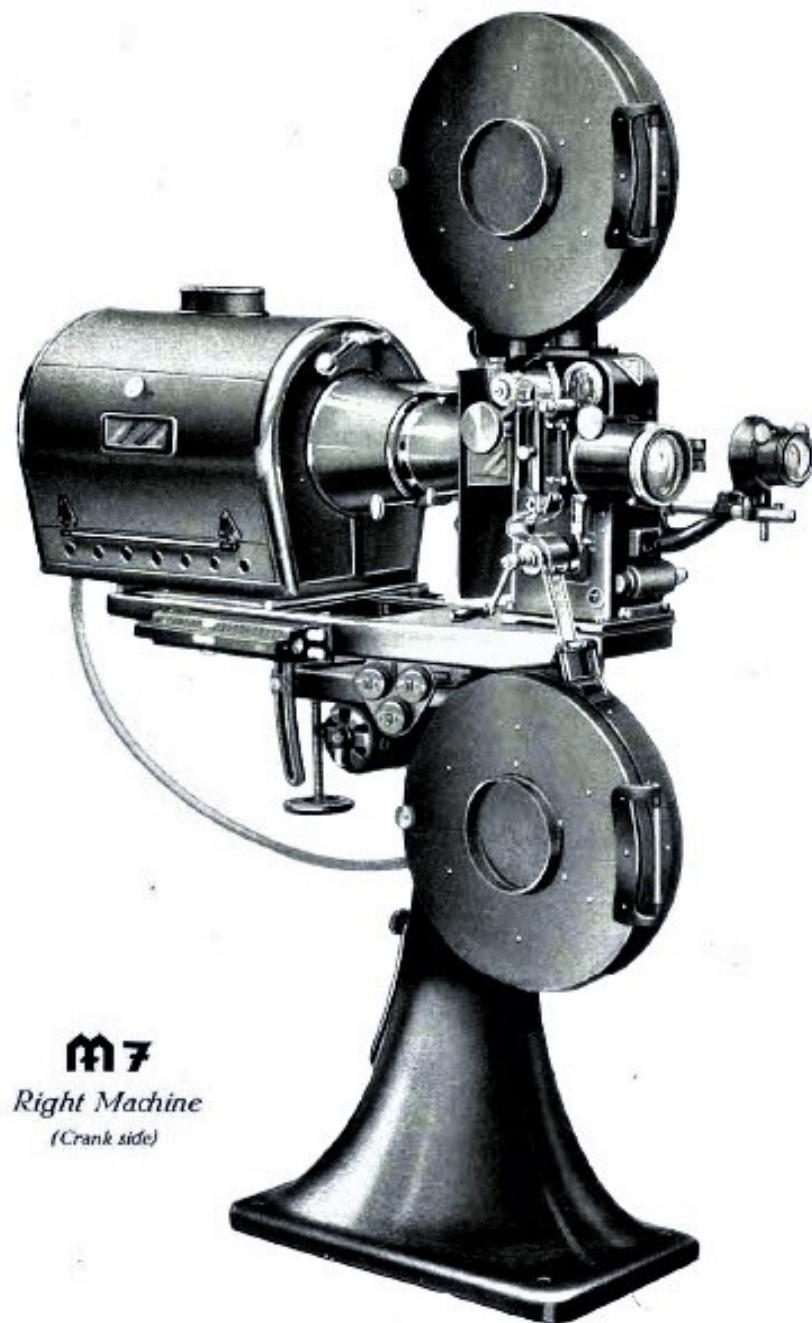
For all Sound film systems

(Bauer, Klangfilm, Tobis, Kinoton, Western Electric,
Lutaphone, Syntok, Pacent, R.C.A., Melovox etc.)

For Colour Projection

(Mirror arc with 250 mm Diameter mirror)

EUGEN BAUER G.M.B.H.
STUTTGART-UNTERTÜRKHEIM



M7

Right Machine
(Crank side)

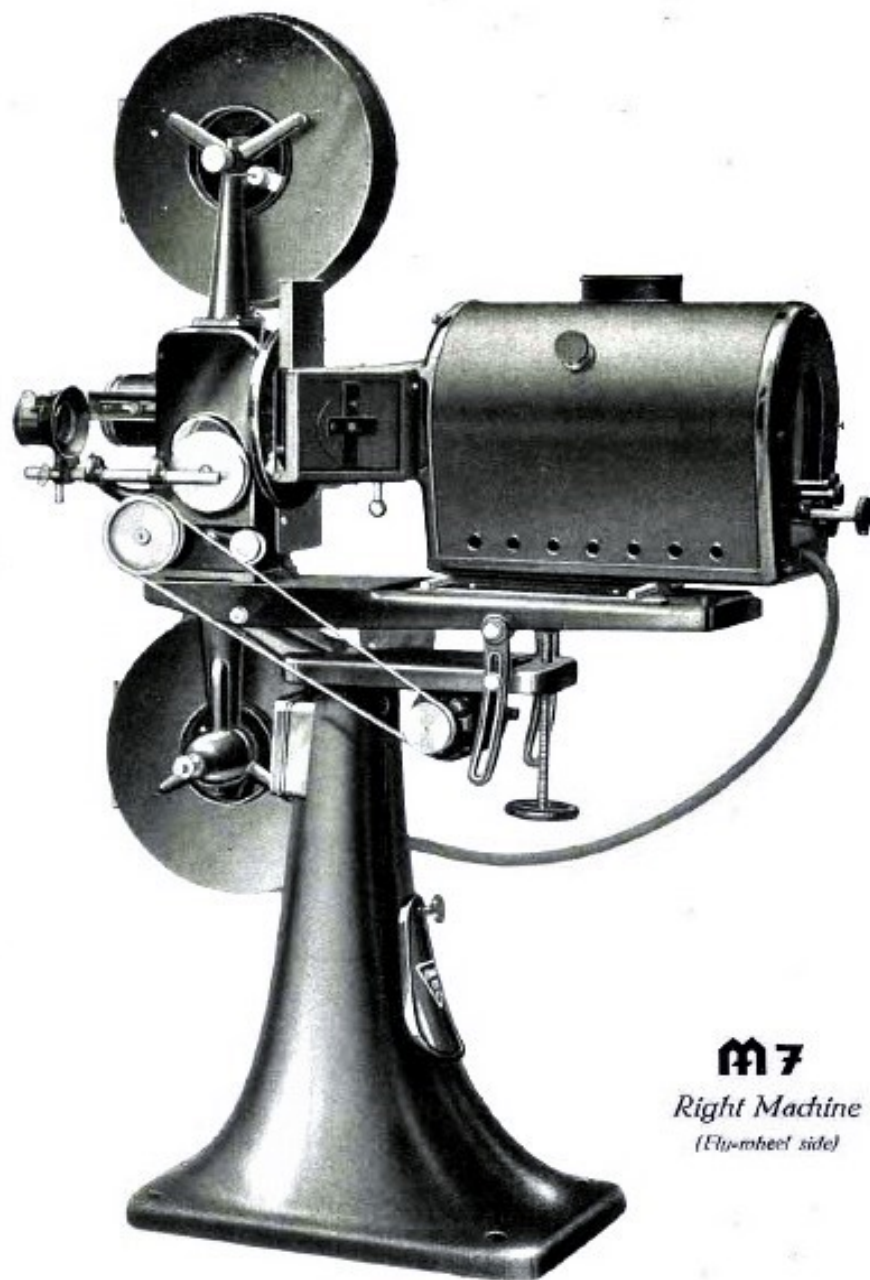
In offering our new machine we refrain from futile comparisons, firstly, in view of the fact that every machine on the market to-day is classified as the outstanding one, and secondly, because the M7 itself, and not our publicity manager, has proved and will prove its exceptional capabilities.

