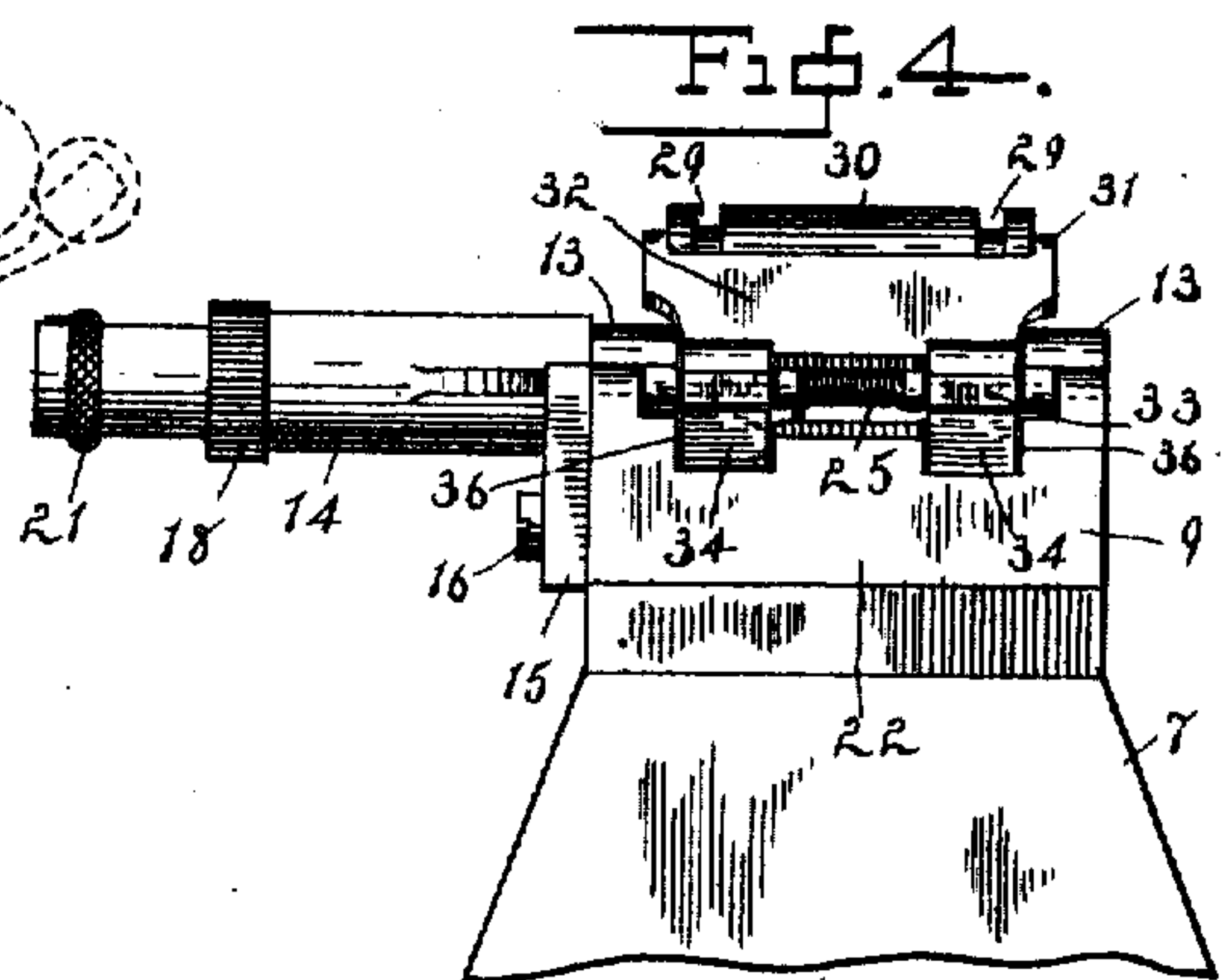
