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SHUTTER FOR MOVING PICTURE MACHINES.

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1,068,912. Patented July 29, 1913.

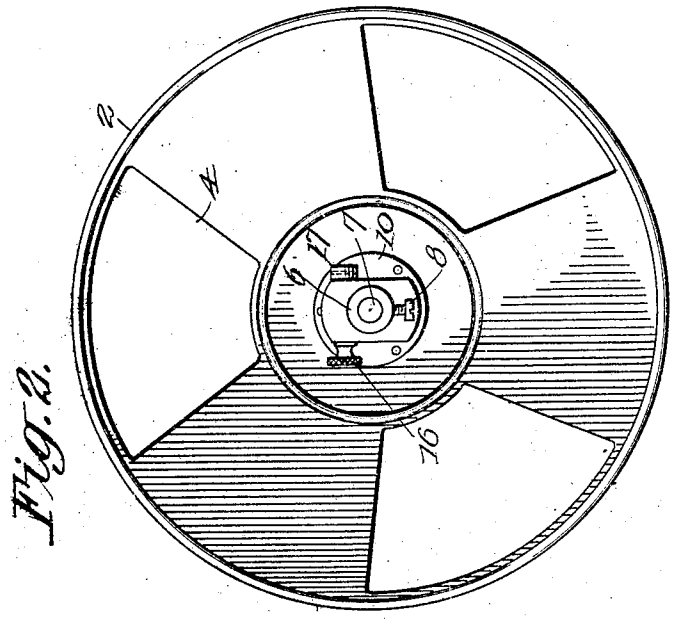


Fig. 2.

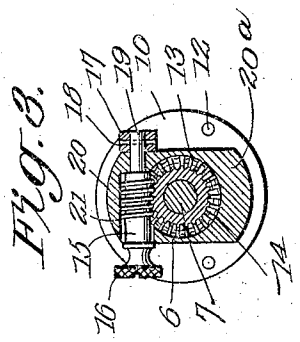


Fig. 3.

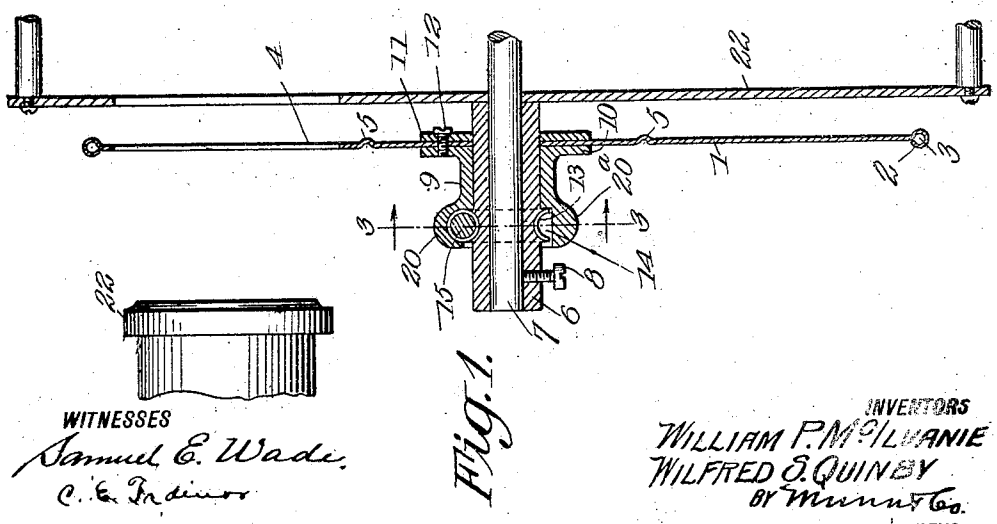


Fig. 1.

WITNESSES

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SHUTTER FOR MOVING-PICTURE MACHINES.

1,068,912. Specification of Letters Patent. Patented July 29, 1913.

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To all whom it may concern:

Be it known that we, WILLIAM P. McILVANIE and WILFRED S. QUINBY, citizens of the United States, residing at Bellingham, in the county of Whatcom and State of Washington, have invented a new and useful Improvement in Shutters for Moving-Picture Machines, of which the following is a specification.

Our invention is an improvement in shutters for moving picture machines, and has for its object the provision of a simple, easily operated device for adjusting the shutter, which may be applied to existing machines without other change than removing the shutter.

In the drawings, Figure 1 is a vertical section of the improvement. Fig. 2 is a front view, and Fig. 3 is a section on the line 3—3 of Fig. 1, looking in the direction of the arrows.