The steel projector M5 to-day has friends all over the world who regard it as a sine qua non of their theatre equipment and have the fullest confidence in its reliability.

The fact alone, that we have been able to supply the steel projector M5 as the sole theatre type from 1919 to 1929, i. e. a period of ten years, proves better than words the care taken in constructing and designing our machine.

*All our products, be it the M5, the Bauer Mirror Arc Lamps, the Bauer Cine Motor or any other product of our Works, have splendidly withstood the test of practical use. **The fact that our clientele has increased from year to year is entirely attributable to the quality of our product.***

We were well aware of our responsibility to the friends of M5 when we decided to add a stronger brother to this machine in order to comply with the desire of the theatres to own "an enclosed Bauer".



M7
Right Machine
(Fly-wheel side)

The traditional principle of our house to place quality and utility before everything else, was the policy followed in constructing the M 7. Nothing new was undertaken merely for the sake of novelty: the object of the new model is to improve on the old. All features of the M 5 which made its good name are incorporated in the M 7. To these are added improvements seen on no other machine and which not only improve actual quality but contribute to ease in operation. We have tested the validity of the improvements and the capacity of the machine by subjecting it to exceptional strains during its working tests. As far as it may be said of any machine, the M 7 may be termed perfect in its performance.

The experience of twenty-five years in the Cinematograph Trade and the unremitting study of progress in technique, have brought about a machine which it is difficult to surpass.

Like all Bauer productions which in the past have proved, without exception, successful, the M 7 from the very first machine issued, must have the same degree of perfection to induce theatre owners to equip with this machine.

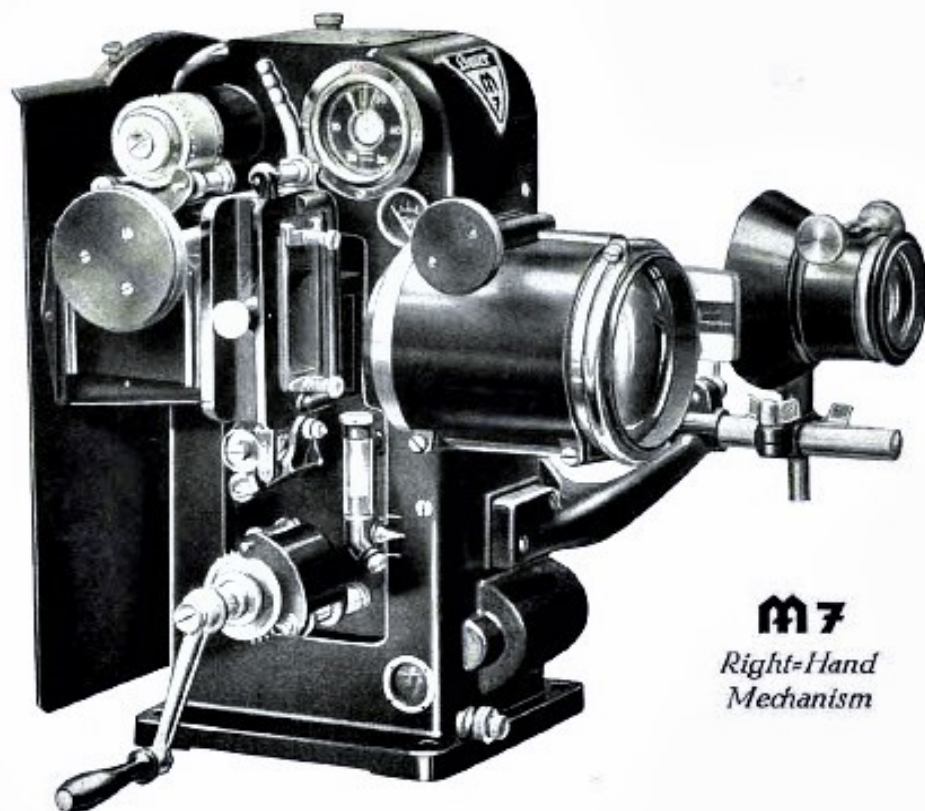
All improvements on the M 7 are patented

M7

Has obtained a strong position for itself on the World's Markets within a year. It is considered the leading Projector and operates in the largest theatres to the entire satisfaction of its owners. The superiority of this machine, above all its absolute reliability, particularly when used with sound installations, has convinced the Trade everywhere that it has fulfilled all expectations unconditionally and has attained the high standards expected of any projector.

MECHANISM

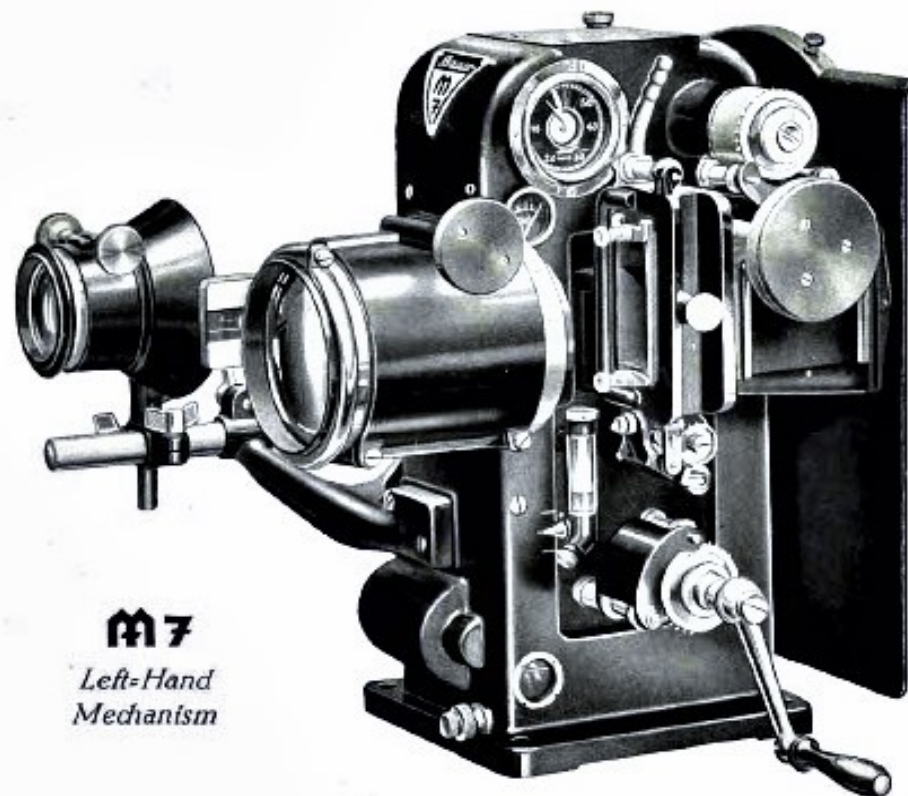
The basic principle of the new construction is the utility and simplicity of the whole apparatus. After years of experiment, a mechanism was