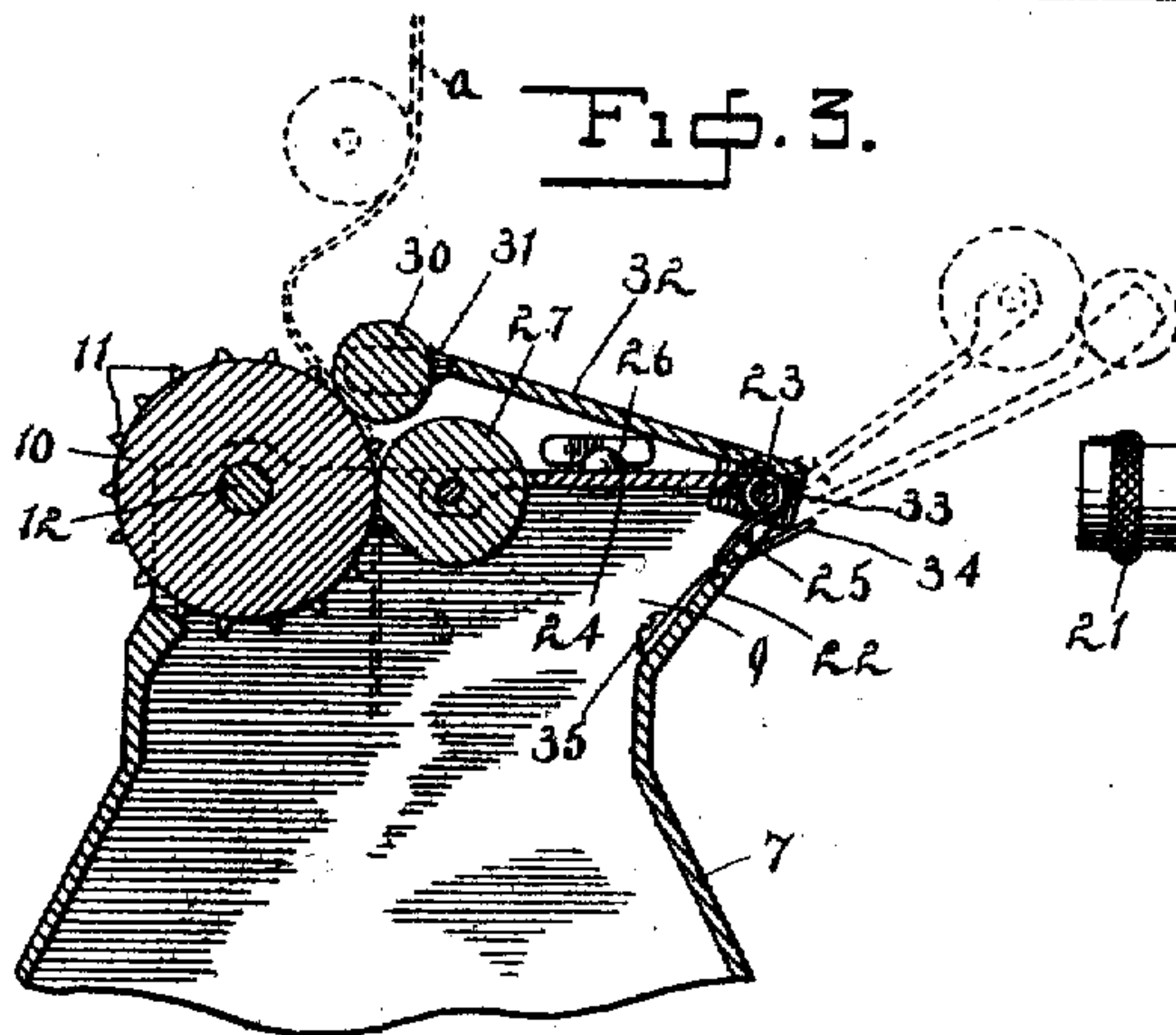
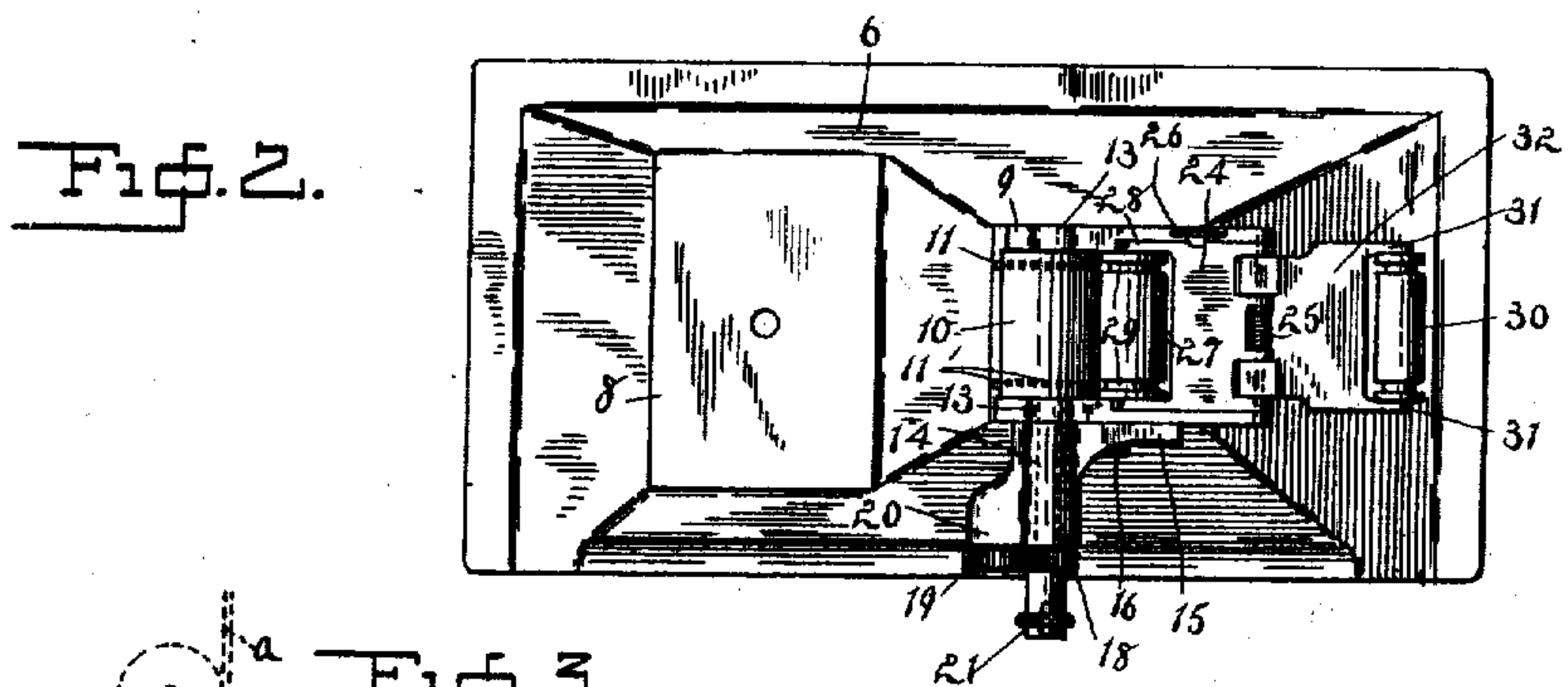
