Jan. 15, 1946. P. BAIA 2,392,966

REWIND DEVICE

Filed Feb. 1, 1945

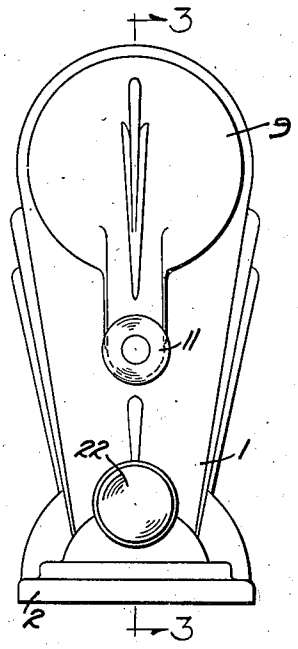

Fig-1

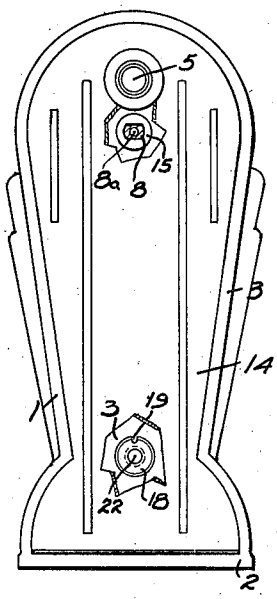

Fig-2

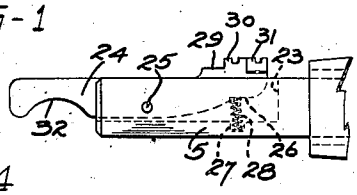

Fig-5

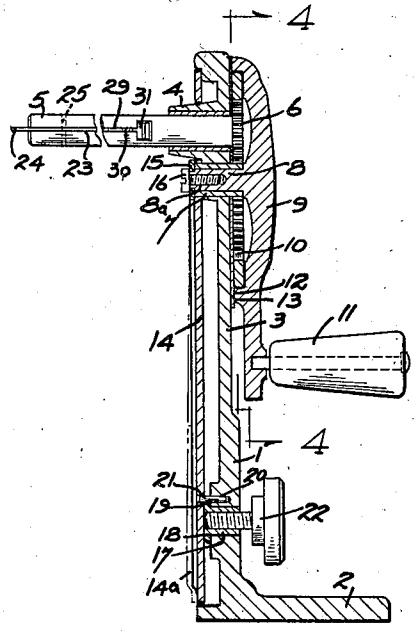

Fig-3

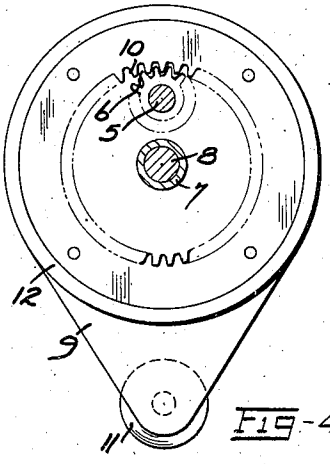

Fig-4

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REWIND DEVICE

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7 Claims. (Cl. 242—55)

This invention relates to improvements in rewind devices, and refers particularly to rewind devices for supporting motion picture film reels when it is desired to wind film from one reel onto another. Such rewind devices are often mounted one on each side of a viewer so that a film may be wound off a reel on one device through the viewer and onto a reel on the other device. It is highly desirable that each rewind device therefore be so constructed that varying amounts of resistance may be offered to the rotation of its shaft which turns with the reel thereon, as under different circumstances such as longer and larger films, different sized reels and the like different amounts of resistance are required to retain the film taut between the reels. It is also very desirable that means be provided for immediately halting rotation of either reel to permit prolonged inspection of any particular frame in the film.

It is an object of this invention to provide a rewind device including a shaft to receive a reel for rotation therewith, means for turning the shaft, and means which may be employed either for adjusting the amount of resistance offered to rotation of the shaft or for immediately halting rotation of the latter.

Another object of the invention is to provide such a rewind device including a shaft to receive a reel for rotation therewith, manual means for turning the shaft, and a screw so arranged relative to a braking plate that by rotation of the screw against the plate increasing resistance is offered to rotation of the shaft; moreover the screw is also axially movable so that by exerting sudden pressure thereon rotation of the shaft may be immediately halted.

A further object of the invention is to provide such a rewind device with a shaft equipped with means for engaging various sized reels for rotation therewith, and also means for facilitating disengagement of the reel from the shaft.