M7
Right-Hand
Mechanism

produced, which, in comparison to the requirements of the machine, could not be more simple. Every shaft, every bearing and every pinion was subjected to the most severe scrutiny before assembly and put through innumerable tests to ensure absolute reliability. The final assembly is carried out with the sole object of obviating possible sources of trouble and all improvements and additions to the mechanism have one aim only, **to increase its reliability and powers of endurance to the highest possible degree.**

The drive is completely enclosed and the film track only is left exposed, and should it be desired to enclose this an additional casing can easily be attached to the machine. The machine is equipped with automatic lubrication, which continuously sprays oil on all moving parts. Spiral, helical and conical gears and pinions running on ball bearings ensure easy and silent running. Special attention is paid to avoidance

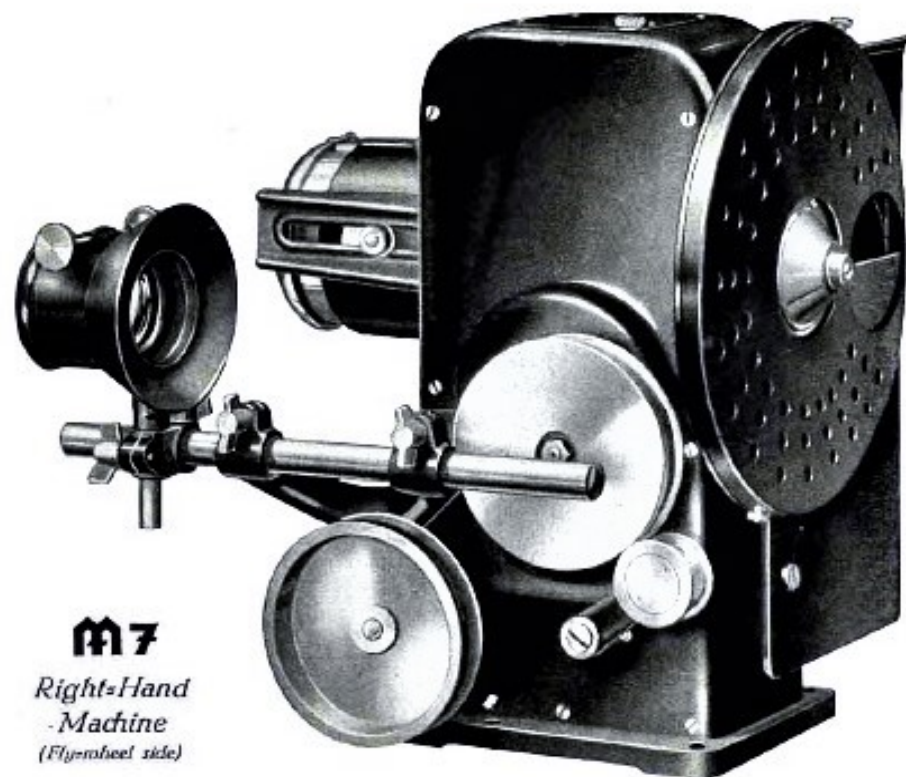


M7
Left-Hand
Mechanism

of film wear and in this particular the M 7 fulfils the highest demands. The shutter which is placed behind the gate on the M 7 (rear shutter) does not move when racking and protects the film on the emulsion side. (See also page 13.)

All parts are accurately machined and can be replaced without difficulty. The driving sprockets and rollers are simply screwed on and can be easily removed.

The machine can be started either through fly-wheel or by means of a built in fixed shaft, which can be equipped with a driving pulley without difficulty. The fly-wheel shaft and bearings are strengthened in such a manner, that when starting by means of the fly-wheel no speed can in any way detrimentally influence the running of the machine. The application of power through the fly-wheel is from a technical standpoint above reproach, perhaps even the most desirable,



M 7

*Right-Hand
Machine
(Fly-wheel side)*

since the fly-wheel shaft is actually situated in the centre of the gear train. The power distribution from this point must be considered as exceptionally efficient, especially as this shaft turns at the highest speed and consequently the power required for starting at this point is the least. It is obvious that the wear and tear is less when the fly-wheel is used direct for starting than if same is set in motion by a train of gears. All remaining parts and bearings are substantially larger and stronger than equipped heretofore, so that even at the highest speeds no part of the mechanism is liable to damage. The screened picture is perfect whether the machine turns at 20 or 50 frames per second.

When used in conjunction with a sound track head the drive is applied by means of an adapter coupled to the built in fixed shaft, designed in such a manner that any make of sound film apparatus may be incorporated in the projector without the slightest difficulty or loss of reliability.

The Bauer M 7 is supplied with right-hand and left-hand drive and is known in trade circles as the

"One Man Outfit"

The use of left-hand drive machines puts the ONE MAN OUTFIT first in the field when ease of operation, reliability, and consistently faultless and uninterrupted performance are demanded.

One essential fact is here emphasised, namely, that **M 7 may be utilised for all sound film systems** and is already in use with all the leading makes such as, Western Electric, Pacent, R C A, Klangfilm, Tobis, Lutaphone etc., etc.

Before proceeding with a detailed specification, the following outstanding features of this outfit should be remarked: —

Sturdy construction

Rear shutter

Fixed driving shaft

Lens sizes employed 62,5, 82,5, or 104 mm ☐

Automatic lubrication

- Silent easy running at all speeds**
- Film loop adjustment while machine is running**
- Minimum wear of all working parts**
- No replacement expenses, all parts accurately machined and reliable**
- Freedom from vibration**
- Film wear negligible**
- Easy interchange of all parts**
- Integral Air Cooling System**
- All improvements aim at increased utility.**

MALTESE CROSS MOVEMENT

After carefully considering the advantages and disadvantages of installing an interchangeable Maltese Cross, the idea was abandoned.

The very best material, sturdiest construction and high precision of machining enable us to **guarantee the absolute reliability** of this most vital part. The quality of material used guarantees a long life to this item; the replacement of the Maltese Cross only becomes necessary after many years use when the whole mechanism would need overhaul.