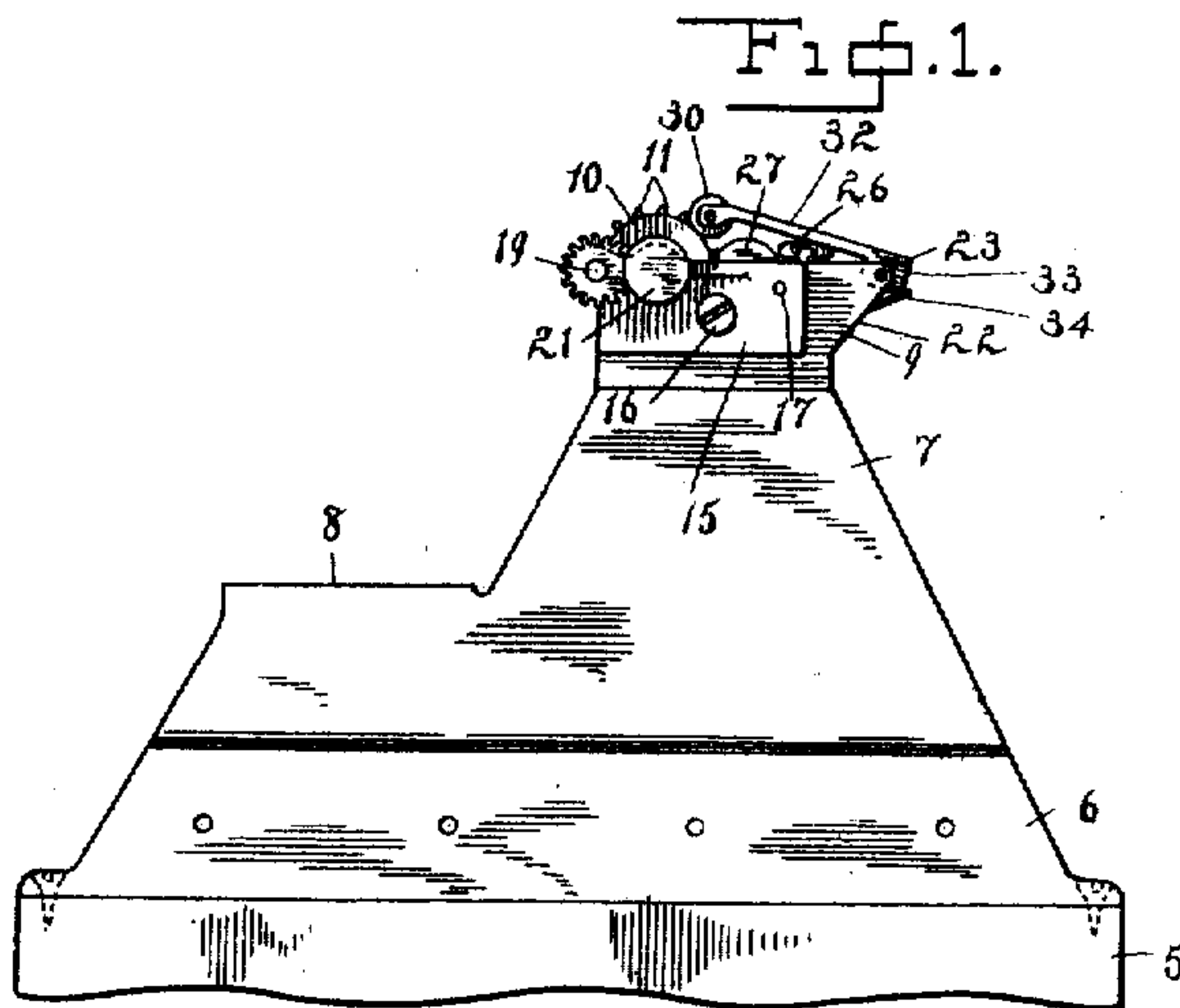