Having thus stated some of the objects and advantages of the invention I will now proceed to describe a preferred embodiment thereof with the aid of the accompanying drawing, in which:

Figure 1 illustrates a front elevation of the invention, and

Figure 2 is a rear view thereof.

Figure 3 is a section on the line 3—3 of Figure 1, and

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a detail.

Referring to the drawing, 1 designates a stand which includes a base 2 and an integral upwardly projecting flange 3. Extending centrally through the flange adjacent its upper extremity and projecting laterally from one side thereof is a horizontal bearing 4 which supports a shaft 5 for rotation. One extremity of this shaft extends beyond the outwardly projecting end of the bearing 4 and its opposite extremity extends only sufficiently outward beyond the opposite side of the flange 3 to receive a pinion 6 which is fixed thereon.

Supported also in the flange 3 and extending therethrough adjacent the bearing 4, and in the present instance vertically beneath it, is a bushing 7 which extends beneath the pinion 6. Mounted for rotation in the bushing is a stub shaft 8 which extends axially from and is integral with a crank 9 which has an internal gear 10 on one face thereof which meshes with the pinion 6. The stub shaft 8 is tubular from its outer extremity and is internally threaded as shown at 8a. Extending from the crank 9 is a handle 11 for turning the former about the axis of the stub shaft 8 and thereby imparting rotation to the shaft 5 through the internal gear 10 and the pinion 6. Formed on the crank 9 outwardly of the internal gear 10 and concentric therewith is an annular bearing 12 between which and the adjacent face of the flange 3 a packing disc 13 is provided which is apertured both to receive the bushing 7 and also for the passage of the shaft 5 therethrough.

Mounted externally on the bearing 4 for rocking movement thereon is a braking plate 14 apertured for the outer extremity of the stub shaft 8 to extend therethrough. Supported on the outer end of the stub shaft 8 for rotation therewith is a washer 15 through which a screw 16 in threaded engagement with the bore of the stub shaft extends.

The braking plate 14 is dependingly mounted on the bearing 4 and extends adjacent the flange 3 with its lower free extremity terminating just above the base 2. Mounted for axial movement through the flange 3 is an internally threaded sleeve 17 having an enlarged collar 18 on its extremity adjacent the braking plate 14. Formed through the collar 18 is a marginal slot 19 and extending into the flange 3 from its side adjacent the braking plate 14 is an opening 20. Projecting from the plate 14 is a pin 21 which extends through the slot 19 and into the opening 20 so that the sleeve 19 is positively held against rotation. In threaded engagement with the sleeve 17 is a screw 22 which when tightened gradually

exerts more pressure against the braking plate 14 in an outward direction thereby forcing it away from the flange 3 as indicated at 14a and drawing the annular bearing 12 against the flange 3 so that increased frictional resistance is offered to rotation of the crank 9. The sleeve 17 is also axially slidable in the flange 3 toward the braking plate 14 so that by pressing the screw 22 toward the flange 3 the lower free extremity of the plate 14 is forced outwardly, and in this way rotation of the crank 9 may be brought to an abrupt halt.

In order that either an old style reel having a rectangular opening therethrough, or a new style 8 or 16 mm. reel having a circular opening and either a narrower or a wider keyway may be mounted upon the shaft 5 for rotation therewith, and also to facilitate removal of the reel from the shaft, the latter is preferably provided with a key arrangement now described.

Formed in the shaft 5 from one end thereof is a keyway 23 having a key 24 therein which projects outwardly beyond the end of the shaft. A pin 25 extends transversely through the shaft 5 and through the key 24 intermediately of the length of the latter. The underside of the key 24 adjacent its inner extremity is stepped as shown as 26 and formed in the base of the keyway 23 opposite the step 26 is an aperture 27 to receive one extremity of a helical spring 28 the opposite extremity of which bears against the step 26 and tends to force the inner extremity of the key 24 upwardly about the pin 25. Throughout the major portion of its length the upper face of the key 24 is substantially flush with the periphery of the shaft 5 but adjacent its inner extremity it is provided with a lesser projection 29 and transversely grooved greater projections 30 and 31. The projections 29 and 30 are both of the same width whereas the projection 31 is of greater width. The projection 29 is formed to engage one corner of a rectangular opening in an old style reel; the projection 30 engages a keyway in a standard 8 mm. reel, and the projection 31 engages a wider keyway in a standard 16 mm. reel. In either case the spring 28 tends to retain the key 24 in such pivotal position that the proper projection engages the reel upon the shaft for rotation therewith. For moving the key 24 pivotally to facilitate removal of a reel from the shaft the outwardly projecting portion of the key 24 is provided with an indentation 32 in its underside to act as a fingerhold so that that extremity of the key may be readily moved pivotally upward.