Triple bearings on the Maltese Cross movement

ensure smooth and vibrationless running

throughout all speeds.

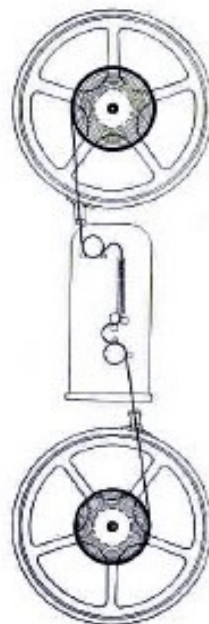
The Maltese Cross movement functions in an entirely enclosed housing built integrally with the film-gate and runners and runs in its own oil bath, thus obviating the slightest possibility of the entrance of foreign matter. The oil bath level is clearly shown in a glass gauge incorporated in the crank side of the mechanism. Filling and draining of the oil bath is easily accomplished. The striker pin is anchored to its disc by the usual swallow tail which has proved so successful in previous models.

FILMTRACK

The filmtrack in itself assures the preservation of the film. In order to avoid unnecessary bends, the mouths of the fireproof spool boxes are arranged to give the flattest possible tangent from the feed and pick up spools. The upper driving sprocket is so placed as to create a naturally formed loop.

THE GATE

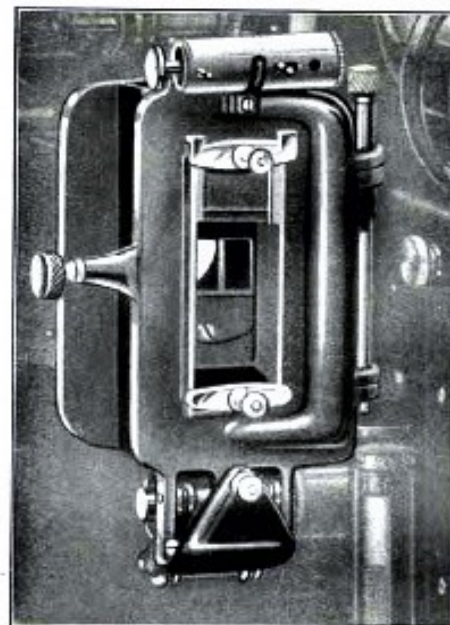
Compared with the M5, the gate has been lengthened to obtain smoother running than has been experienced hitherto. The screened picture is absolutely rock steady and without flicker. The idler rollers are placed in a direct vertical line from the spool box mouth and maintain the maximum number of sprocket holes in engagement with the teeth, giving



Smooth running even with bad conditioned copies and minimisation of wear.

Thanks to the ingenious design of the hinge pin, the gate is opened with one movement of the hand despite the position of the idler rollers which swing away with the gate itself.

The gate runners are carried in slots and held in place by yokes secured by adjustable springs. The body runners are held in the main casting and are easily removed and replaced.



MASKING OR FRAMING

The mask adjuster of the M5 having been of brilliantly successful design, this has been readopted on the M7. This mask adjuster, in which the gate, intermittent sprocket and lower driving sprocket move



with the runners has the advantage that the mask can be adjusted while the machine is stationary. The optical centre and shutter adjustment are not disturbed in framing the picture. In order to check the relative positions of the gate and its housing, marks are visible on the latter which clearly indicate whether the gate is centred. When frame adjustment becomes necessary the possible upward or downward movement is seen at a glance.

It should be emphasised that masking has no effect on length of the loop which cannot be excessively shortened by this operation.

LOOPING

With old, badly perforated or carelessly joined films, it often happens that the loops enlarge, or, as is more often the case, decrease in length. In the former case the picture flickers and in the latter there is great danger of tearing. To avoid such troubles and consequent stoppages in performance, the driving sprockets of M7 are designed to allow



Adjustment of loop size while running.

A built in epicyclic gear actuated by a knurled knob moves the driving sprockets so that both film loops are lengthened. Movement of the knurled knob in the direction of the motion of the film results in a shortening of the loops. These improved sprockets are a further aid to

increased reliability

and is a significant addition to the practical features of this machine.

AUTOMATIC OILING

The lower half of the gear housing forms an oil sump. An integrally geared pump has been installed to circulate all the oil in the shortest space of time. The oil circulated from the pump is led into a reservoir at the top of the housing, whence it is distributed through pipes to the points of friction. Since the pump feeds more oil than can be carried by the conduit system, the whole mechanism is sprayed with the surplus. The lubrication of all vital parts is consequently so abundant **that wear caused by friction is reduced to a minimum.** Before entering the pump the oil passes through a fine gauze which retains all foreign matter. The supply of oil can be watched through a built in sight glass.

OIL GAUGE

The machine is equipped with an oil gauge situated below the speed indicator. By this means it is easily ascertained whether all parts are plentifully supplied with oil. **The gauge not only indicates rate of circulation but also the pressure.** Should the machine run short of oil or the sieve become choked, the gauge immediately warns the operator by showing a lower reading.



SHUTTER

Compared with M5 the shutter has been reduced in size, however, only to such an extent as not to necessitate the use of higher amperage. The light efficiency of M7 affords the highest satisfaction. The rear shutter is completely enclosed, obviating the possibility of damage or loss of adjustment. The bearings are strong enough to nullify centrifugal force or disturbing vibrations at the highest speeds.

The rear shutter has the special advantage of protecting the film during the cover period of its working thereby materially minimising the heating of the film. A further advantage is that any size or focal length of lens may be used without readjustment of the shutter.

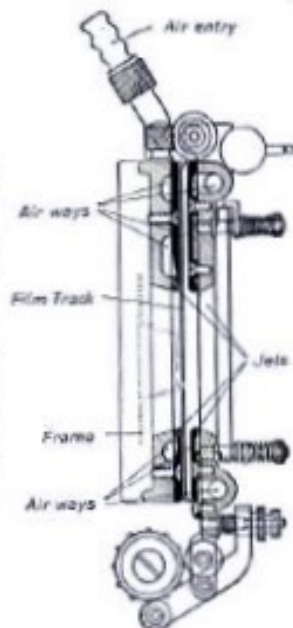
The rear shutter is so designed to give special advantages and aids to projection which are not possible with a forward shutter. In practice the rear shutter of M7 has acquitted itself brilliantly and completely fulfils its task. The shutter casing also serves as an additional fire protection.

SPEED INDICATOR

The speed indicator is built integrally with the mechanism and is positively driven by gears. Even at the slowest revolutions the speed can be accurately read. The position of the indicator is placed at eye level so that the instrument may be read at a glance.

FILM COOLING SYSTEM

The film track and gate are equipped with jets so arranged that escaping air impinges on the film, so causing an intensive cooling which avoids the risk of fire even when the machine is stationary for long periods, since the film subjected to the air current could at the worst only be scorched. The air stream is conducted from the body runners to the gate through hollow bolts, thus avoiding fitment of special conduits which would be a hindrance when threading up the film.