D. J. BELL.
PROTECTIVE DEVICE FOR PICTURE MACHINES.
APPLICATION FILED FEB. 1, 1908.

916,410.

Patented Mar. 30, 1909.



WITNESSES:

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UNITED STATES PATENT OFFICE.

DONALD J. BELL, OF CHICAGO, ILLINOIS.

PROTECTIVE DEVICE FOR PICTURE-MACHINES.

No. 916,410.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed February 1, 1908. Serial No. 413,807.

To all whom it may concern:

Be it known that I, DONALD J. BELL, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Protective Devices for Picture-Machines, of which the following is a specification.

My invention relates to film-operating apparatus and has particular reference to devices for protecting the highly inflammable strips of celluloid in common use, from the effects of fire.

The special objects of the improvements which form the subject matter of this application are to provide a practically air-tight protective casing for the film; to furnish automatic means for extinguishing the flames at the point of entrance of the film into the protective magazine in case the film outside has been set on fire, and to provide film-feeding means &c. to supply a simple, effective, and durable device for the purpose specified.

I accomplish the objects sought by employing the apparatus illustrated in the accompanying drawing forming a part of this application, and in which:—

Figure 1 is a side view of the device, a portion of the magazine being broken away; Fig. 2 is a top plan view; Fig. 3 is an enlarged sectional view of the upper part of the housing, and Fig. 4 is a rear view, enlarged, of the upper part.

Referring to the details of the drawing, the numeral 5 indicates a box or magazine for the used film, closed upon all sides except the top upon which rests a cover 6, and a portion of this cover is extended upward in the form of a truncated pyramid 7, leaving a horizontal plane surface 8 forming a base upon which can be mounted the frame of a picture projecting apparatus, not illustrated in the drawing. The upper part of the portion 7 forms a housing 9, open above and in this opening or mouth are arranged the operative parts which combine, when in initial positions, to form a practically complete closure therefor. Near the front of said housing is a film-operating roller 10 provided with the usual sprockets 11, and mounted on a shaft 12, journaled in boxes 13 on the side walls of the housing. The said shaft is extended beyond the housing upon one side, and is supported in a sleeve 14, formed integral with a bracket 15, se-

cured to the housing by a screw 16 and dowel pin 17. Upon the said shaft external to the bracket is mounted a gear 18 which meshes with a similar gear 19 carried on a stud 20, fixed in said bracket. Upon the end of the shaft 12 is mounted a gear shifting device 21, the detailed construction of which is not shown since it forms no part of my invention.