While in the foregoing the preferred embodiment of the invention has been described and shown, it is understood that alterations may be made thereto provided the said alterations fall within the scope of the appended claims.

What I claim is:

1. A rewind device for motion picture film reels including a stand, a shaft mounted for rotation thereon, means on the shaft for engaging a reel for rotation therewith, means for turning the shaft, a brake plate mounted for rocking movement on the stand, an internally threaded sleeve mounted for axial movement on the stand, a screw in threaded engagement with the sleeve adapted to move the brake plate, means actuated by movement of the brake plate for retarding or halting rotation of said shaft whereby adjustment of the screw is adapted to increasingly retard rotation of the shaft and axial movement of the sleeve and screw is adapted to abruptly halt the shaft rotation.

2. A rewind device for motion picture film reels including a stand, a shaft mounted for rotation thereon, means on the shaft for engaging a reel for rotation therewith, a pinion on the shaft, a crank mounted for rotation on the stand having a gear thereon meshing with the pinion, said crank having a bearing face thereon for rotation against the stand, a brake plate mounted for rocking movement on the stand to impart axial movement to the crank and force the bearing face into frictional contact with said stand, and means for moving the brake plate.

3. A rewind device for motion picture film reels including a stand, a shaft mounted for rotation thereon, means on the shaft for engaging a reel for rotation therewith, a pinion on the shaft, a crank having an integral stub shaft rotatably mounted on the stand, an internal gear on the crank meshing with the pinion, an annular bearing face on the crank for rotation against one side of the stand, a brake plate mounted for rocking movement on the stand, means on the stand for moving the brake plate, and means connecting the brake plate to the stub shaft whereby movement of the former in one direction pulls the annular bearing face into frictional engagement with the stand.

4. A rewind device for motion picture film reels including a stand, a shaft rotatably mounted thereon for supporting a reel for rotation therewith, a crank rotatably mounted on the stand, coacting means on the shaft and crank for turning the former when the latter is turned, an annular bearing face on the crank to rotate against one side of the stand, a brake plate mounted for rocking movement on the stand, an internally threaded sleeve mounted for axial movement on the stand, a screw in threaded engagement with the sleeve for moving the brake plate, and means connecting the brake plate to the crank whereby adjustment of the screw in one direction moves the crank axially and increases the frictional resistance of the annular bearing face against the stand to retard rotation of the crank, and axial movement imparted to the sleeve and screw is adapted to abruptly halt rotation of the crank.

5. A rewind device for motion picture film reels including a stand, a shaft mounted for rotation thereon, means on the shaft for supporting a reel for rotation therewith, a crank having an integral stub shaft mounted for rotation on the stand, an internal gear on the crank, a pinion on the shaft meshing with the gear, an annular bearing face on the crank for rotation against one side of the stand, a brake plate mounted at one extremity for rocking movement on the stand and connected intermediately of its length to said stub shaft whereby movement of the plate moves the shaft axially to bring the annular bearing face into frictional engagement with the stand, an internally threaded sleeve axially movable in the stand, and a screw in threaded engagement with said sleeve adapted to force the free end of the brake plate outward to increase the frictional engagement of the crank with the stand whereby rotation of the shaft may be halted abruptly by axial movement of the sleeve and screw or retarded by adjustment of said screw.

6. A rewind device for motion picture film reels including a stand, a shaft supported for rotation thereon, said shaft having a keyway therein, a key pivoted in said shaft and projecting beyond one extremity thereof, a plurality of reel engag-

ing projections on said key adapted to engage reels of different sizes, a spring tending to turn said key and move the latter so that said projections extend farther outwardly from said shaft, means for rotating the shaft, a brake plate for retarding the shaft rotation, and means for moving the brake plate.

7. A rewind device for motion picture film reels including a stand, a shaft mounted for rotation thereon, a key pivoted in said shaft, at least one projection on said key to engage a reel for rotation with said shaft, spring means tending to turn the key and increase the distance the projection extends from the shaft, means for turning the shaft, a brake plate mounted for movement on the stand, an internally threaded sleeve mounted on the stand for axial movement, a screw in threaded engagement with the sleeve for moving the brake plate, and means operated by movement of the brake plate for retarding or halting rotation of the shaft.

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