C. J. GOTTI.

MOVING PICTURE APPARATUS.

APPLICATION FILED AUG. 18, 1915.

1,253,372.

Patented Jan. 15, 1918.

3 SHEETS—SHEET 1.

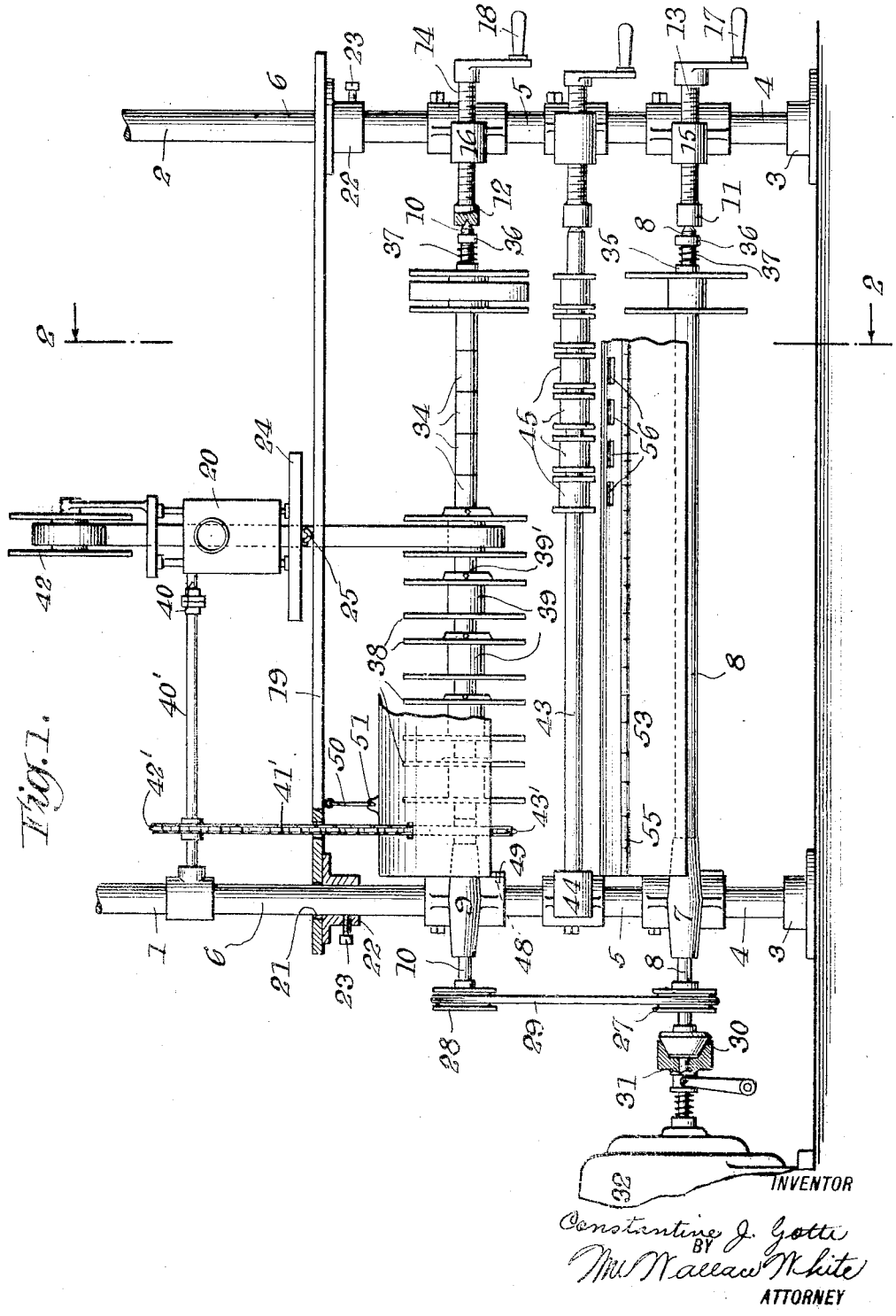


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 4.

