

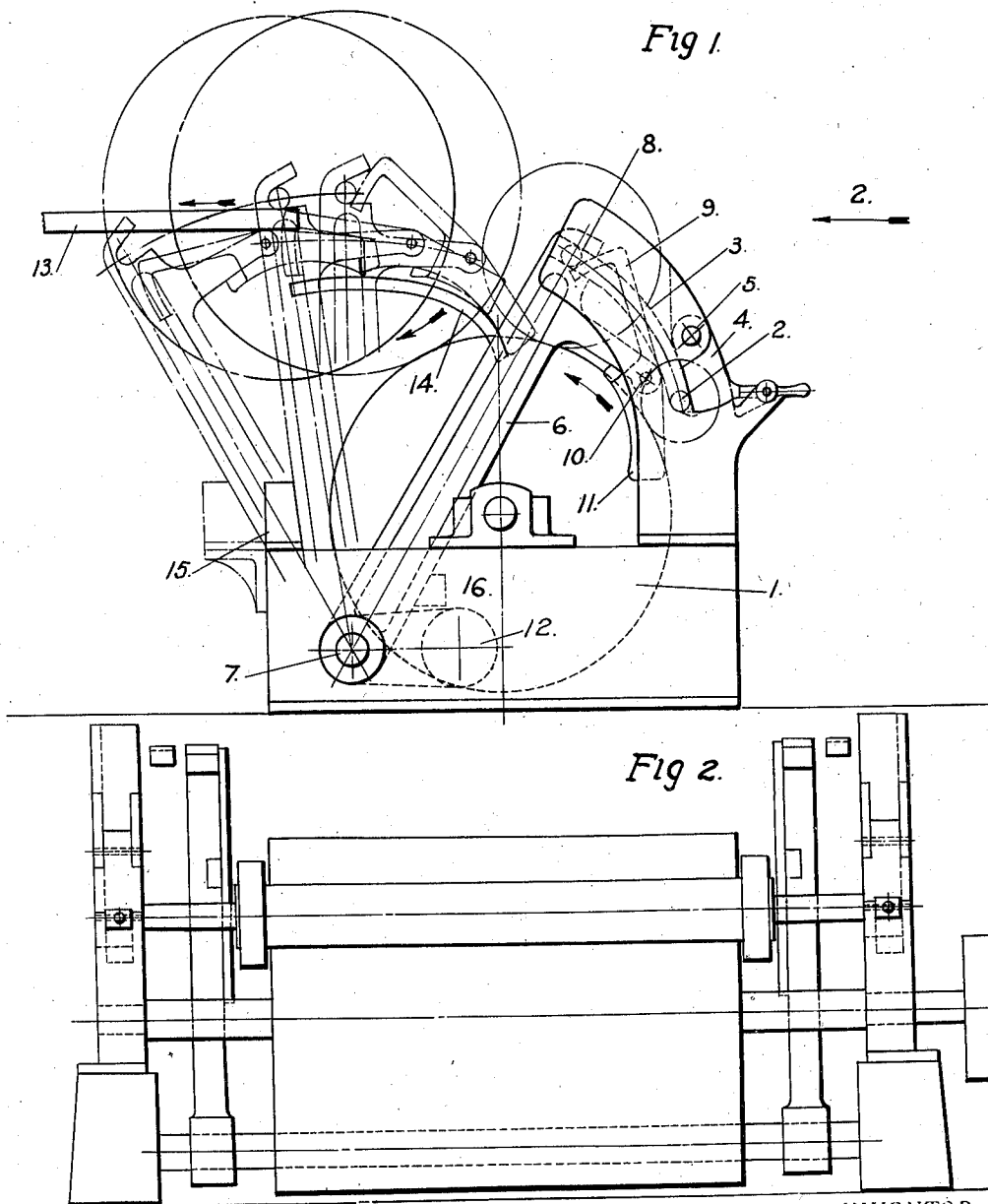
March 8, 1927.

