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A. L. ADATTE
DOUBLE FILM WINDING REEL
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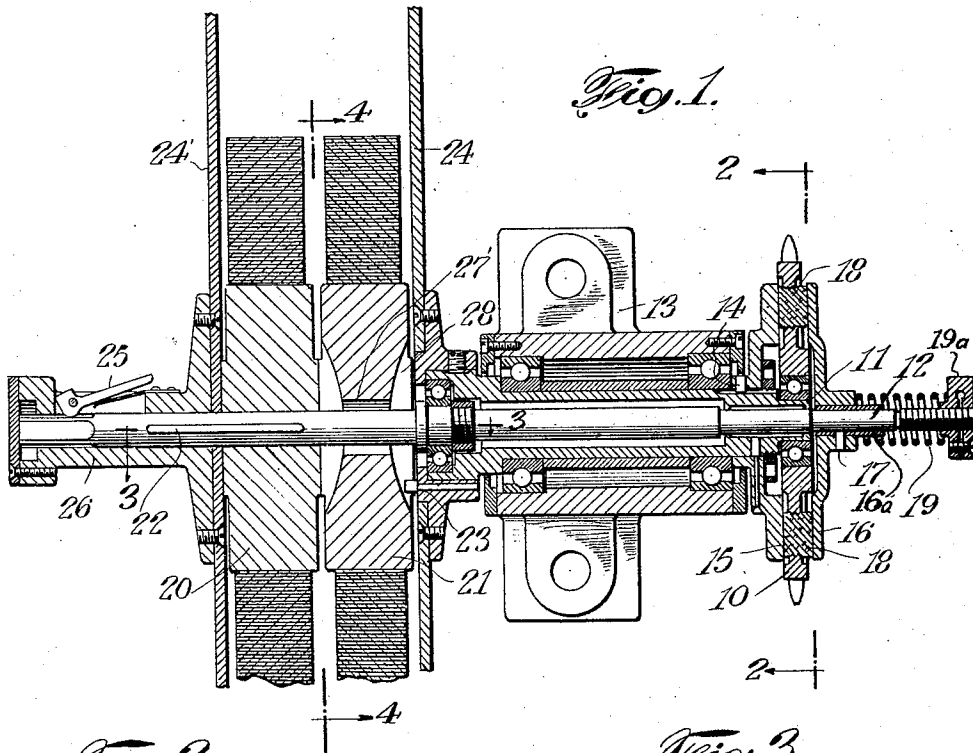


Fig. 2.

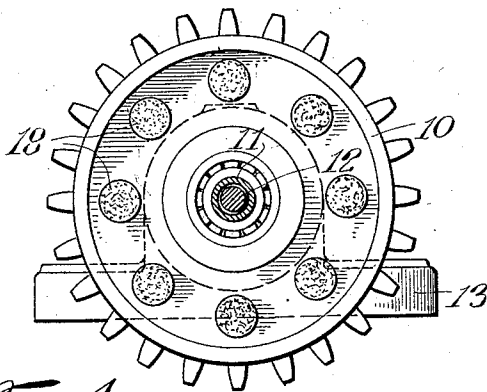


Fig. 3.

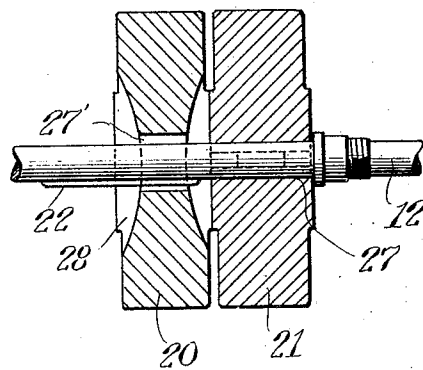
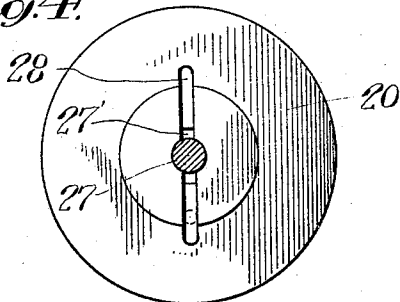


Fig. 4.



Inventor
Albert L. Adatte
By his Attorneys
Hoguet & Neary.