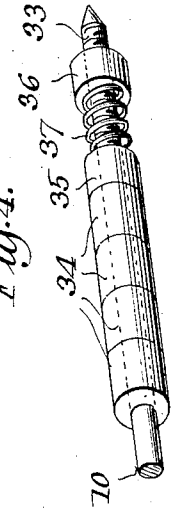


Fig. 6.

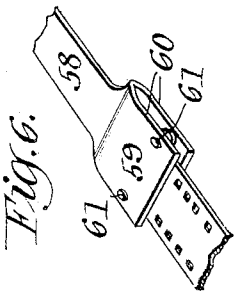


Fig. 7.

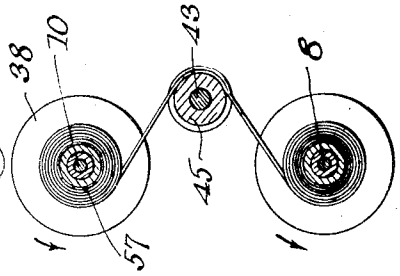
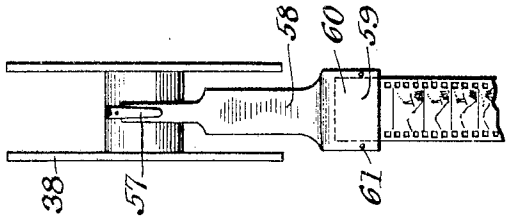


Fig. 5.



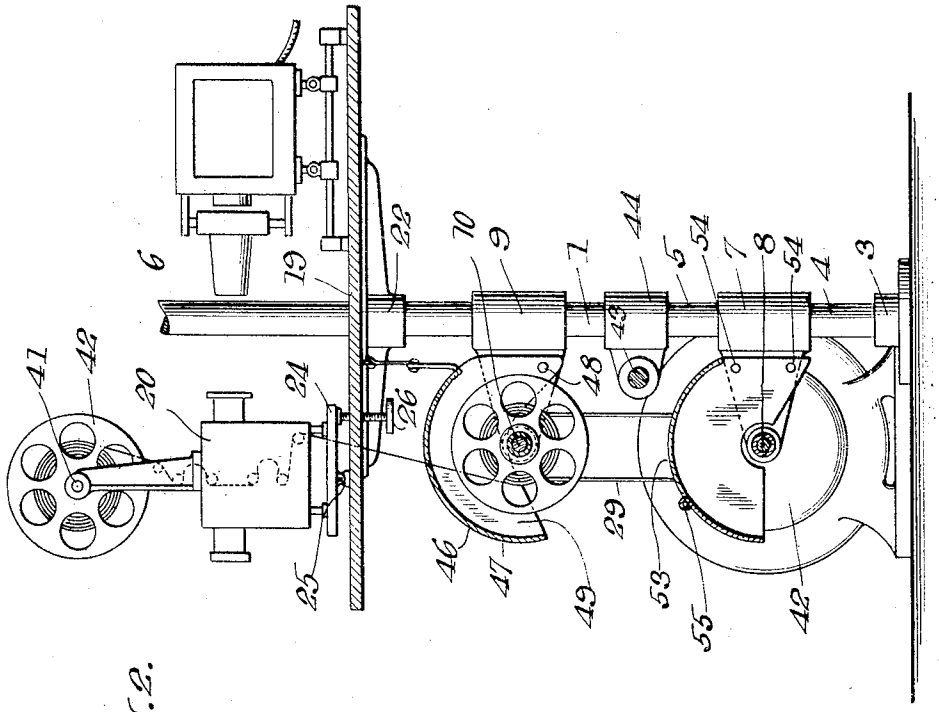


Fig. 2.

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3 SHEETS—SHEET 3.