W. M. STOCKER

WINDING MACHINE

Original Filed Aug. 13 1925 2 Sheets-Sheet 1

1,620,044



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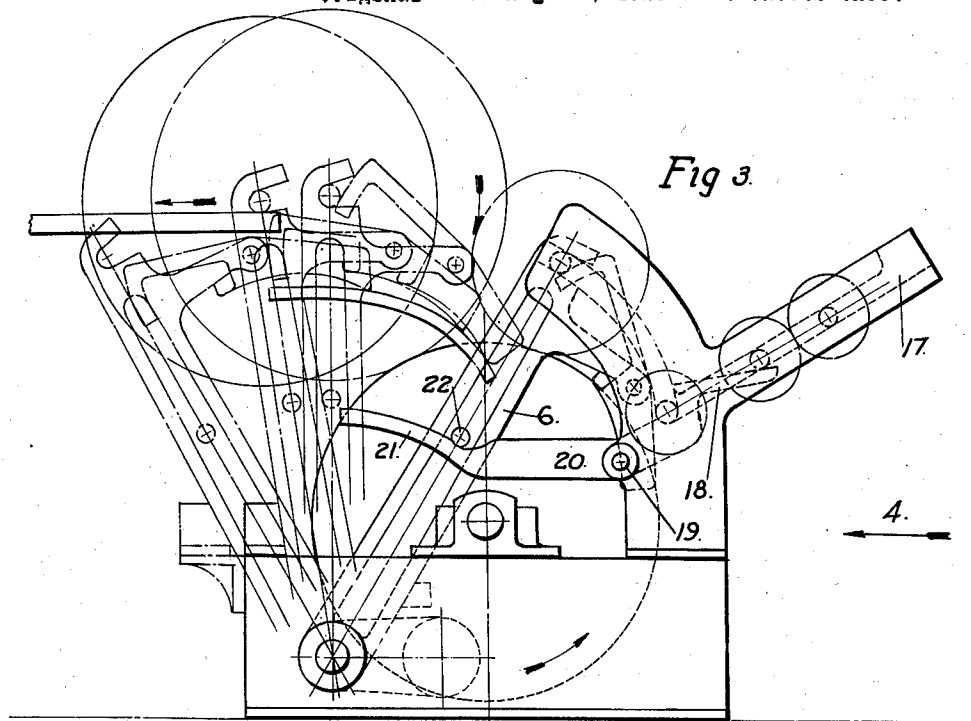
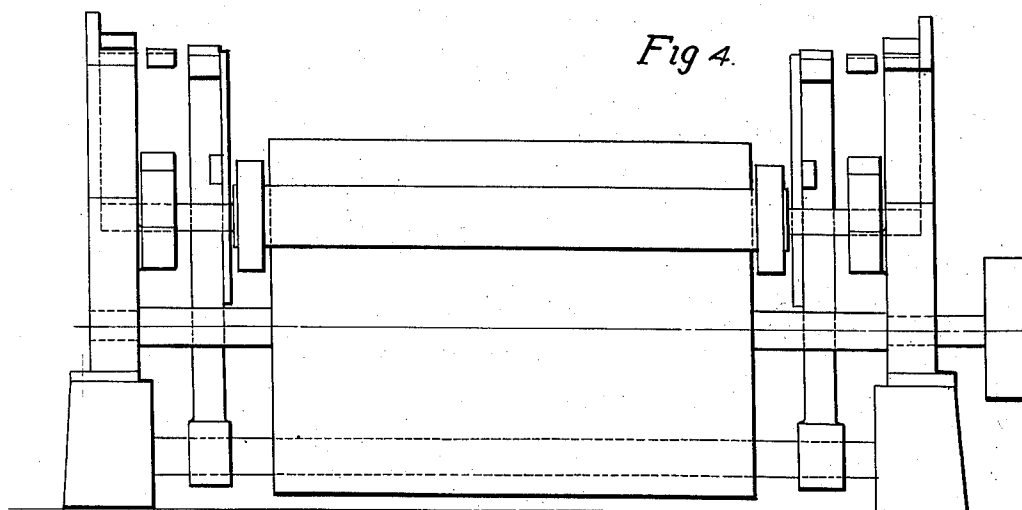
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UNITED STATES PATENT OFFICE.