The rear wall of the housing is inclined at an angle as shown at 22 and at the upper margin is a transverse pin 23 forming a pintle upon which is swung a wide plate 24 furnished with knuckles through which the pin 23 passes, a spiral spring 25 surrounding the pin tending to throw the plate back to the position shown in dotted outline in Fig. 3, except when said plate is locked by a button 26 in its operative position extending toward the roller 10. The front margin of said plate is cut away to admit a guard or cut-off roller 27, except at the sides where the plate is left intact to form arms 28 in which the roller 27 is journaled. Said roller is furnished with peripheral grooves 29 to receive the sprocket-teeth 11, and permit the two rollers to be closely approximated, only sufficient interval being provided to permit the roller 27 to swing past the sprocket roller in either direction, and thus prevent binding at the line of contact when the movement of the film is reversed or during the passage of the thicker portions caused by the over-lapping of the film sections. An auxiliary tensioning roller 30, is journaled in bearings 31, formed integral with a plate 32, provided with rectangular knuckles 33 pivoted on the pintle 23. This roller is also furnished with grooves 29 to correspond with the sprocket teeth and prevent interference therewith when the said roller 30 is in contact with the film *a*, or immediately with the sprocket roller 10. The roller 30 is yieldingly retained in operative position by flat springs 34 secured by screws 35 to the inside face of the inclined wall 22, and projecting through notches 36 in said wall, to engage the knuckles 33 at a point beyond their fulcrum, the pin 23. The arrangement of these springs is such that their pressure will tend to retain the plate 32 in either retracted or extended position, the latter being shown in dotted outline in Fig. 3, the action being similar to that of an ordinary knife spring. When the button 26 is turned to release the plate 24, the spring 25

will throw the plate to an extended position as shown in Fig. 3 in dotted outline, and the said spring is powerful enough to carry the plate 32 and its roller with it, in case the latter plate is in the retracted position, shown in full lines in Fig. 3, the extended position being shown in full in Fig. 2.

During the threading of the strip or film, *a*, the rollers 27 and 30, are thrown back into extended position and when the film is properly placed, the rollers are returned to the initial or operative position, the precise location of the roller 30 depending upon the tension of the film against which it rests. The auxiliary roller 30 insures the proper feeding of the film between the sprocket and the roller 27, irrespective of the size of the loop in the film, and also affords a more effective fire extinguishing means than the sprocket and roller 27 alone.

It will be readily understood that the close proximity of the sprocket roller 10 and the guard roller 27 to each other will prevent the transmission of the combustion process beyond this line should the film become ignited, as when the said film is in position there is complete contact between the film and the rollers upon either side, thus completely cutting off any communication between the flames and the interior of the casing, and thoroughly protecting the film stored therein.

Having thus described my invention what I claim is:—

1. A film operating apparatus, comprising a casing having an opening to receive the film, a film feeding roller mounted on said casing and extending across said opening, two superposed plates hingedly connected and arranged above said opening, rollers mounted upon the free ends of said plates and adapted to engage the film, a spring urging one of said plates to its extended position, and a second spring adapted to yieldingly maintain the other of said plates in either operative or inoperative position.

2. A film operating apparatus, comprising a casing having an opening to receive the film, a film feeding roller mounted on said casing and extending across said opening, two superposed plates hingedly connected and forming a partial closure for

said opening, rollers mounted upon the free ends of said plates and adapted to engage the film, a spring urging one of said plates to its extended position, a movable stop adapted to hold the last mentioned plate in its operative position against the action of said spring, said stop permitting the plate to move in the opposite direction, and means for yieldingly holding the other plate in either operative or inoperative position.

3. A film operating apparatus, comprising a casing having an opening to receive the film, a film feeding roller mounted on said casing and extended across said opening, a plate hinged on said casing over said opening, a roller mounted on the free end of said plate and adapted to engage the film, a second plate hinged on said casing and extending over the first plate, and a roller mounted on the free end of said second plate and adapted to engage the film.

4. A film operating apparatus comprising a casing having an opening to receive the film, and means on said casing forming a closure therefor, said means consisting of a film feed roller, a hinged plate, a roller mounted on said plate in close proximity to the feed roller and adapted to swing in either direction from a line connecting the respective centers of the plate and said feed roller, and a movable stop adapted to limit the movement of said plate in one direction only.

5. A film operating apparatus, comprising a casing having an opening to receive the film, and means on said casing forming a closure therefor, said means consisting of a sprocket roller mounted at one side of said opening, a plate hinged on said casing, a roller mounted on said plate in close proximity to said sprocket roller, a second plate hinged on said casing and extending over the first plate, a roller mounted on the free end of said plate and adapted to engage the film and means for holding said second plate in its closed and open positions relative to said opening.

In testimony whereof I affix my signature in the presence of two witnesses.

DONALD J. BELL.

Witnesses:

WM. B. MOORE,
M. A. MILORD.