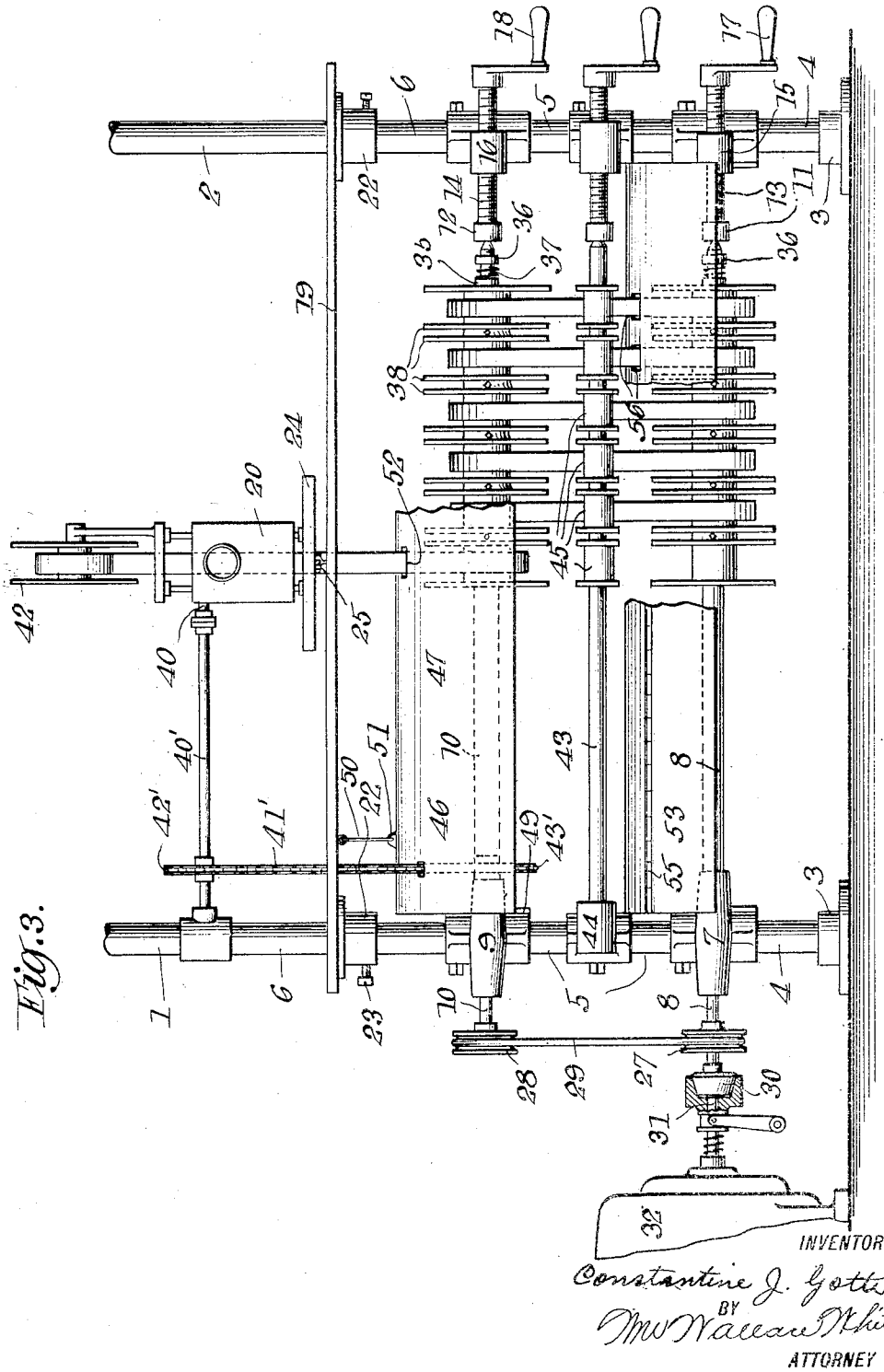


Fig. 3.

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UNITED STATES PATENT OFFICE.

CONSTANTINE J. GOTTI, OF TUCKAHOE, NEW YORK, ASSIGNOR OF ONE-THIRD TO SEBASTIAN FASANELLO, OF BROOKLYN, NEW YORK, AND ONE-THIRD TO WALTER F. PECK, OF NEW YORK, N. Y.