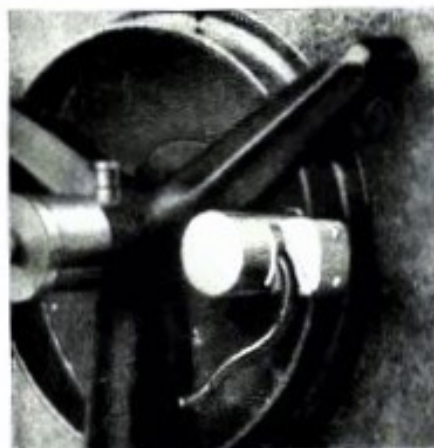


FIRE SHUTTER

The automatic fire shutter is worked by friction. The protector flap drops immediately the machine becomes stationary and protects the film from the rays of the lamp. The prescribed fireproof cover has a hood with coloured glass for observing the rays. In case of fire, the fireproof spool boxes are so designed as to make it impossible for the flames to enter them. This feature works automatically on an



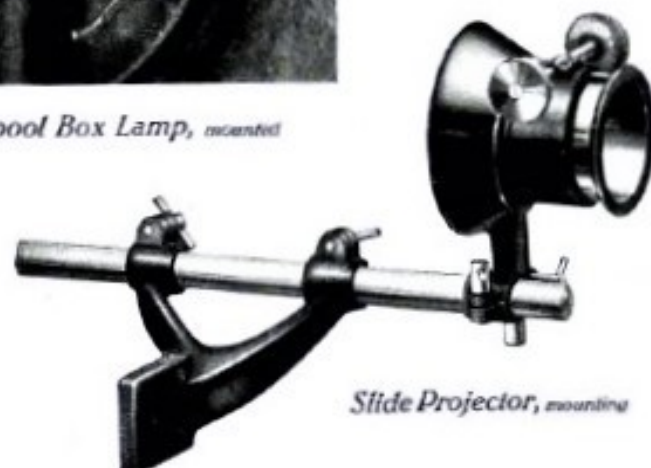
electro-magnetic principle and is absolutely fool proof.



Spool Box Lamp, mounted



*Auxiliary Lamp
for spool box*



Slide Projector, mounting

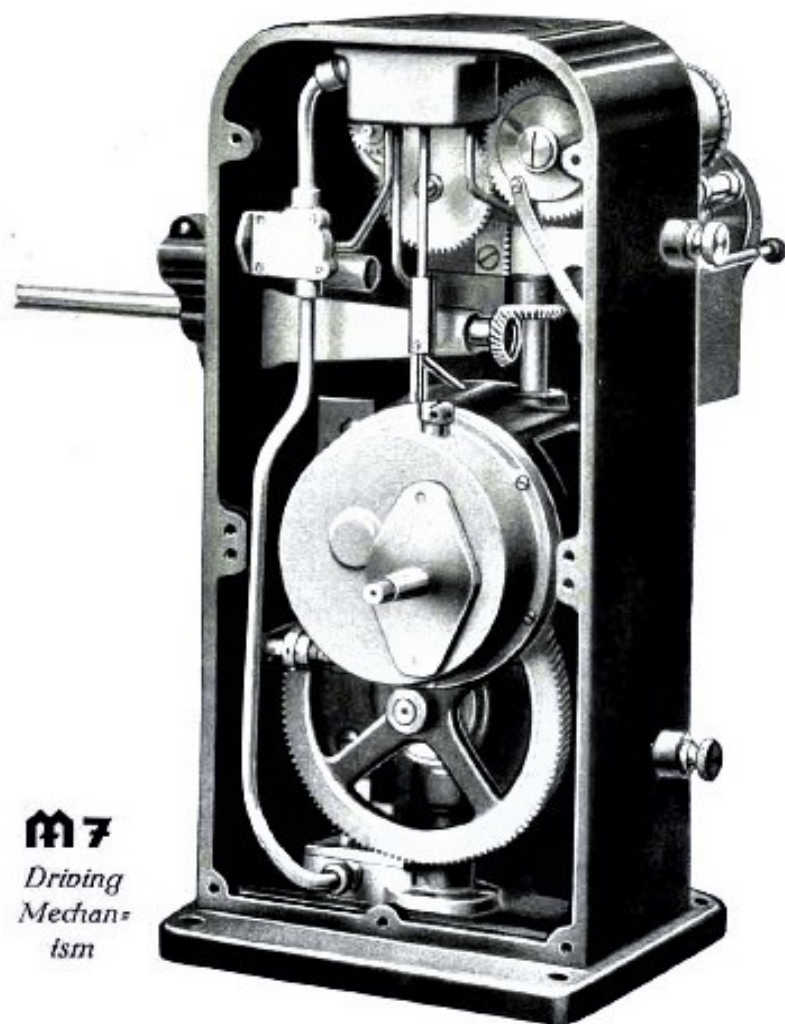


*Air Entry
for
Film cooling system*



*Auxiliary
Lamp
for mask adjustment*

The fire protector, which is only affixed on special order, is an absolute safeguard in that the destruction of film is limited to that portion which is exposed between the upper and lower spool boxes.

**M7**

*Driving
Mechanism*

AUXILIARY LAMPS

In order to save time when threading film, M7 is equipped with an auxiliary lamp to enable the operator to mask the picture correctly before setting the projector in motion without danger to the film.

This lamp can either be affixed to an existing accumulator battery of 6 or 12 Volts or direct to the set by the inclusion of a small transformer. A further lamp which is affixed in the same manner will be found in the upper spool box. This lamp calls the operator's attention to the fact that the film is nearing its end and enables him to accurately observe the remainder of the film on the spool. Both lamps are only equipped upon special request.

BELT PULLEYS

The pulleys are positively coupled to the mechanism to effect constant torque by the belt drive. The same pulley may be used when the drive is applied through the fixed shaft.

SLIDE PROJECTION

The carrier of the slide lens is affixed to the front of the mechanism by three screws. The focussing device is easily adjusted and can be set for any focal length. The slide lens may be removed or replaced at any time. It is not necessary to alter existing portholes since the distances between the film and slide apparatus conform to the usual standards. The Reflex-Dia-Equipment (Dialux Apparatus) can be easily affixed to any lamphouse (see special prospectus D 17).

