

F. E. CAINE.
 DEVICE FOR WINDING AND REWINDING CONTINUOUS WEBS.
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983,602.

Patented Feb. 7, 1911.

Fig. 1.

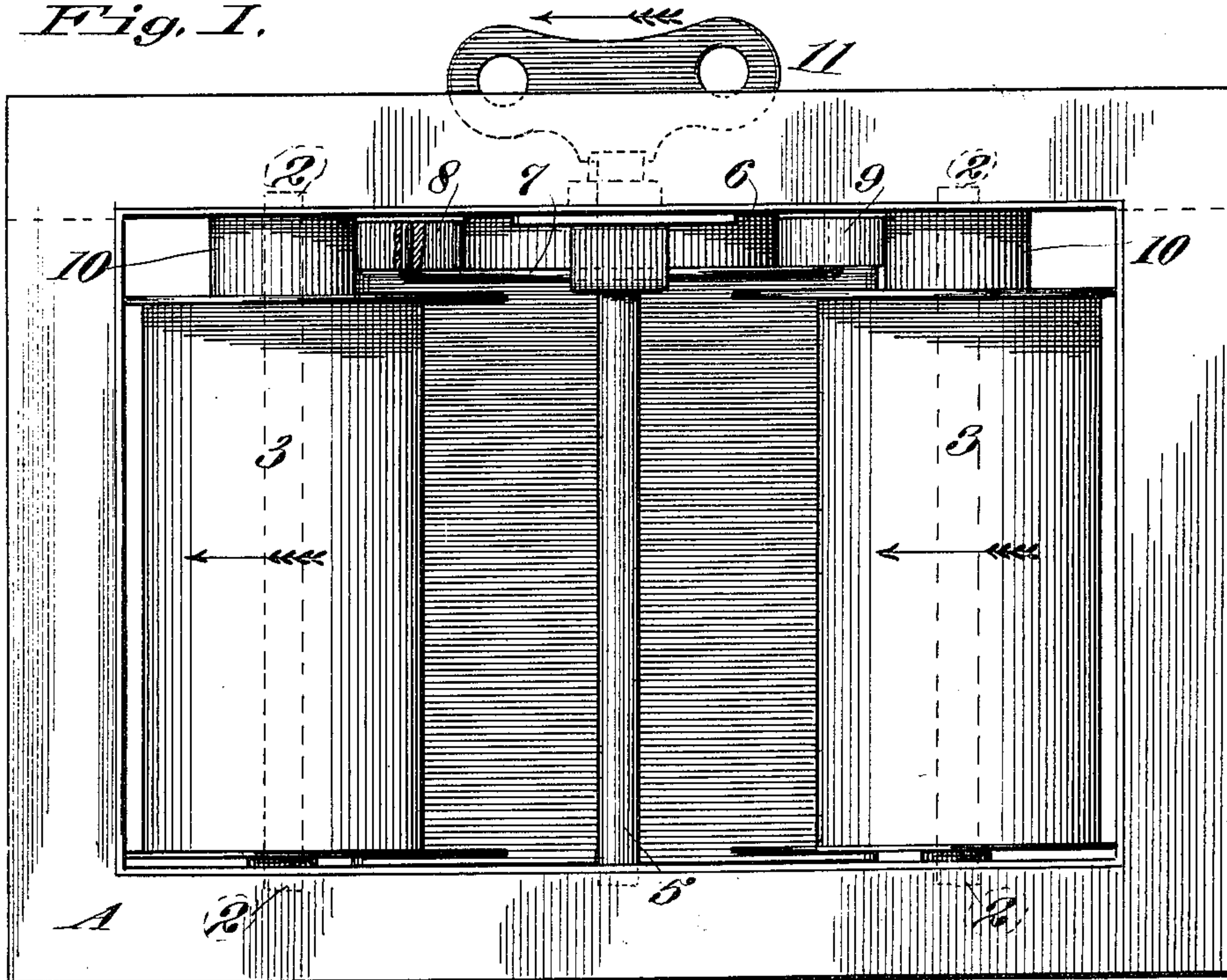
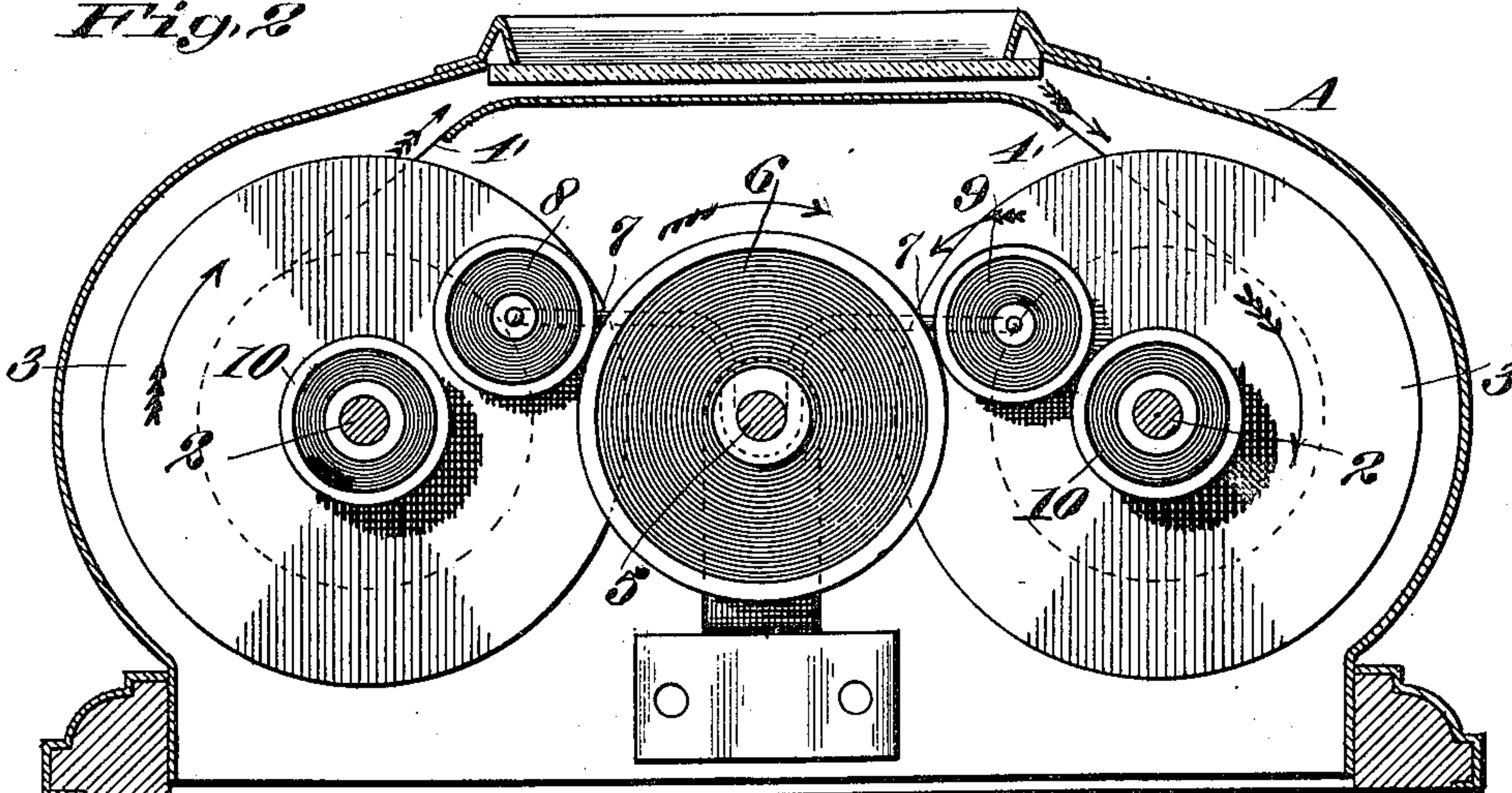