MOVING-PICTURE APPARATUS.

1,253,372. Specification of Letters Patent. **Patented Jan. 15, 1918.**

Application filed August 18, 1915. Serial No. 46,034.

To all whom it may concern:

Be it known that I, CONSTANTINE J. GOTTI, a citizen of the United States, residing at Jefferson Place, Tuckahoe, Westchester county, and State of New York, have invented new and useful Improvements in Moving-Picture Apparatus, of which the following is a specification.

This invention relates to moving picture apparatus, and in particular to an adjustable support for the picture machine proper and to film winding mechanism therefor.

It has been the practice heretofore, when supplying reels of picture films to theaters or other places where moving pictures are displayed, to furnish an extra empty reel with each full reel, the film being run during projection of the pictures from the full reel on to the empty reel and both reels being returned after being used. It has then been necessary to rewind each film from the receiving reel on to the original reel at a later time by the use of a special rewinding machine. This method of distribution entails the very considerable expense in the trade of duplicate reels, as well as the cost and labor of transporting double sets of reels and of rewinding films in the manner mentioned by the use of a separate and special machine.

It is my chief object to improve upon these conditions by providing a rewinding attachment for each moving picture machine which attachment is of such a nature that it permits the film to be run from a single original reel on to a receiving reel forming part of the attachment and then back on to the original reel, with great economy of time and labor, particularly when the play or picture exhibited is distributed on a plurality of reels.

A further object of the invention is to provide a support for the rewinding device which is adapted also to support the picture machine in a readily adjustable and yet secure manner.

To these ends, the invention consists in the combination and arrangement of parts fully set forth in the following specification and claims, and which is illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation of a moving picture apparatus including a rewinding device constructed in accordance with the invention for accommodating six reels and showing the same during the operation of the second film, portions of the two hoods being broken away;

Fig. 2 is a vertical sectional view on line 2—2 of Fig. 1;

Fig. 3 is a front elevation similar to Fig. 1, showing the machine while operating upon the last film of the series, the rewinding mechanism being also in operation;

Fig. 4 is a detail perspective view of a portion of the winding shaft, partly in section, to show the friction spindles and the tension device therefor;

Fig. 5 is a front elevation of one of the receiving reels, showing in detail the device for securing the end of a picture film thereto;

Fig. 6 is a detail perspective view of one of the extension attaching members, showing the same connected with the end of a film, the latter being broken away; and,

Fig. 7 is a sectional view through the rewinding mechanism alone, showing the directions of movement of the different parts.

Referring to the drawings, wherein like reference numerals indicate like parts throughout, 1 and 2 respectively designate the supporting standards for the picture machine and rewinding attachment. These standards rise from the floor or other supporting surface to which each is attached by means of a base member 3. It is obvious that the upper end of the standards may be secured in like manner to the ceiling in order to insure even greater stability, but this is not essential and is not illustrated in the drawings. The standard 1 consists of three sections, including a short lower section 4, an intermediate short section 5, and a long upper section 6. A lower bearing 7, in which one end of a horizontal rewinding shaft 8 is journaled, is mounted between the adjacent ends of sections 4 and 5 of this standard to connect the same together. Between the adjacent ends of standard sections 5 and 6, an upper bearing 9 for one end of the horizontal winding shaft 10 is mounted in like manner to interconnect these sections. These bearings are constructed comparatively long so as to be capable of supporting and journaling the said shafts effectively even without the assistance of other bearings. Auxiliary bearings 11 and 12, however, are mounted adjustably at the opposite ends of the respective shafts 8 and 10 upon

the inner ends of adjusting screws 13 and 14, which extend through threaded bushings 15 and 16 mounted in receiving openings in the standard 2. The corresponding ends of the shafts 8 and 10 are pointed as shown for engagement with the respective auxiliary bearings to form needle bearings. Operated handles 17 and 18 are provided upon the outer ends of the screws 13 and 14, whereby they may be adjusted to withdraw the auxiliary bearings from the shaft ends to afford spaces therebetween for the application to or removal from the shafts of certain parts which will be described more fully hereinafter.

