Dec. 10, 1929. K. BRENKERT ET AL 1,738,945

FRAMING SHUTTER

Filed Nov. 1, 1928

Fig. 1.

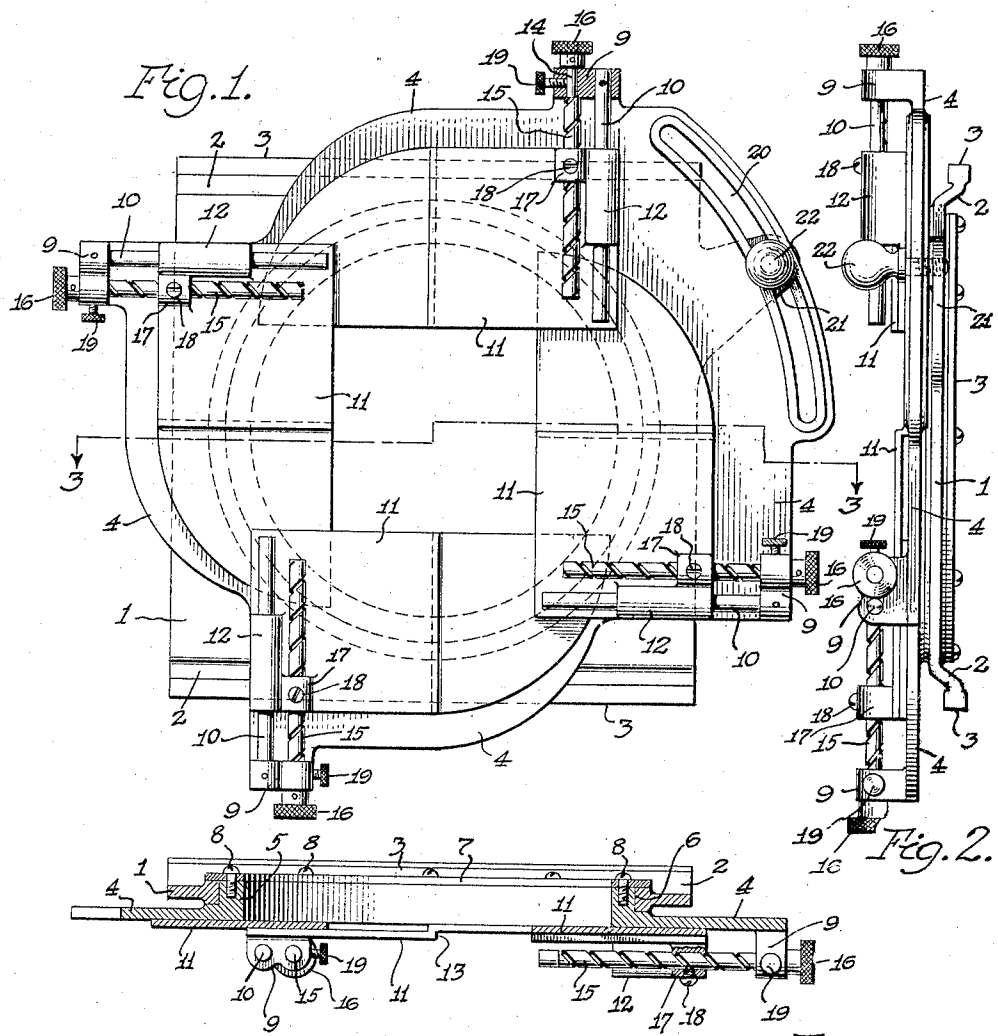


Fig. 2.

Fig. 3.

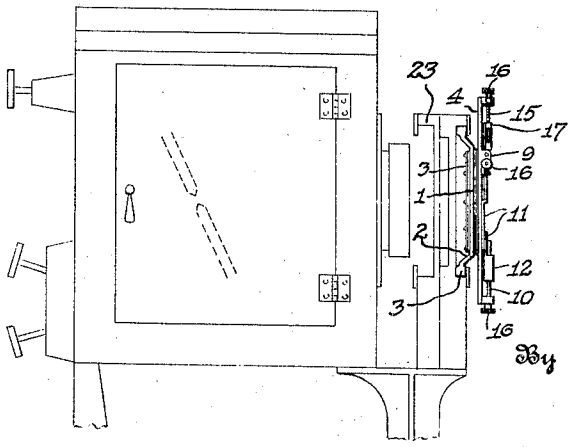


Fig. 4.

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FRAMING SHUTTER

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The present invention pertains to a novel framing structure designed particularly for use in conjunction with light projecting apparatus.

In the performance of a theatrical program, there are times when a beam of light of a given cross section is required on the stage or screen. In order that the correct cross section may be obtained, projecting machines of present construction are equipped with an adjustable framing shutter as a fixed part thereof. Consequently the operator is required to adjust the shutter each time a given cross sectional area of beam is required. Due to the fact that the change in cross section must often be made in a very short period of time, the operator often finds it difficult or impossible to make the adjustment in the time allotted therefor, as a result of which there is an interruption in the program.

The object of the present invention is to overcome this difficulty and is accomplished by means of a shutter which may be preset to a given area of opening and inserted or removed from the path of light at will. By using two or more such shutters, the operator may set them in advance at such times when the apparatus does not require his constant attention, and these preset shutters may be inserted in the path of the beam of light exactly at the required instant. The invention also provides for turning the opening of predetermined size around a given center to correct distortion resulting from side projection.