MOTOR

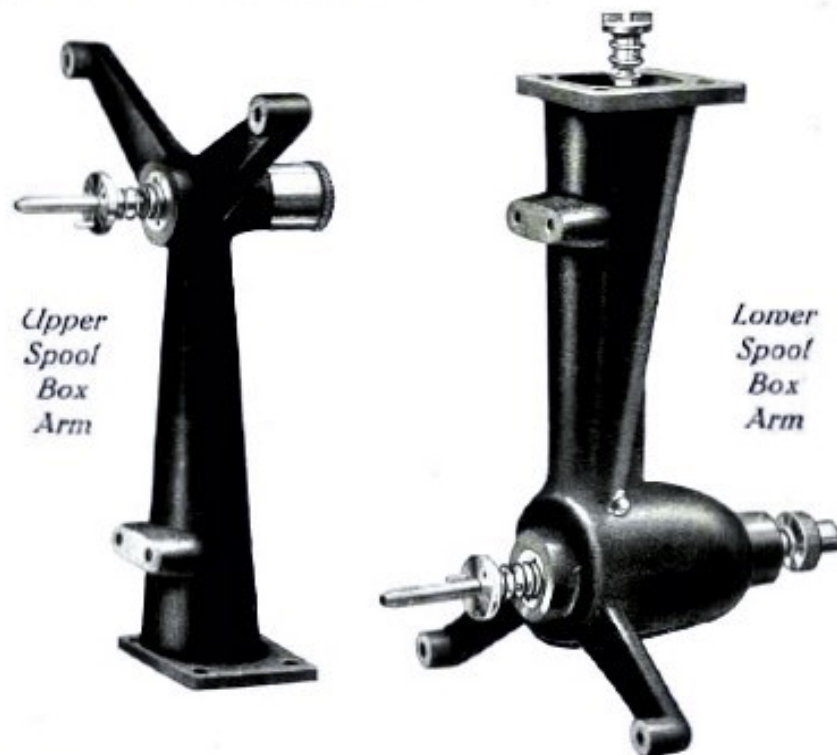
The Projector is driven by the Bauer-Cine-Motor bolted below the pedestal crown and has proved most satisfactory in use. The motor which develops $\frac{1}{10}$ H.P. allows the machine being driven at all necessary working speeds (see special prospectus M 3).

SAFETY SPOOL BOXES, SPOOL ARMS AND SPOOLS

The Bauer M7 is normally supplied with safety spool boxes to take 2700 feet of film. As heretofore, the top arm is also designed with a friction drive which helps to minimise film wear. This friction drive assures a smooth and consistent drive right up to the end of the reel and **avoids all lashing and bumping of the spools when running off.** The pick up spool friction drive has been strengthened and completely enclosed. Both drives can be adjusted from outside while the machine is in motion.

Both feed and pick-up spools work on ball bearings; the supporting arms are anchored to the main body of the machine and are absolutely rigid.

The spool boxes may also be utilised for 600 meter spools, and if two machines are in operation the use of this size spool is to be preferred. The sturdy Bauer spools have proved most efficient in use and the quality of material used in their manufacture remains unchanged. The wooden centre ensures great rigidity and an infinite working life. The wooden centres are $4\frac{1}{2}$ inches in diameter and make quick starting possible without damage to the film.

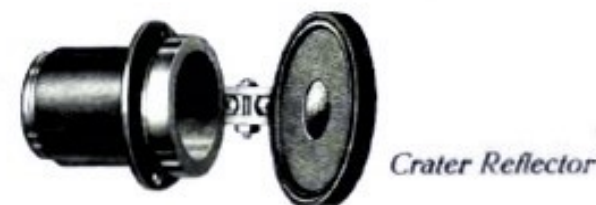


PEDESTAL

The pedestal constructed for M 7 forms a base proof against all vibration and leaves nothing to be desired as regards design and stability. The cast iron base can, as heretofore, be elevated by means of the affixed spindle. Provision is made for adjustment of small inaccuracies which may occur after installation.

With this in view, the pedestal has been designed for adjustment of height. In order not to prejudice the stability of the pedestal, the height adjustment has been limited to several centimeters by the use of cast iron plates added to the main pedestal casting. Should the cabin show larger differences in height, it is especially recommended to place the pedestal upon a massive base.

M 7 is only supplied with pedestal.



CRATER REFLECTOR

The crater reflector facilitates easier observation of the mirror arc lamp. The reflected image of the carbon craters may be projected on any part of the cabin wall so that the operator may observe the position of the arc from any part of the cabin.

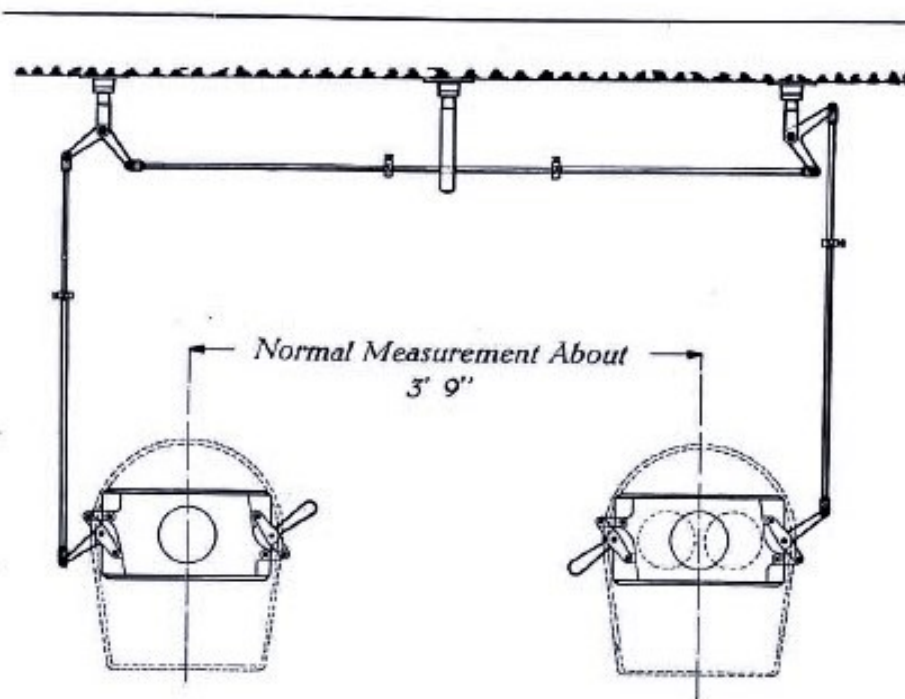
The reflector can be easily affixed to any make of lamp house.