A supporting table 19 for the moving picture machine 20, which latter is conventionally illustrated in the drawings, is mounted horizontally upon the standards 1 and 2 above the winding shaft 10. This table extends between the standards and is provided with a vertical opening 21 for the reception of each. A securing sleeve 22 is mounted upon each standard beneath the table 19 and is secured in adjusted position upon the standard by means of a set screw 23. It is to be understood that the picture machine 20 may be mounted directly upon the table, but to permit horizontal and vertical adjustment of the same, it is preferably mounted directly upon a supporting plate 24 which is situated above the table proper and is connected therewith by means of a universal or gimbal joint 25. A vertically adjustable hand screw 26 extends through the table 19 in rear of the joint 25 and is engaged at its upper end beneath the plate 24, whereby the plate and the machine mounted thereon may be adjusted manually.

The shafts 8 and 10 are provided at their left hand ends (Figs. 1 and 3) with power transmission means, such as for instance, the pulleys 27 and 28 and the connecting belt 29 shown in the drawings. It is obvious that any other convenient and practical means may be employed for connecting up these shafts, provided that it will cause them to rotate in the same direction at equal speeds. The lowermost driven shaft 8 is connected at its left hand end by means of a detachable joint 30 or in any other suitable manner, with the armature shaft 31 of an electric motor 32, this motor may be controlled for the purpose of starting and stopping the mechanism of the picture machine or for the regulation of speed by any suitable means (not shown). It is to be understood also, that I do not limit myself to this particular form of prime mover.

The winding shaft 10 is reduced as at 33 at its right hand end (see Fig. 4) and is screw threaded throughout a short extent adjacent to its pointed end. A plurality of relatively movable spindles 34, corresponding in number to the original reels of the picture exhibited, are mounted frictionally upon this reduced portion of the shaft and abut each other. The inner end of the innermost spindle is in frictional engagement with the shoulder provided at the juncture between the enlarged and reduced shaft portions, whereas a friction collar 35 is provided upon the reduced shaft portion for engagement with the outer end of the outermost spindle. A tensioning nut 36 is threaded upon the extreme end of the shaft and a helical spring 37 is mounted upon the shaft in interposed relation to the said collar and nut. By adjusting the nut 36, the tension upon the spring may be regulated so as to vary the degree of friction between spindles. In this instance there are six spindles, and for each spindle there is a receiving reel 38, which latter, inclusive of its integrally formed sleeve 39 is equal in length to each spindle. The receiving reels are adapted to be slid on to the shaft 10 when the auxiliary bearing 12 has been removed from the shaft end to a considerable extent by means of the adjusting screw 14. Owing to the fact that the outer peripheries of the spindles 34 are flush with the periphery of the enlarged shaft portion, the receiving reels may be moved along the shaft throughout the distance between bearings. A set screw 39′ is provided upon the sleeve 39 of each reel for use in securing the same fixedly to either the enlarged portion of the shaft of the proper spindle 34. When the film passing from the corresponding original reel of the picture machine is being wound upon a receiving reel, the latter will be fixedly secured to the enlarged shaft portion in alinement with the said original reel. On the other hand, when the receiving reel is used for rewinding purposes, it will be secured fixedly upon the corresponding friction spindle. These receiving reels are ordinarily retained permanently upon the winding shaft and are merely adjusted in position thereon from time to time during the intervals between successive operations of the machine.

The operating shaft 10 of the picture machine for feeding the films from the original reels 42, which are mounted upon a shaft 41, is geared with the operating mechanism for the winding and rewinding shafts, for simultaneously operating the same, by means of a shaft 40′ coupled to the shaft 40 and journaled in the upright 1, there being a drive chain 41′ engaged around sprocket wheels 42′ and 43′ carried by the shafts 40′ and 10, so as to obviate the necessity of operating the picture machine by hand. The film in the use will thus be driven positively from its original reel on to the corresponding receiving reel. Each original reel after it has been emptied will be removed from the shaft 41 above the machine 20 and will be inserted upon the rewinding shaft 8, upon

adjustment of the auxiliary bearing 11 to permit application of the reel to this shaft. That portion of the rewinding shaft which is coextensive with the friction spindle 34 of the winding shaft must thus be equal in diameter to the said shaft 41. The remaining portion of the rewinding shaft may be constructed larger than the first mentioned portion, if this is found necessary to strengthen the same at the bearing 7, though it is a mechanical expedient which is not illustrated in the present drawings.