Fig. 2



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK E. CAINE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO PACIFIC PATENT APPLIANCE COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

DEVICE FOR WINDING AND REWINDING CONTINUOUS WEBS.

983,602.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed February 9, 1910. Serial No. 542,925.

To all whom it may concern:

Be it known that I, FRANK E. CAINE, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Devices for Winding and Rewinding Continuous Webs, of which the following is a specification.

This invention relates to winding mechanism, and especially to devices for winding or rewinding a continuous web of paper, cloth, fabric or the like, from one reel to another.

The object of this invention is to provide an extremely simple, reliable and practical mechanism, whereby a continuous web of flexible material may be wound from one drum, reel or shaft on to another, and then reversely wound, if desired, all by means of a single driving element or crank.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of the device. Fig. 2 is a vertical, longitudinal section.

A represents a suitable support, frame or case, in which is journaled a pair of parallel shafts 2, these shafts each carrying a drum or reel 3.

4 is a continuous web of paper, fabric, film or equivalent, having its ends suitably attached to the reels and designed to be wound back and forth from one reel to the other.

5 is a driving shaft or equivalent suitably journaled with respect to the two drums, here shown as arranged between them. This shaft 5 carries a master driving friction roller 6.

7 is a rocking yoke carrying two friction rollers 8—9, which are always in contact with the master roller 6, these friction rollers 8—9, or idle reversing drivers, being adapted to contact successively with corresponding hubs or rollers 10 on the drum shafts 2, according to which way the shaft 5 and roller 6 are rotated.

Any suitable means may be employed, as the key 11, to rotate the shaft 5 and roller 6.

For convenience, the yoke 7 is made of springy material and adapted to fulcrum on shaft 5. The purpose of making the yoke

springy is to give it sufficient inherent resiliency so that it will always cause the two idle rollers 8, 9 to press constantly and with yielding force upon the master driver 6. The relative diameters and positions of the several rollers 6, 8, 9, 10 are such that turning shaft 5 in one direction will cause the yoke 7 to rock slightly in the same direction, carrying one of the rollers, as 8, into contact with its counter-roller 10 fixed on one of the shafts 2, and drive that shaft and its drum in unison with the master roller 6, at the same time lifting up the other roller 9 from its countermember 10 so that that member 10 and its shaft 2 with its drum will turn idly, allowing the web to be freely wound from the last named drum on to the first one. Reversing the direction of the driver 6 causes a corresponding release of the direction changing idler 8 from its roller 10 and throws roller 9 into operative engagement with its roller 10.

The rollers 8, 9 have a diameter greater than the space on either side of driver 6 between the latter and the rollers 10 so that the rocking of the yoke in one direction or the other causes one or the other of these rollers 8, 9 to force down into the contracted space on either side of roller 6 so as to insure a good driving contact between the master roller 6 and the roller 10 which is to be operated, at the same time roller 6 giving a lifting action on the opposite idle roller 8 to maintain it out of contact with its corresponding roller 10, and vice versa.

From this it will be seen that the invention provides a simple, automatically reversible web winding and rewinding means operative irrespective of the varying amount of web on either drum, without requiring the addition of any complex clutch arrangements and other devices commonly required.

Heretofore there has been more or less difficulty encountered in winding or rewinding a web onto a drum, due to the constant change in diameter of the roll as the web is wound upon it or off of it, and usually the winding mechanisms have involved complex gearing, shifting or reversing devices, changing of cranks, changes in point of application of power, etc. By my construction a single drive shaft 5, with its master driver 6 and intermediate alternately acting friction rollers, suffices. By rollers or fric-

tion rollers in this case I mean their equivalents, such as gearing, which are adapted to be put in and out of mesh.

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

1. An improved winding device consisting of a pair of driven shafts, an intermediate driving shaft, friction rollers on the driven shafts, a master friction roller on the driving shaft, idle rollers in constant driving engagement with the master roller, and means including a yoke fulcrumed on the driving shaft having oppositely extending arms on
10 which the idle rollers are mounted, said arms being composed of springy material for holding the rollers in constant driving engagement with the master roller, said driving shaft when turned in one direction rock-
15 ing the yoke to cause one of the idle rollers to engage a driving roller and to disengage the other idle roller from the other driven roller.

2. In a winding device, the combination
25 of a pair of driven shafts with a reel on each shaft, a continuous web connected with the

reels and adapted to be wound from one to the other, and vice versa, rollers on the shafts turnable with the reels, an intermediate drive shaft, a master roller on the drive shaft, a resilient yoke pivoting on the drive shaft and carrying a pair of idle rollers which because of the resiliency of the yoke constantly bear against the surface of the driving roller, said idle rollers arranged in
30 the space on the opposite side of the driving roller between the driving roller and said rollers on the reel shafts, said idle rollers of greater diameter than the space between the driving roller and the corresponding reel
35 roller, and said idle rollers operative when the driving roller is turned in one direction to connect the driving roller with one of the reels, and to disconnect the other reel
40 and allow it to turn free, and vice versa. 45

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK E. CAINE.

Witnesses:

CHARLES A. PENFIELD,
CHARLES EDELMAN.