WILLIAM M. STOCKER, OF WOODHAVEN, NEW YORK, ASSIGNOR TO CAMERON MACHINE COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

WINDING MACHINE.

Application filed August 13, 1925, Serial No. 49,881. Renewed June 4, 1926.

This invention relates to a winding machine; and has more particularly reference to a reel for winding paper substantially uninterruptedly on a succession of winding shafts as the paper comes from a paper-making or other machine; and the main object and feature of this invention is to provide means for automatically ejecting a finished roll of paper from the winding machine; and, independently thereof or in connection therewith, to provide automatic means for feeding winding shafts successively to the winding means.

In the accompanying drawings, the invention is disclosed in several concrete and preferred forms in which—

Fig. 1 is a side elevation more or less diagrammatic in the form of a winding machine showing one embodiment of the invention:

Fig. 2 is an end view looking in the direction of arrow 2 of Fig. 1:

Fig. 3 is a view similar to Fig. 1 showing a modified form of the invention: and

Fig. 4 is an end view of Fig. 3 looking in the direction of arrow 4 of Fig. 3.

In an application filed July 6, 1925, Ser. No. 41,537, there is disclosed a winding machine in which the accumulation of paper on the winding shaft causes said winding shaft to progress over the surface of the winding means and for the sake of convenience the improvements of the present invention have been embodied in a construction such as that disclosed in the application referred to; but it will be understood that for the purpose of some of the claims herein contained the initial progress of the winding shaft over the surface of the winding means need not be accomplished by devices controlled by the accumulation of material but may be accomplished manually by moving a suitable support of a character such as that disclosed in application filed July 6, 1925, Ser. No. 41,495.

With the above in mind, it will be understood that 1 indicates suitable winding means, here shown as a surface winding drum; and that 2 is a winding shaft to be placed in winding relation to said drum. As here disclosed, said winding shaft is placed in curved guides 3 and the paper is threaded between drum 1 and shaft 2 and, as material accumulates on said shaft, the curved guides will compel shaft 2 to progress

over the surface of drum 1. Shaft 2 is introduced into the curved guides by swinging member 4, pivoted at 5, out of the way. Whatever the construction of the means for initially moving the winding shaft over the surface of the drum may be, there is associated with such means a traveling transfer device that here takes the form of two arms 6, pivotally supported at 7, and these arms have open bearings 8 at their upper end that come into register with curved guides 3 so that as shaft 2 travels through said guides, it will eventually enter the open bearings 8. 9 indicates a latch pivotally supported at 10 on the transfer member and this latch is provided with a counterweight 11 that normally moves said latch into the position indicated at the right-hand side of Fig. 1: that is to say, it will be in the path of shaft 2 as it travels in an upward direction and, as said shaft travels upwardly, it will depress the latch and as it passes over the crest thereof, said latch will, owing to its counterweight, snap back and lock shaft 2 in open bearings 8. In the form here disclosed, the traveling transfer device is normally urged in a direction toward guides 3 by reason of counterweights 12 and it will be understood that as the material accumulates on shaft 2, after it is locked in open bearings 8, said material will cause the traveling device to move in the other direction,—that is to say, to the left in Fig. 1. This movement may continue until shaft 2 reaches a position where it engages receiving support 13 and it will be understood that continued motion thereafter will cause open bearings 8 to pass beneath the upper surface of said support; and also, owing to cam 14, which is stationary on the framework, latch 9 will be depressed into a position where shaft 2 becomes entirely disengaged and is free to rest on and to be moved over receiving support 13. Thus the accumulation of material automatically causes the operation of the transfer device and the ejection of the finished roll. Preferably, a removable stop 15 is provided against which the arms of the transfer device rest after said arms pass over the vertical center line of their pivotal support; and when in this position the web may be severed and a new winding shaft introduced into guides 3 or the web may be severed before the finished roll moves out of engagement with the drum

and threaded around a new shaft. After shaft 2 has passed over the top of open bearing 8, counterweights 12 immediately return the transfer device to its position against stop 16 ready to receive another winding shaft from guides 3. If desired, the counterweights may be omitted and the device be moved by hand.