A third shaft 43 is journaled medially between the winding and rewinding shafts in needle bearings 44 carried by the supporting standards 1 and 2. Upon this shaft 43 a plurality of idlers 45 are mounted. These idlers correspond in number and position to the friction spindles 34 of the winding shaft, whereby, when films are being rewound on to original reels carried by the shaft 8 from the corresponding receiving reels upon the said spindles of the winding shaft, these films will pass over the respective idlers.

An upper, semi-cylindrical hood 46 is provided axially with respect to its outer curved wall 47 with outwardly projecting trunnions 48 upon its quadrant-shaped end walls 49, and these trunnions are engaged within bearing recesses provided in the standards 1 and 2 above the winding shaft 10. The uppermost edge of the hood wall 47 is secured to the front edge of the table 19 by means of the hooks 50 and eyes 51 to prevent the hood from swinging normally upon its trunnions as pivots. The said hood is provided in its wall 47 with an axial slot 52 through which the film running from the original reel of the picture machine may pass to the corresponding receiving reel, which, with the other receiving reels and the shaft 10, are partially inclosed and protected by the hood. A second, lower hood 53 of similar form is mounted fixedly between the standards 1 and 2 adjacent to the rewinding shaft 8 to shield the same, and is provided upon each end wall with a plurality of projections 54 which are engaged within recesses in the said standards. The lower portion of its curved outer wall is hinged to the remaining portion as at 55 in order that it may be swung upwardly into inoperative position to permit ready access to the rewinding shaft and the reels thereon from the front of the machine. A plurality of axially extending and alining slots 56 are provided in the upper immovable portions of the said outer wall of the hood and are adapted to have the films which are being rewound from the full receiving reels on to the empty original reels upon the rewinding shaft passed therethrough. (See Fig. 3.)

Referring to Fig. 5 in particular, it will be seen that a spring clip 57 is provided upon the hub of each receiving reel 38 for the attachment of film ends thereto. The end of a film may be wedged between the clip and the hub conveniently and will be retained effectively therebetween under normal conditions. When, however, during unwinding of a film from the receiving reel on to a reel carried by the rewinding shaft, the said film end will be withdrawn from engagement with the clip automatically at the end of the rewinding operation when the tension upon the film has become sufficiently great. In Fig. 5, a film end is not shown directly connected with the clip, but an extension member 58 which is preferably in the form of a comparatively thin strip of leather or other soft and pliable material, is connected at one end with the film end as at 59 and has its opposite end connected directly with the clip. This extension member is to be used in case of an emergency, as for instance when a film has become broken and is unduly short. As shown particularly in Fig. 6, this end 59 of the extension member is provided preferably with a pair of superimposed rubber lips 60 between which the film end is adapted to be engaged. Snap fasteners 61 are provided upon the lips at opposite sides of the space for the film end and, when fastened, will secure the film effectively to the said member. A number of these extension members of different lengths may be kept with each machine for use when necessary.

The operation of the apparatus will now be described. During rotation of the shafts 8 and 10, in clock-wise direction for instance (Fig. 2), the films from the original reels will be wound successively from the picture machine on to the respective receiving reels carried by shaft 10. Each receiving reel is secured fixedly to the shaft 10 in alinement with the operative original reel prior to running the film from the latter through the projecting apparatus. After each receiving reel has been filled, the set screw which secures the same to the winding shaft is released and the reel is shifted to the right (Fig. 1) and is secured by means of the said set screw to the corresponding friction spindle 34. Until all but the last film has been run, the rewinding shaft 8, although it rotates with the winding shaft 10, will be inoperative so far as its function is concerned. During this time, the full receiving reels which have in turn been secured to their respective friction spindles upon the winding shaft, will rotate with this shaft, owing to the friction existing between spindles and between the latter and the supporting shaft.

