Oct. 27, 1931. A. C. HAYDEN 1,829,482

MOTION PICTURE PROJECTOR

Filed Feb. 19, 1927

FIG. 1

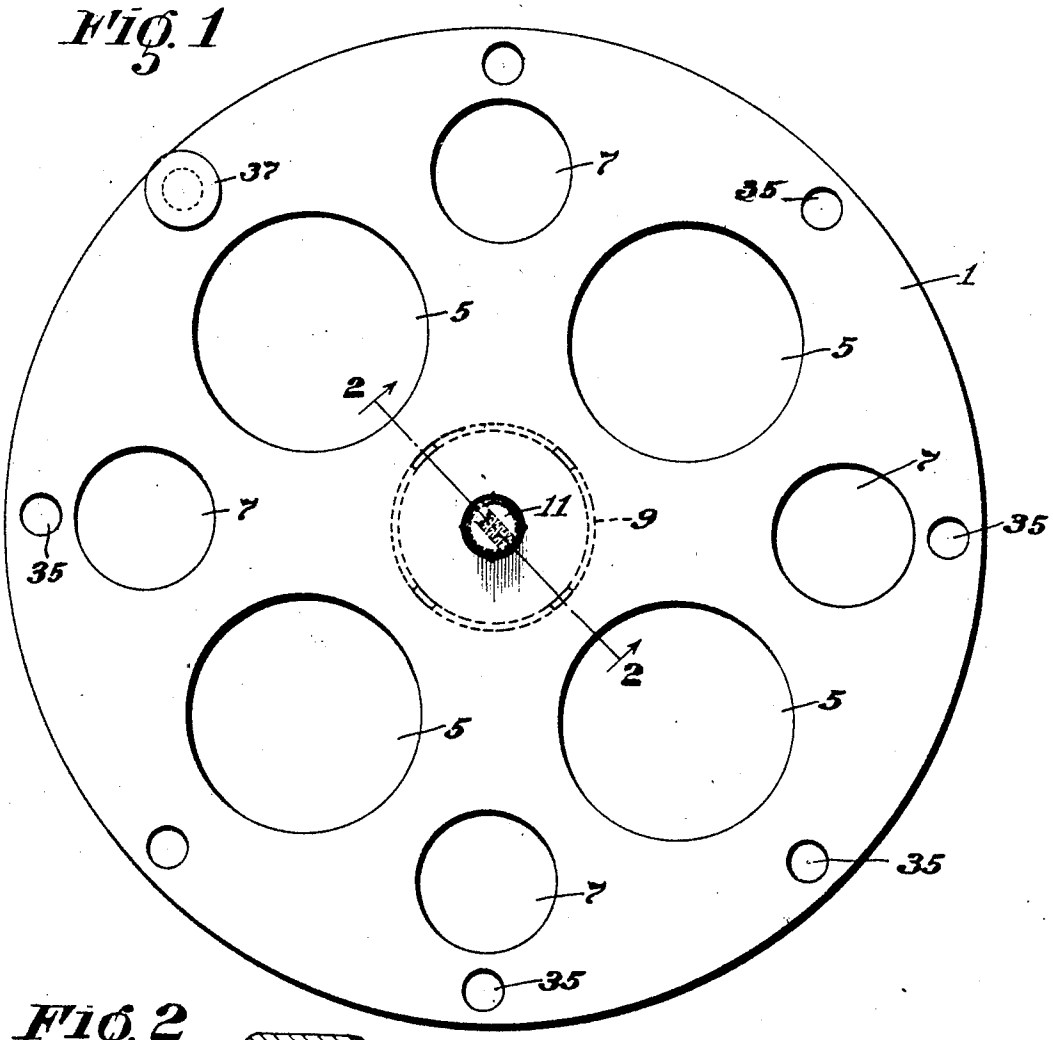


FIG. 2

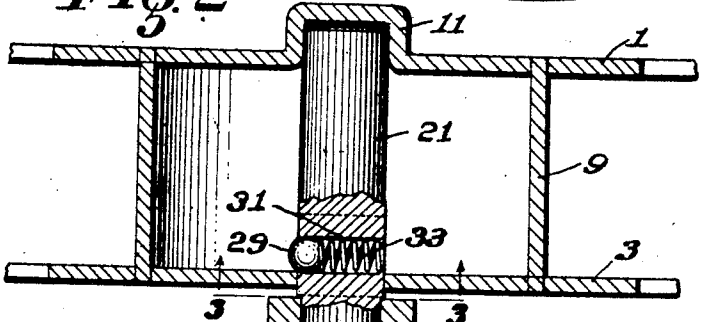


FIG. 3

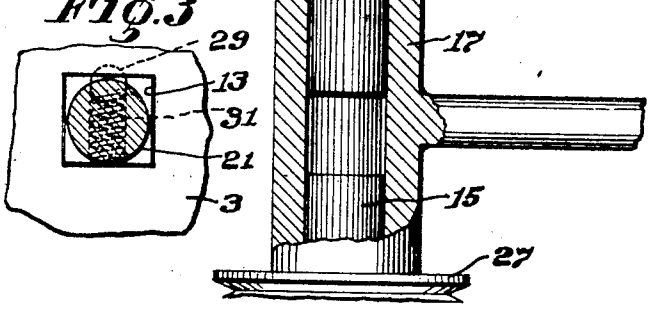


FIG. 4

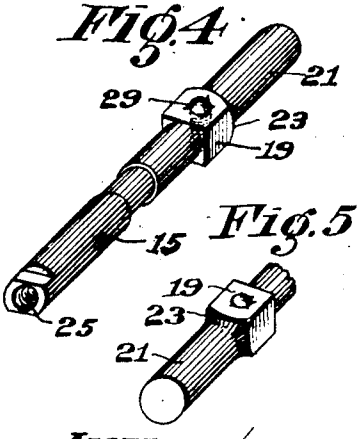


FIG. 5

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Patented Oct. 27, 1931 1,829,482

