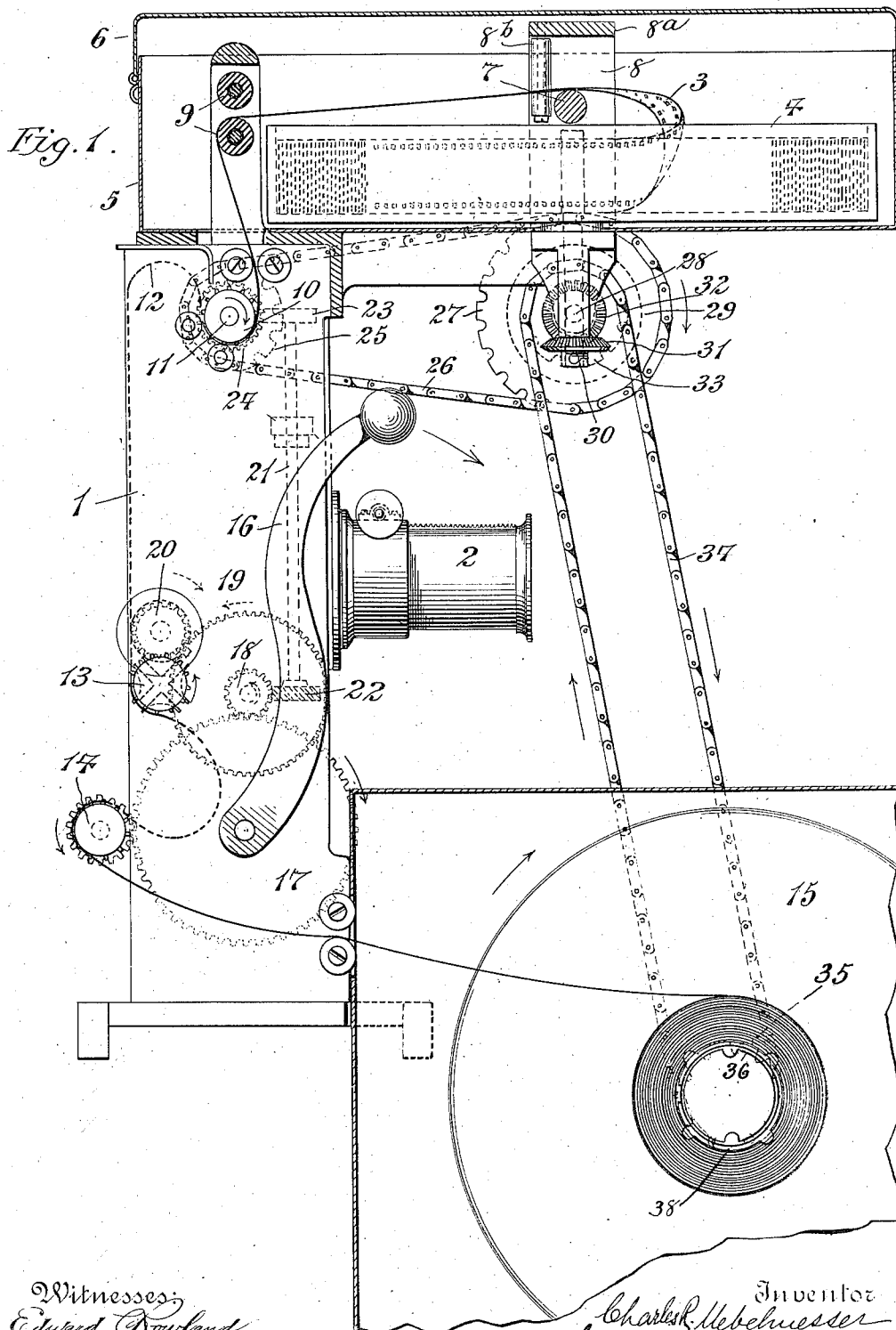


REELING APPARATUS.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 1.

989,736.