Now, when all but the last original reel have been emptied, and just before the last one is to be run, the empty original reels are applied to the rewinding shaft 8 so as to aline with the respective receiving reels

now carried by the friction spindles therefor. The outer ends of the films carried by said receiving reels are then secured to the reels upon shaft 8 in the manner shown particularly in Fig. 7. During the running of the last film, which now follows, the winding and rewinding shafts will rotate in counter-clock-wise direction (Fig. 7), whereas the receiving reels will rotate with their spindles in counter clock-wise directions. This is due to the fact that the original reels upon the rewinding shaft are fixed with respect thereto and that the spindles for the receiving reels upon the winding shaft are free to slip upon the last named shaft. The friction will however prevent the spindles from slipping too freely and thus prevent slack from occurring in the films being rewound upon the original reels.

The receiving reel for the last film alone will have to be emptied on to the original reel, after it has been run, by special operation of the rewinding mechanism. The rewinding of this last film will be conducted in the same manner as that in which the other films were rewound, after the newly wound original reels have been removed from the rewinding shaft, or said last film may be rewound when the first film of the same or succeeding picture is being exhibited.

Having thus described my invention, what I claim and desire to secure by Letters-Patent, is:

1. In a moving picture apparatus, the combination with a picture machine, of a rewinding device comprising a winding shaft, a plurality of receiving reels mounted upon said shaft for longitudinal adjustment thereon and corresponding in number to the original reels of the machine, said receiving reels being adapted to be alined with the respective original reels as they are successively unreeled and to be secured fixedly to the said shaft to take the films from the original reels, means for securing the receiving reels fixedly to the shaft in adjusted position, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when shifted upon the winding shaft and rendered free for relative movement thereon to take the films from the said receiving reels, and means for operating the said shafts synchronously.

2. In a moving picture apparatus, the combination with a picture machine, of a rewinding device comprising a winding shaft, a plurality of receiving reels mounted on said shaft for longitudinal adjustment thereon and adapted to be alined with the respective original reels as they are successively unreeled to take the films from the original reels, independent, releasable means for securing the receiving reels fixedly to the shaft in adjusted position, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when shifted upon the winding shaft and rendered free for relative movement thereon to take the films from the said receiving reels, and means for operating the said shafts.

3. In a moving picture apparatus, the combination with a picture machine, of a rewinding device comprising a winding shaft, a plurality of relatively movable spindles mounted upon a portion of said shaft in frictional contact therewith, a plurality of receiving reels mounted upon the remaining portion of the shaft normally and corresponding in number to the original reels of the machine, said receiving reels being adapted to be alined with the respective original reels as they are successively unreeled to take the films therefrom, means by which the said receiving reels may be secured fixedly to the said portion of the shaft during winding, the last named means being adapted to secure the said reels to the respective spindles during rewinding, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when mounted upon the said spindles to take the films from the latter, and means for operating the said shafts synchronously.

4. In a moving picture apparatus, the combination with a picture machine, of a rewinding device comprising a winding shaft, a plurality of relatively movable spindles mounted upon a portion of said shaft in frictional contact therewith, a plurality of receiving reels mounted upon the remaining portion of the shaft normally and corresponding in number to the original reels of the machine, said receiving reels being adapted to be alined with the respective original reels as they are successively unreeled to take the films therefrom, means by which the said receiving reels may be secured fixedly to the said portion of the shaft during winding, the last named means being adapted to secure the said reels to the respective spindles during rewinding, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when mounted upon the said spindles to take the films from the latter, and means for operating the said shafts synchronously in the same direction.