In the present embodiment of the invention, the shutter 1 is in the form of a disk having its edge beaded at 2, and a reinforcing wire 3 is inserted in the bead. The disk is provided with three segmental openings 4, spaced at equal distances from each other, and the disk is annularly grooved on its outer face, and on the inner side of the openings, to form an annular rib 5 on the inner face. The outer edges of the openings 4 are very close to the bead 2, and the inner edges are close to the rib 5. The disk is mounted on a sleeve or bushing 6, arranged on a shaft 7, and the sleeve is secured to the shaft by a set screw 8. The disk is held on the sleeve, by means of a collar 9, encircling the shaft on the outer side of the disk, and having an annular lateral flange 10 at the end adjacent to the disk, and fitting against the outer face thereof. A washer 11 encircles the sleeve on the opposite side of the disk from the collar, and screws 12 are passed through the washer and the disk and engage the collar to secure the parts together.

The sleeve 6 is provided with an annular series 13 of teeth, forming a worm wheel integral with the sleeve, and the collar 9 is provided with an internal annular groove or recess 14, at the worm wheel. A worm shaft 15 is journaled in the enlargement, on the upper side of the sleeve, and transversely thereof, and the said shaft engages the worm wheel. The worm shaft is provided at one end with a milled head 16, for turning the same, and the other end of the shaft is reduced as indicated at 19, and passes through an opening in the collar, and is engaged by a washer 17, which is secured to the reduced portion by a pin 18.

The collar 9 is enlarged above and below the shaft 7 as shown at 20 and 20ª, and the enlarged portion 20 above the shaft is recessed as indicated at 21 to receive the worm shaft. It will be evident that when the worm shaft is rotated by turning the head 16, the sleeve 6 and the shutter will be rotated.

The shaft 7 is a part of the usual apparatus 22, and the shutter is adjusted with respect to the said shaft. When it is desired to adjust the shutter with respect to the shaft, the worm shaft 15 is turned in any suitable manner. The said shaft is journaled on the collar 9 and it will be evident that when the said shaft is turned, the collar 9 and the shutter will be moved angularly with respect to the sleeve 6, the said sleeve being secured to the shaft 7 by the set screw 8.

It will be evident that the worm shaft 15 and the worm wheel constitute not only a means for turning the shoulder, but also a means for holding it in adjusted position, since it is obvious that the shutter could not be turned without turning the worm wheel.

The improvement may be used with any machine of the character in question, and without any change in the machine, except the removal of the old shutter.

We claim:

1. In combination with the shutter supporting shaft of a kinematograph apparatus, of a shutter comprising a disk having a central opening for the shaft, a sleeve on the shaft between the shutter and the shaft, a set screw traversing the sleeve and engaging the shaft, a washer on the sleeve engaging the inner face of the disk, a collar on the sleeve at the outer side of the disk and having an annular lateral flange engaging the face of the disk, screws engaging the washer, the shutter and the flange for securing them together, said sleeve having an annular series of teeth near the outer end of the collar, the collar having an annular groove at the teeth, a worm shaft journaled in the collar transversely of the sleeve and engaging the teeth, and a head on the worm shaft for turning the same.

2. In combination with the shutter sup-

porting shaft of a kinematograph apparatus, of a shutter comprising a disk having a central opening for the shaft, a sleeve on the shaft between the shutter and the shaft, a set screw traversing the sleeve and engaging the shaft, a collar on the shaft on the outer side of the shutter means for securing the shutter to the collar, said sleeve having an annular series of teeth near the outer end of the collar, the collar having an annular groove at the teeth, a worm shaft journaled in the collar transversely of the sleeve and engaging the teeth, and a head on the worm shaft for turning the same.

3. In combination with the shutter supporting shaft of a kinematograph apparatus, of a shutter comprising a disk having a central opening for the shaft, a sleeve on the shaft between the shutter and the shaft, means for detachably securing the sleeve to the shaft, a collar on the shaft on the outer side of the shutter, means for securing the shutter to the collar, said sleeve having an annular series of teeth near the outer end of the collar, the collar having an annular groove at the teeth, a worm shaft journaled in the collar transversely of the sleeve and engaging the teeth, and a head on the worm shaft for turning the same.

4. In combination with the shutter supporting shaft of a kinematograph apparatus, of a shutter comprising a disk having a central opening for the shaft, a sleeve on the shaft between the shutter and the shaft, means for detachably securing the sleeve to the shaft, a collar on the shaft secured to the shutter, a worm shaft journaled in the collar, and a worm wheel secured to the sleeve and engaging the shaft.

5. In combination with the shutter supporting shaft of a kinematograph apparatus, of a shutter comprising a disk having a central opening for the shaft, a sleeve on the shaft between the shutter and the shaft, means for detachably securing the sleeve to the shaft, a collar on the shaft secured to the shutter, and means on the collar for turning the sleeve on the shaft.

6. In combination with the shutter supporting shaft of a kinematograph apparatus, of a shutter comprising a disk having a central opening for receiving the shaft, a sleeve on the shaft between the shutter and the shaft, a detachable connection between the sleeve and the shaft, said shutter being rotatable on the sleeve, and means for rotating the shutter and for holding it in adjusted position.

7. In combination with the shutter supporting shaft of a kinematograph apparatus, of a shutter having an opening for receiving the shaft, said shutter being rotatable on the shaft, and means for rotating the shutter and for holding it in adjusted position.

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