A further object of the invention is to provide a device wherein the movable blades are independently adjustable, so that the center of the aperture may be shifted although the main frame remains fixed in the projection machine.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings in which—

Figure 1 is an elevation of the device;

Fig. 2 is an edge view thereof;

Fig. 3 is a section on the line 3—3 of Figure 1; and

Fig. 4 is a side elevation of a holder having the framing shutter received therein.

Reference to these views will now be had by use of like characters which are employed to designate corresponding parts throughout.

The device comprises a base plate 1 having two of its parallel edges offset as at 2 and formed with ribs 3 slidable in a grooved framing opening provided in the path of a beam of light issuing from a projection lamp. The relation of the ribs 3 to such a groove is such that the plate may readily be slid into or out of the opening.

Over the plate is mounted an open frame member 4 having a central circular boss 5 rotatably mounted in the circular opening 6 formed through the plate. A retaining ring 7 overlapping the edge of the opening 6 and secured to the boss 5 by screws 8 holds the frame and plate together.

The frame is formed with four double bearing members 9 each supporting a rod 10 extending inwardly towards the central openings. Two of these rods are parallel to each other and perpendicular to the remaining two which are also parallel to each other. It will be seen in Fig. 1 that the rods are successively perpendicular to each other. Over the frame are mounted four shutter blades 11 each formed with a boss or sleeve 12 slidable on one of the rods 10. The blades are in mutual overlapping relation, and to this end each blade is depressed medially as at 13 to accommodate the respective overlapping blade. It will now be apparent that the relation of the rods 10, sleeves 12 and overlapping parts of the blades permit the latter to be moved towards and from the circular openings in order to form an adjustable rectangular light aperture. Moreover, each blade is independently adjustable and can be separately locked so that apertures of various sizes may be formed around various points as centers, although the base plate 1 occupies a fixed position in the effect holder of the machine.

Each of the double bearings 9 further accommodates the shank or neck 14 of a screw 15 parallel to the adjacent rod 10. The neck 14 is of smaller diameter than the screw proper and is further equipped with a knurled head 16 engaging the outer end of

the bearing, so that the screw is merely permitted to turn without shifting. On each blade 11 is formed a nut member 17 through which the corresponding screw is threaded. Thus, by turning the screws at their heads 16, the several blades 11 may be independently adjusted with respect to the common center of the circular openings formed in the plate 1 and frame 4. Each nut member is provided with a set screw 18 having one end received in the pitch of the corresponding screw 15 in order to lock the blade in its adjusted position, and the screws 15 may be further locked against turning by means of set screws 19 in the double bearings 9.

The frame 4 is further formed with an arcuate slot 20 concentric with the opening 5. An ear 21 extends from the plate 1 towards the slot and carries a clamp screw 22 disposed in the slot. By this means the frame, carrying the shutter blades 11, may be adjusted relatively to the base plate 1 which occupies a fixed position in its receptacle 23, in order to correct distortion due to lateral projection.

In the use of the device, the blades 11 are set to the required size at some time well in advance of the time when it is to be used, and when the operator is not hurried. The shutter present in this manner is located in convenient reach of the operator and is inserted in the holder 23 of the projecting machine at the instant when it is needed. When no longer needed, it is merely withdrawn from the holder and may be replaced by a similar shutter set to a different adjustment if such is required. In any event there is no possibility of delaying or interrupting the program by compelling the operator to make the adjustment at the instant when it is needed as is the case in the operation of the machines of present construction wherein the framing shutter is a fixed part of the apparatus.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention as indicated by the appended claims.

What we claim is:—

1. A framing shutter comprising a plate adapted to be removably inserted in the path of a beam of light, a frame having a swivelled mounting on said plate, a plurality of shutter blades slidably supported by said frame, means for locking said blades in adjusted position, and means for adjusting said frame angularly with reference to said plate.

2. A framing shutter comprising a plate adapted to be removably inserted in the path of a beam of light, a frame having a swivelled mounting on said plate, a plurality of shutter blades slidably supported by said frame, means for locking said blades in adjusted position, said frame having a curved slot concentric with said swivelled mounting, and a locking member carried by said plate and disposed in said slot.

3. A framing shutter comprising a plate adapted to be removably inserted in the path of a beam of light, a plurality of mutually overlapping shutter blades adjustably mounted on said plate, each blade having a depressed portion for receiving the respective overlapping blade.

4. A framing shutter comprising a plate adapted to be removably inserted in the path of a beam of light, a plurality of mutually overlapping shutter blades adjustably mounted on said plate, each blade having a depressed portion for receiving the respective overlapping blade, and screw devices for adjusting said blades on said plate.

5. A framing shutter comprising a plate adapted to be removably inserted in the path of a beam of light, a frame attached to said plate, rods secured to said frame, a plurality of mutually overlapping shutter blades having bosses slidable on said rods, each blade having a depressed portion for receiving the respective overlapping blade, and means for adjusting said blades relatively to said rods.

6. In combination with a holder of a projection machine, a plurality of framing shutters adapted for selective reception in said holder, each comprising a plurality of movable blades adapted to define an opening, and means for locking said blades in adjusted positions.

7. In combination with a holder of a projection machine, a plurality of framing shutters, each comprising a plate adapted to be removably inserted in said holder, a plurality of shutter blades adjustably mounted on said plate, and means for locking said blades in adjusted positions.

In testimony whereof we affix our signatures.

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