Witnesses:
Edward Cowland.
M. A. Butler

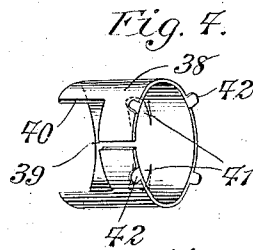
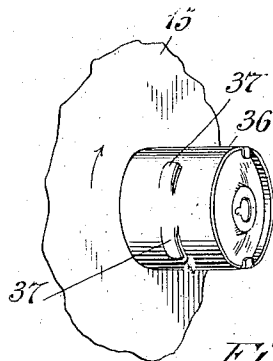
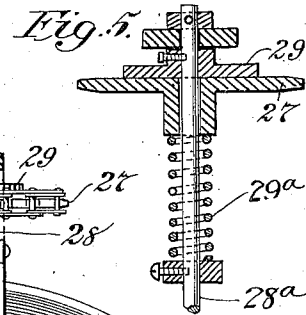
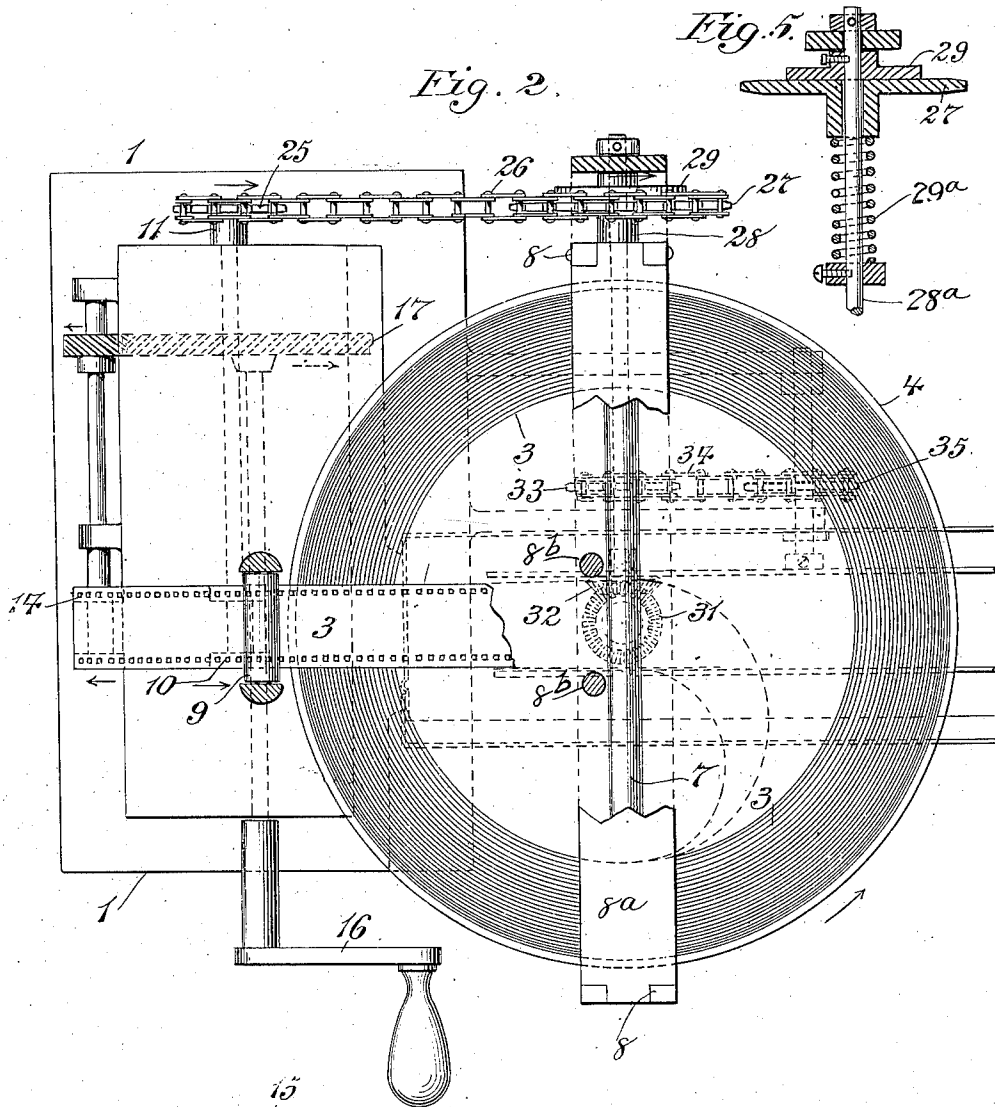
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 REELING APPARATUS.
 APPLICATION FILED MAR. 7, 1908.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 2.

989,736.



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UNITED STATES PATENT OFFICE.

CHARLES R. UEBELMESSER, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN MOVING PICTURE MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

REELING APPARATUS.

989,736.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed March 7, 1908. Serial No. 419,646.

To all whom it may concern:

Be it known that I, CHARLES R. UEBELMESSER, a subject of the Emperor of Germany, residing in the borough of Manhattan, city, county, and State of New York, have invented a certain new and useful Improvement in Reeling Apparatus, of which the following is a specification.

My present invention has relation to an improved means for the support and operation of flexible material in ribbon or tape-like form for various purposes.