AUTOMATIC CARBON FEED

Where direct current is available the automatic carbon feed can be installed on the mirror arc lamp without difficulty. It enables the

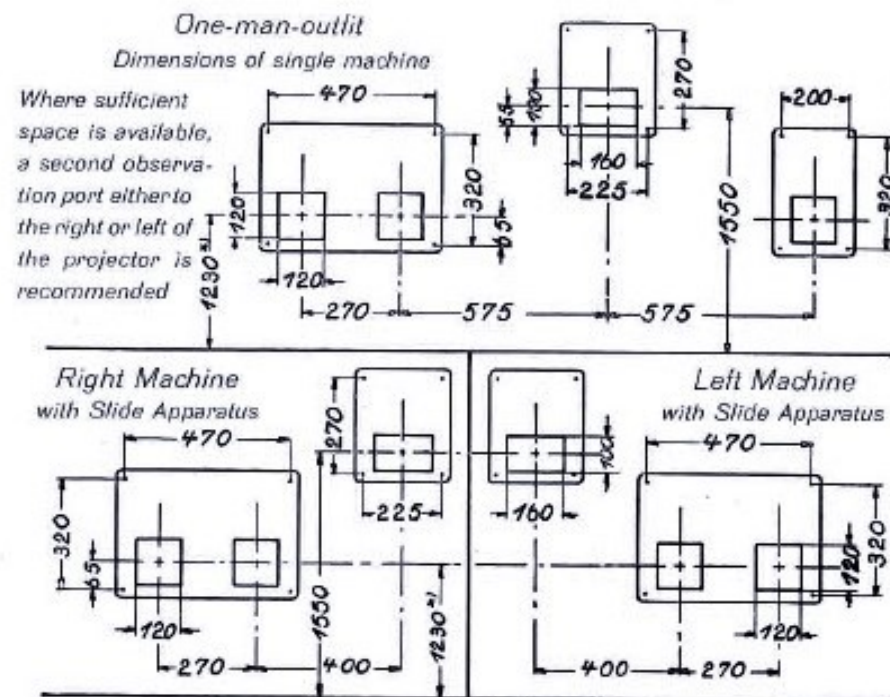
operator to give fuller attention to supervising the film and machine. The feed drive to the lamp is accomplished by means of a flexible cable. After once setting the apparatus, no further attention is necessary to the adjustment of the arc gap — all possibilities of bad lighting are avoided. The hand regulator can still be fitted if so desired. The carbon feed can be fitted to the machine at any time after installation.



CHANGE OVER APPARATUS

The Bauer Patent Change Over System has the special advantage that it may be installed without difficulty by any operator and that no part of it is in any way obstructive. Where continuous showing is the rule, the change over from one projector to the other is effected by opening the lamphouse shutter of the second machine whereby the shutter on the first closes automatically. The two shutters are interconnected with a jointed rod. The simplicity of this apparatus is sufficient proof against failure to work.

DIMENSIONS OF PROJECTION PORTS

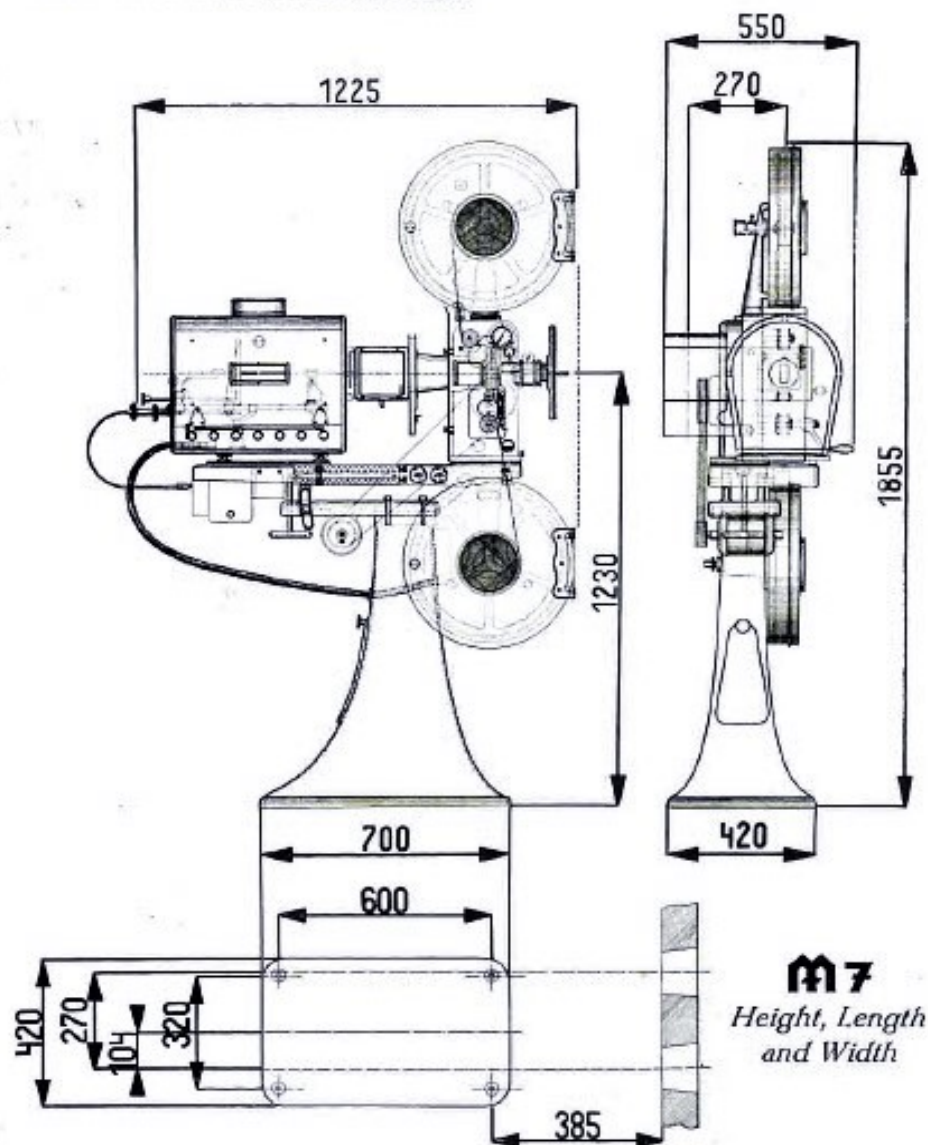


From the above diagrams may be seen the total space width required for either one or two complete machines. Even where more space is available, it is not advisable to place the machines of the one-man-outfit further apart and, likewise where a single machine is employed the above dimensions will be found to be the most advantageous. Should circumstances require it, the distance between the two machines may be slightly reduced.