UNITED STATES PATENT OFFICE

ALBERT L. ADATTE, OF NORTH PLAINFIELD, NEW JERSEY, ASSIGNOR TO PATHE EXCHANGE, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

DOUBLE FILM WINDING REEL

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The present invention relates to winding reels and more particularly to a device for winding motion picture films or similar tape-like members.

While the invention is particularly adapted to reels employed in connection with machines for printing a number of films simultaneously, it will be obvious that its application may be extended to any device in which it is desired to wind a plurality of tape-like members on a single shaft at substantially the same speed.

It has been found that it is difficult to wind two rolls of film, tape or the like, simultaneously on the same reel at the same speed, since, due to imperfections and varying thicknesses in the material which is being wound, one of the rolls tends to become tight or slack with respect to the other, and difficulties arise such as breakage of the film or the like from too great tension applied. The present invention overcomes these difficulties by providing a plurality of bobbins on the same shaft and driving these bobbins by friction at the same speed thereby allowing relative slippage to compensate for the imperfections in the material being wound.

It is an object of this invention to provide a single drive for a plurality of reels, means being provided to permit relative movement of the reels. It is another object of the invention to provide separate clutching means for each reel to permit the reels to be driven at a constant speed.

It is a further object of the invention to provide a novel form of bobbin, a plurality of which may be mounted on a shaft in contiguous relation in such a way that relative movement between them is permitted.

The invention will be more fully understood from the following description taken in connection with the accompanying drawing illustrating a preferred form of the invention and in which:

Figure 1 is a sectional plan view of the driving and winding mechanism.

Figure 2 is an end view, partly in section, taken on line 2—2 of Figure 1, and illustrating the driving clutch member.

Figure 3 is a sectional view of the bobbins mounted on the drive shaft; and

Figure 4 is an end view of one of the bobbins.

Referring to the drawing it will be seen that a driving member such as a sprocket 10 is loosely mounted on a hollow bushing 11 which surrounds a portion of a shaft 12. These parts are preferably mounted on ball bearings and supported by a bearing block 13. Secured to the bushing 11 by means of a key or pin 14 is a plate 15 and a second plate 16 is mounted on a sleeve 16a as by means of a pin or key 17. The plate 16 and its supporting sleeve 16a are adapted for sliding longitudinal movement on the shaft 12, the sleeve being disposed thereon so as to permit such movement, but they are compelled to rotate with the shaft and to this end the sleeve may be keyed thereto. The sprocket 10 is preferably provided at spaced intervals with friction plugs 18 of sufficient length to project beyond the opposite faces of the sprocket. A spring 19, the tension of which may be regulated in the usual manner, as by a nut 19a on the threaded end of shaft 12, surrounds the shaft 12 and engages a boss on the plate 16 to force the plate toward the sprocket and engage the friction plugs. The pressure of the spring also tends to force the sprocket into frictional engagement with the plate 15 whereby said plate firmly engages plugs, 18.

Mounted on the shaft 12 are a pair of bobbins 20, 21, the former of which is keyed to the shaft, a key 22 on shaft 12 being provided for this purpose. The bobbin 21 is preferably loosely mounted on the shaft and engaged by a pin 23 associated with the bushing 11. One of the disks or flanges 24 of the reel is secured to bushing 11, the other disk 24' being held to the shaft by means of a catch 25 on a collar 26 to which the disk 24' is preferably attached.

The bobbins 20 and 21 are alike in form each having a central aperture 27 on diametrically opposite sides of which are provided key slots 27'. On the opposite faces of each bobbin are relatively long slots 28 which lie in a diametric plane through the

axis of the bobbin and preferably align with the slots 27'. It will be noted that the key 22 on the shaft 12 does not extend along the shaft far enough to engage the bobbin 21 but, as shown in Figure 3, engages only the bobbin 20. The slot 28 on one side of the bobbin 21 is engaged by the pin 23 and rotation communicated to it thereby. By cutting the slots as described above it will be seen that the bobbins are interchangeable. This results in 10
convenience in manufacture, for since both bobbins are alike, it is unnecessary to construct bobbins of different natures.

From the above description it will be apparent that both of the bobbins are driven 15
from the double face clutch and sprocket 18. The bobbin 21 is driven through the plate 15, bushing 11 and pin 23, while the rotation of the sprocket is transmitted to bobbin 20 through the plate 16, shaft 12 and key 22. 20
Should either of the reels become tightly wound through imperfections and variable thicknesses in the film, the resistance set up will cause slippage of the clutch plate to which the tight reel is connected, thus per- 25
mitting relative movement of the two reels. This arrangement therefore permits the winding of two reels in contiguous relation at a substantially constant speed, much space 30
being saved by mounting two bobbins on a single shaft.