5. In a moving picture apparatus, the combination with a picture machine, of a rewinding device comprising a winding shaft, a plurality of relatively movable spindles mounted upon a portion of said shaft in frictional contact therewith, a plurality of receiving reels mounted upon the remaining portion of the shaft normally and corresponding in number to the original

reels of the machine, said receiving reels being adapted to be alined with the respective original reels as they are successively unreeled to take the films therefrom, means by which the said receiving reels may be secured fixedly to the said portion of the shaft during winding, the last named means being adapted to secure the said reels to the respective spindles during rewinding, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when mounted upon the said spindles to take the films from the latter, means for operating said shafts synchronously and means for regulating the degree of friction between the said spindles and the winding shaft.

6. A film rewinding device adapted to be associated with a moving picture machine and comprising a winding shaft, a plurality of receiving reels mounted upon said shaft for longitudinal adjustment thereon and corresponding in number to the original reels of the machine, said receiving reels being adapted to be alined with the respective original reels as they are successively unreeled to take the films from the original reels, means for securing the receiving reels fixedly to the said shaft, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when shifted upon the winding shaft and rendered free for relative movement thereon to take the films from the said receiving reels, and means for operating the said shafts synchronously.

7. A film rewinding device adapted to be associated with a moving picture machine and comprising a winding shaft, a plurality of receiving reels mounted upon said shaft for longitudinal adjustment thereon and adapted to be alined with the respective original reels as they are successively unreeled to take the films from the latter, independent, releasable means for securing the receiving reels fixedly to the said shaft in adjusted position, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when shifted on the winding shaft and rendered free for relative movement thereon to take the films from the said receiving reels, and means for operating the said shafts.

8. A film rewinding device adapted to be associated with a moving picture machine and comprising a winding shaft, a plurality of relatively movable spindles mounted upon a portion of said shaft and being normally held for movement with the shaft by frictional contact therewith, a plurality of receiving reels mounted upon the remaining portion of the said shaft normally and corresponding in number to the original reels of the machine, said receiving reels being adapted to aline with the respective original reels as they are successively unreeled to take the films therefrom, means by which the receiving reels may be secured fixedly to the said portion of the winding shaft during winding, the last-named means being adapted to secure the said reels to the respective spindles during rewinding, a rewinding shaft adapted to have the empty original reels attached thereto in alinement with the full receiving reels when mounted upon the said spindles to take the films from the latter, and means for operating the said shafts synchronously.

9. A film rewinding device adapted to be associated with a moving picture machine and comprising a winding shaft, a plurality of relatively movable spindles mounted upon a portion of said shaft and being normally held for movement with the shaft by frictional contact therewith, a plurality of receiving reels mounted upon the remaining portion of the said shaft normally and corresponding in number to the original reels of the machine, said receiving reels being adapted to aline with the respective original reels as they are successively unreeled to take the films therefrom, means by which the receiving reels may be secured fixedly to the said portion of the winding shaft during winding, the last-named means being adapted to secure the said reels to the respective spindles during rewinding, a rewinding shaft adapted to have the empty original reels attached thereto, in alinement with the full receiving reels when mounted upon the said spindles to take the films from the latter, means for operating the said shafts synchronously, and means for regulating the degree of friction between the said spindles and the winding shaft.

10. A film rewinding device adapted to be associated with a moving picture machine and comprising a winding shaft having a large portion adapted to have receiving reels fixedly secured thereon and a reduced portion, a plurality of independently movable spindles mounted on the reduced portion of the said shaft and being substantially equal in external diameter to the large portion of the latter, a rewinding shaft adapted to have empty reels attached thereto in alinement with the receiving reels when mounted on the spindles of the winding shaft, and means for operating the said shafts.

11. A film rewinding device adapted to be associated with a moving picture machine and comprising a winding shaft having a large portion adapted to have receiving reels fixedly secured thereon and a reduced portion, a plurality of independently movable spindles mounted on the reduced portion of the said shaft and being substantially equal in external diameter to the large portion of the latter, a rewinding shaft adapted to have

empty reels attached thereto in alinement with the receiving reels when mounted on the spindles of the winding shaft, means for operating the said shafts, and a spring exerting longitudinal pressure upon the said spindles.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CONSTANTINE J. GOTTI.

Witnesses:
JOHN E. BURCH,
JOHN C. SANDERS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."