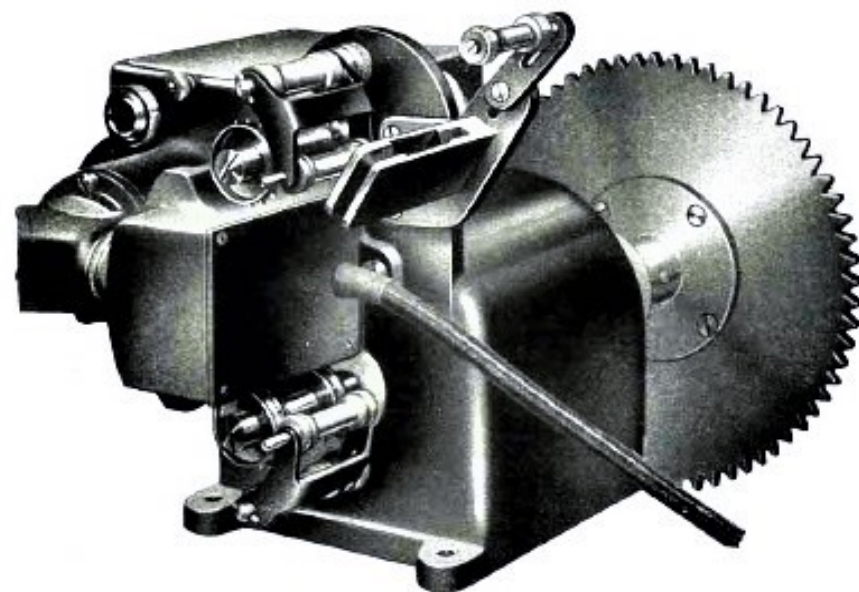
The height measurements of the two machine equipment only apply in the case of horizontal projection, in other cases the measurements must be modified in accordance with the angle of elevation or depression. The height of the pedestal can be adjusted to $\frac{3}{4}$ th of an inch below or $1\frac{1}{2}$ inches above the normal standard. Where the height from floor level to the centre of the projection port exceeds 4' 1", the projector should be mounted on a concrete or masonry base giving a firm foundation to the whole apparatus. In the special instance where this dimension is less than 3' 10", a special pedestal can be made to the required measurement.

With machines equipped with Slide Projectors, the distance between the projector base and the cabin wall may be maintained without consideration of the focal length

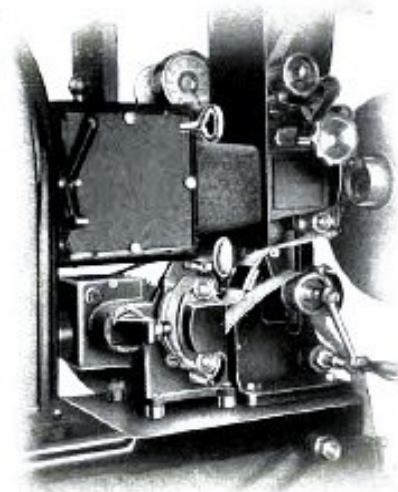
MEASUREMENTS IN MM



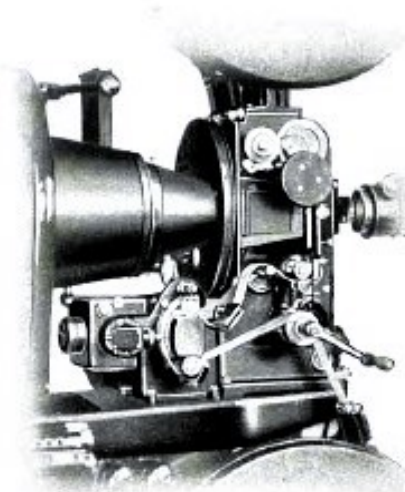
of lens employed. It should be noted that where a Slide Projection Lens of more than 500 mm. focal length is used, the distance from the cabin wall must be increased by a like amount (for instance with a 550 mm. lens the distance increases from 385 mm. to 435 mm., with a 600 mm. lens the distance would be 485 mm. etc.).



*Universal Sound Head Type LT3, for mounting on all types of projectors
(especially Bauer M 5, Bauer M 7, Ernemann I, Ernemann II, Hahn-Goerz, Niskie, Erko etc.)*

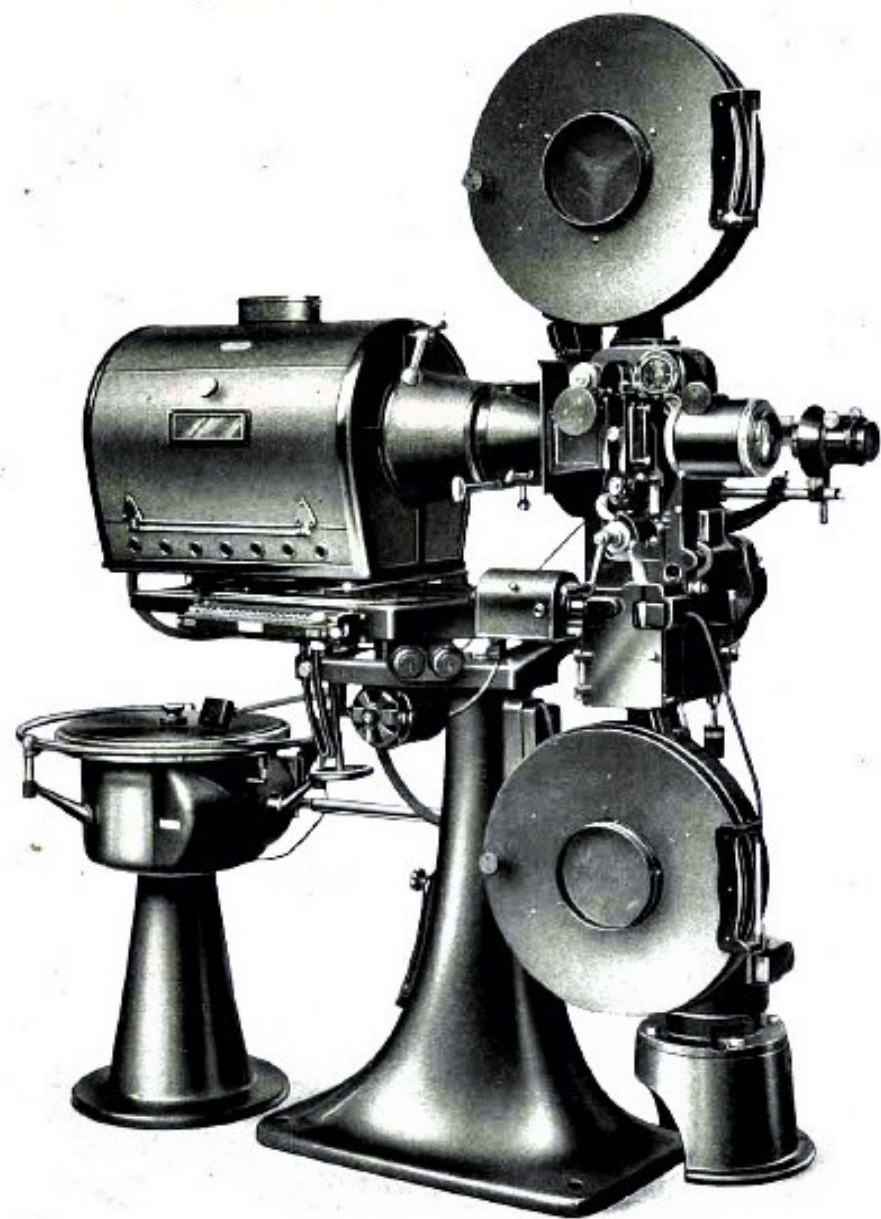


LT 3 mounted on Bauer M 5



LT 3 mounted on Bauer M 7

Bauer



*Bauer M7 - Sound Projector
with Bauer Sound on Film and Disc Attachment
(Sound on Film LT7 - Disc Attachment P1)*