In a variety of arts—notably in connection with automatic pianos and moving picture machines and machine cameras—an important element of the apparatus used generally takes the form of a long ribbon of flexible material, such as paper or celluloid, which is repeatedly coiled and uncoiled in the course of operation of a given machine. Usually it has been found necessary to carry these ribbons through the machine from one coil or reel to another and to rewind them upon the first reel to prepare for repetition of operation.

My present invention has relation to improved apparatus applicable to any device wherein a long ribbon or tape is to be repeatedly wound from one coil to another, whether as an element of operation in a machine or not, and its principal advantage is that by use of my invention a very long tape may be unwound repeatedly in such a manner as to obviate all necessity of rewinding between operations, and at the same time to insure at all times an equal movement of tape with respect to both the supply reel and the receiving reel.

I have herein shown my invention as applied to the picture-bearing tapes of kinetoscopes and the like, but it is to be understood that my invention is not confined in its scope to this particular application.

My invention is illustrated in a preferred form in the accompanying drawings, wherein—

Figure 1 shows my improved apparatus as applied to a kinetoscope in side view; Fig. 2 is a top plan view of the same with the reel boxes removed, Fig. 3 is a perspective view of the barrel of the receiving reel and Fig. 4 is a like view of one form of ribbon-bearing sleeve shown in position to be applied to the barrel. Fig. 5 shows a

frictional driving arrangement in sectional plan view.

In Figs. 1 and 2 there is shown the external casing or framework of a moving picture machine or kinetoscope at 1, the lens holder being shown at 2. The details of mechanism employed in the machine form no part of the present invention and they are therefore not shown herein, except to the extent made necessary to make my present improvement clear.

The picture-bearing tape, 3, is supplied from a free coil lying on its side within a horizontal revolving coil carrier 4, preferably protected by a suitably shaped reel box 5, provided with a cover 6 whereby access may be had to the interior. In uncoiling the tape or ribbon 3, the inner end of the loose coil is drawn out over a smooth transverse guide bar 7 extending between sides of the carrier 4. A bridging bar 8^a extends from one standard 8 to the other and from the under side of this bar two rollers 8^b, or equivalent guides, are suspended. The ribbon 3 passes between these guides by which it is kept from doubling back against itself along the top of the transverse guide bar 7. The rollers bear upon the edges of the tape or ribbon 3 and may be called edge guides. After passing over the transverse guide bar 7 and between the edge guides 8^b, the ribbon preferably passes forward between guide rollers 9, when it is carried downward to the usual toothed roller 10 on the horizontal shaft 11, which roller, when turned in the direction of the arrow applied to it in Fig. 1, draws the tape out of the carrier 4 so as to form a slack bend as shown at 12 in Fig. 1. An intermittently moving toothed roller 13 is driven in a well known manner to move the ribbon forward in rapid jerks and the tape after passing this roller 13 is delivered by the toothed roller 14 to the receiving reel 15 where it is wound in a form to be transferred without change back to the carrier 4, preparatory to commencement of a new operation. It will be obvious that, since the tape is drawn from the inner convolutions of the coil 3 instead of from the outside, this coil will always be ready for a renewed uncoiling without its being necessary to spend any time and trouble in rewinding the tape.

I have found that in practice, and partic-

ularly where long ribbons are handled (as in kinetoscopes) it is essential to successful operation that the coil carrier and receiving reel should be connected by positively acting gears—as distinguished from means depending merely upon friction—whereby every movement in either direction of the carrier is accompanied by an equal rotation of the reel and vice versa. The reason for this is that, if the reel does not move as fast as the carrier, this latter will unwind within itself and soon get the tape into such a position that it will not pass smoothly out over the guide 7; while, if tape is withdrawn from the carrier more rapidly than is compensated for by rotation of the latter, the tape is drawn sharply around and close against said guide so as to bind.

In its preferred form my invention comprises means external to the reel and carrier for drawing the ribbon out of the latter; combined with gearing for transmitting motion from said external means to the common driving devices for the carrier and reel, said gearing including a frictional member which permits slip to allow for lost motion and to prevent undue strain upon the tape.

The principal driving means for all the parts may take any well known form, and in the drawings I have shown a crank, 16, preferably turned in the direction indicated by the arrow in Fig. 1. In the specific form shown in the drawings, the crank 16 turns a large gear 17 whereby the toothed roller 14 is driven, which gear 17 also drives the pinion 18 on the same shaft with a gear wheel 19. This last named gear drives the Geneva gear 20 which operates the intermittently moving toothed roller 13. The shaft 21, carries inclined toothed gears 22, 23, at its opposite ends, by means of which motion is transmitted from the pinion 18 to the pinion 24 on the shaft 11 which carries the toothed roller 10. The shaft 11 also carries the driving sprocket wheel 25 from which a sprocket chain 26 carries motion to a sprocket wheel 27 carried loosely on driving shaft 28 from which both the carrier 4 and the reel 15 are operated. A friction disk 29 is fast upon the driving shaft 28, and the sprocket wheel 27 is pressed against said disk by an adjustable spring 29^a, (see Fig. 5.) Motion is thus transmitted frictionally from the sprocket wheel 27 to the shaft 28.