UNITED STATES PATENT OFFICE

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MOTION PICTURE PROJECTOR

Application filed February 19, 1927. Serial No. 169,618.

The invention to be hereinafter described relates to motion picture projector apparatus, and more particularly to an improved film reel and projector spindle.

The ordinary film reel comprises a pair of circular plates having a hub between and secured thereto, said plates having holes in axial alinement adapted to receive the projector spindle. It is essential that the reel shall be presented to and mounted on the spindle in a predetermined position so that the film will feed properly through the projector. The operator is liable to attempt to present the wrong side of the reel to the spindle, necessitating withdrawing the reel, reversing it and presenting the opposite side to the spindle. One of the purposes of the present invention is to overcome this objection. To accomplish this the reel is so constructed that the operator cannot possibly mount it on the spindle improperly.

Another purpose of the invention is to provide a reel having one of its side plates so formed that a portion thereof will engage the end of the spindle and limit the sliding movement of the reel onto the spindle.

Still another purpose of the invention is to provide a spindle with a simple, cheap, effective device for preventing the reel from slipping off from the spindle.

The character of the invention may be best understood by reference to the following description of one good form thereof shown in the accompanying drawing, wherein:

Fig. 1 is a side elevation of the reel;

Fig. 2 on an enlarged scale is a section through the reel and a portion of the bearing for the spindle, said section being taken on line 2—2 of Fig. 1;

Fig. 3 is a transverse section taken on line 3—3 of Fig. 2;

Fig. 4 is a perspective view of the spindle; and

Fig. 5 is a perspective view of an end portion of the spindle.

Referring to the drawings, the reel shown therein as an embodiment of the invention, comprises a pair of circular plates 1 and 3 having larger apertures 5 and smaller apertures 7 therein. A hub 9 is between and connected to said plates and is adapted to have the film wound thereon.

The plate 1 has a cup 11 pressed therefrom at the center thereof, and the plate 3 has a square or flat-sided hole 13 therein in axial alinement with the cup.

The spindle comprises a portion 15 received by a bearing 17, a square or flat-sided portion 19 and a cylindrical portion 21. The spindle has a rounded and tapered portion 23 at the juncture of the square portion with the cylindrical portion. The end 25 of the spindle is slabbed off to receive a pulley 27. A ball 29 is in a transverse bore 31 in the square portion of the spindle and is pressed outward by a coil spring 33 so that a part of the ball normally stands out beyond the spindle. After the ball and spring have been inserted into the bore, the portions of the spindle adjacent opposite ends of the bore may be peened and upset, thereby to secure the ball and spring in the bore.

When it is desired to mount the reel on the spindle, the reel must always be presented to the spindle with the plate 3 foremost, since it is obvious that the spindle cannot pass through the cup. As the reel is slid along the spindle the hole 13 in the plate 3 will be easily guided by the rounded and tapered portion 23 of the spindle onto the square portion of the spindle. The engagement of the square portion of the spindle with the square hole in the plate 3 will cause the reel to rotate with the spindle. As the reel is slid onto the spindle, the end of the cylindrical portion 21 thereof will enter the cup and engage the bottom thereof, thereby limiting the sliding the movement of the reel onto the spindle.

When the plate 3 slides over the spindle, the hole therein will ride over the ball 29 and press the same inward against the resistance of the coil spring 33, and when the plate 3 has passed the ball, the latter will be caused by the spring to snap outward and engage the inner face of the plate 3 and prevent the reel from sliding off from the spindle.

The reel plates 1 and 3 have holes 35 therein near the peripheries of the plates, and any

pair of the holes of the two plates is adapted to receive a pin 37 constructed and arranged for securing the free end of the film to the reel. This device is shown and claimed in Letters Patent of the United States No. 1,649,470, granted to me November 15, 1927.

By my invention is provided a simple, cheap and useful reel and spindle construction. It will be understood that the invention is not limited to the specific embodiment thereof shown herein, and that various deviations may be made therefrom without departing from the spirit and scope of the appended claim.

What is claimed is:—

A film reel for motion picture apparatus comprising a pair of plates and a hub between said plates adapted to have a film wound thereon, one of said plates having a hole therein and the other of said plates having a cup integral therewith, pressed therefrom and in axial alinement with the hole, said hole and cup being adapted to receive a spindle of motion picture apparatus, said hole being formed for driving engagement with the spindle, and said cup insuring application of the reel to the spindle with the hole plate in advance of the cup plate.

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