It will be understood that the above described arrangement is a preferred form of the invention, and that many modifications 35
of the construction disclosed may be made without departing from the invention.

I claim:

1. A device for winding a plurality of bobbins comprising a shaft, a driving element, a 40
friction clutch member connected to each of said bobbins and to said driving element, said driving element and one of said bobbins being mounted for rotation on said shaft.

2. A device for winding a pair of bobbins 45
comprising a driving element, a clutch member connected to each of said bobbins, and driven frictionally from said element, one of said bobbins and its clutch member being connected by a shaft, the other bobbin and 50
its clutch member being loosely mounted on said shaft to permit relative rotary movement therewith.

3. A device for winding a pair of bobbins 55
comprising a shaft, a driving element adapted to rotate about said shaft, one of said bobbins being secured to said shaft, the other of said bobbins being loosely mounted on the shaft, means for connecting said driving element to said shaft for rotating one bobbin, 60
and means connecting the other of said bobbins to said driving element to rotate said other bobbin, said second means being adapted to permit relative movement of the bobbins.

35 4. A device for winding a plurality of

bobbins comprising a shaft, a driving element, a pair of disks for retaining said bobbins in contiguous relation on said shaft, means for connecting said shaft to said element and one of said bobbins, and means for 70
connecting one of said disks to said element and the other of said bobbins, the connecting means being such as to permit relative rotative movement of the bobbins.

5. A device for winding a pair of bobbins 75
comprising a shaft, a disk loosely mounted on said shaft, each of said bobbins comprising a cylindrical member provided with a central axial aperture through which said shaft passes, said aperture being provided 80
with an axial keyway, one side of said members having a diametrically disposed slot thereon, a key on said shaft cooperating with the keyway of one of said bobbins, a pin on said disk for cooperating with the slot in the 85
other of said bobbins, and means for rotating said shaft and said disk, said means permitting relative rotative slippage between the shaft and disk.

6. A device of the class described comprising 90
a rotating driving element having opposite friction faces, a shaft on which said element is loosely mounted, a friction disk secured to the shaft and rotating the same by engagement with one friction face of the 95
driving element, a bobbin attached to the shaft, a bushing loosely disposed on said shaft, a second friction disk secured to the bushing and rotating the same by engagement with the other friction face of the driving 100
element, and a second bobbin loosely placed on the shaft and rotated from the bushing.

7. A device of the class described comprising 105
a pair of bobbins, a rotary driving element having opposite friction faces, and means for frictionally driving each bobbin from an opposite friction face of said element, said last mentioned means including 110
members relatively movable rotatably, one member connected to each bobbin.

8. A device of the class described comprising 115
a shaft, a pair of bobbins on said shaft, a driving element on said shaft having opposite friction faces, a bushing on the shaft, means for frictionally driving one bobbin 120
from one opposite friction face of the driving element through said shaft, and means for frictionally driving the other bobbin from the other opposite friction face of the driving element through said bushing.

9. A device for winding a pair of bobbins 125
comprising a shaft, a driving element adapted to rotate about said shaft, one of said bobbins being secured to said shaft, the other of said bobbins being loosely mounted on said shaft, means permitting relative movement 130
for connecting said driving element to said shaft for rotating one bobbin, and means permitting relative movement for connecting 135

the other of said bobbins to said driving element to rotate said other bobbin.

5 10. Apparatus for simultaneously winding a plurality of films comprising, a shaft, a hollow shaft concentric with said first shaft and relatively rotatably mounted there-
10 around, a film reel non-rotatably secured to each of said shafts, and a common driving means having frictional connection with said shafts to wind said films and to allow differ-
15 ences in tension in said films to be compensated for by relative movement of said reels.

11. A device of the class described comprising a plurality of bobbins, a rotary driving element having friction faces, and means
15 for frictionally driving each bobbin from a friction face of said driving element, said last mentioned means including members relatively movable rotatably, one member
20 connected to each bobbin.

In testimony whereof, I have signed my name to this specification this 26th day of Oct., 1927.

ALBERT L. ADATTE.

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