The carrier 4 is mounted upon an upright revolving shaft 30 carrying at its lower end the bevel gear 31 which meshes with a similar bevel wheel 32 on the end of the shaft 28, whereby motion is transmitted from the shaft 28 to the upright shaft 30 and carrier 4. A sprocket wheel 33 is fast upon the shaft 28 and a sprocket chain 34 positively transmits motion from said wheel to a similar wheel 35 which drives the reel 15. It will thus be seen that power is supplied from

the shaft of the ribbon withdrawing roller 10, through a frictional driving wheel 29 to the common driving shaft 28 of both carrier 4 and reel 15; and that the sprocket wheels 33, 35, chain 34, shaft 28, bevel gears 31, 32 and upright shaft 30 supply a positive permanent engagement between the carrier and reel, whereby equal and simultaneous movements of the two are assured at all times.

While my invention broadly considered covers any desired construction of the receiving reel consistent with the claims hereof, I prefer the construction shown in Figs. 3 and 4 whereby certain advantages herein-after mentioned are secured. In Fig. 3 one side flange of the reel 15 is shown, together with the attached barrel 36 made of thin metal and hollow. Certain portions of this metal are struck up so as to project slightly outward, forming spring ears, 37, under either of which the end of the tape 3 may be introduced to secure the same temporarily when it is to be coiled upon the reel.

While the construction so far described is sufficient for carrying out my broad invention. I prefer to employ the supplementary sleeve 38 made of spring metal and split longitudinally as shown at 39. This sleeve is adapted to fit closely over the barrel 36, and is provided with a cut out portion which straddles the projections 37 or their equivalents for this purpose, engaging with them so that the sleeve 38 always turns with the reel 15. As shown in Fig. 4, the sleeve 38 is provided with spring catches 41 under which the end of the tape 3 may be secured. Thus, when the sleeve is in place, the tape is wound closely over it, the turned up edge projections 42 serving to hold the tape in place on one side. When the tape is to be removed from the reel to be replaced within the carrier 4, the sleeve 38 is slipped off of the barrel 36 and can then be compressed, so as to be easily withdrawn from the interior of the coil.

Various modifications and changes can be made in carrying out my invention without departing from the scope thereof, and I do not intend to limit myself to the details herein shown and described.

What I claim is—

1. A device of the character described comprising a rotary carrier for a coil of tape, a transverse guide-bar over said carrier, a pair of rollers disposed at right-angles to said guide-bar for engaging the edges of said tape, and means for uncoiling tape from its inner convolutions and withdrawing it from said carrier past said guides, substantially as described.

2. A device of the character described comprising a rotary carrier for a coil of tape, a receiving reel, positive gearing connecting said carrier and reel so as to preclude relative slip and insure equal rotation of the two,

means for withdrawing tape from said carrier and delivering it to said receiving reel and motion-transmitting gearing between said withdrawing means and said reel and carrier comprising an element permitting lost motion between the reel and carrier on one hand and the withdrawing means on the other hand, substantially as described.

3. A device of the character described comprising a rotary carrier for a coil of tape, a receiving reel, positive gearing connecting said carrier and reel so as to preclude relative slip and insure equal rotation of the two, means for withdrawing tape from said carrier and delivering it to said receiving reel and gearing including a friction member for transmitting motion from said withdrawing means to said carrier and reel, substantially as described.

4. A device of the character described comprising a rotary carrier for a coil of tape, a receiving reel, means for withdrawing tape from said carrier and delivering it to said receiving reel, main driving mechanism, positive gearing for transmitting motion from said main driving mechanism to said withdrawing means and frictional gearing for transmitting motion from the driving

mechanism to said carrier and reel, substantially as described.

5. A device of the character described comprising a rotary carrier for a coil of tape, a receiving reel, a common driving shaft for the two, means for withdrawing tape from the carrier and delivering it to said receiving reel, a driving shaft for said withdrawing means, and power transmitting gear between said two driving shafts comprising an element adapted to permit of relative lost motion between the two, substantially as described.

6. A device of the character described comprising a rotary carrier for a coil of tape, a receiving reel, a common driving shaft for the two, a gear wheel loose on said shaft, a friction disk fast on the shaft, a spring pressing said wheel and disk together, means for withdrawing tape from said carrier, driving mechanism therefor and an operative connection between said driving mechanism and said loose gear wheel, substantially as described.

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Witnesses:

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