In Figs. 3 and 4 we have substantially the same arrangement as before except that there is provided a hopper 17 to receive a plurality of winding shafts; and associated with this hopper is a detent 18 that normally restrains the shafts in the hopper from coming into winding engagement with the drum. This detent is pivotally supported at 19 and is provided with an arm 20 having a cam 21 with which engages roller or pin 22 on a transfer device 6. So long as pin 22 is in engagement with cam 21, the weight of the shafts in the hopper will be unable to move detent 18 downward but, as pin 22 passes beyond cam 21, the detent will be released and the weight of the shafts in the hopper will cause them to travel downwardly, the lowermost one coming into winding relation with the drum. When transfer device 6 swings back to the right, pin 22 will again engage cam 21 and will thereby reposition the detent and will prevent the weight of the shafts from moving it out of the way until it is again released by the transfer device. When starting up the machine, pin 22 may be removed to allow the first winding shaft to be brought into winding relation with the drum after which said pin is replaced and the action becomes automatic.

In the particular arrangement shown in Fig. 3, the conformation of the parts is such that pin 22 does not disengage cam 21 and a new shaft is not fed to the drum until the previous shaft containing the wound material has moved to a position where said material is out of engagement with the drum.

I claim:

1. A winding machine including: surface winding means, a winding shaft to be placed in winding relation therewith, means to cause the winding shaft to progress over the surface of the winding means, a receiving support for the winding shaft to sustain it with the material accumulated thereon out of engagement with the winding means, and a travelling transfer device, moved by the accumulation of material on the winding shaft after it has received the same, to receive the winding shaft as it progresses over the winding means and to eject it to the receiving support.

2. A winding machine including: surface winding means, a winding shaft to be placed in winding relation therewith, guiding means for the shaft whereby the accumu-

lation of material on the shaft causes it to progress over the surface of the winding means, a receiving support for the winding shaft to sustain it with the material accumulated thereon out of engagement with the winding means, and a travelling transfer device moved by the accumulation of material on the winding shaft after it has received the same to receive the winding shaft as it progresses over the winding means and to eject it to the receiving support.

3. A winding machine including: surface winding means, a winding shaft to be placed in winding relation therewith, means to cause the winding shaft to progress over the surface of the winding means, a receiving support for the winding shaft to sustain it with the material accumulated thereon out of engagement with the winding means, a travelling transfer device, moved by the accumulation of material on the winding shaft after it has received the same, to receive the winding shaft as it progresses over the winding means and to eject it to the receiving support, means for latching the winding shaft in the transfer device, and means for unlatching the shaft prior to its ejection from said transfer device.

4. A winding machine including: surface winding means, a winding shaft to be placed in winding relation therewith, means to cause the winding shaft to progress over the surface of the winding means, a receiving support for the winding shaft to sustain it with the material accumulated thereon out of engagement with the winding means, a travelling transfer device, moved by the accumulation of material on the winding shaft after it has received the same, to receive the winding shaft as it progresses over the winding means and to eject it to the receiving support, a latch carried by the transfer device over which latch the winding shaft travels and which thereafter acts to hold the winding shaft in position in the transfer device, and means to release the latch when the transfer device reaches the receiving support.

5. A winding machine including: surface winding means, a winding shaft to be placed in winding relation therewith, and means whereby the accumulation of material on the shaft causes it to progress over the surface of the winding means and to free itself from engagement with the winding means.

6. A winding machine including: surface winding means, a plurality of winding shafts to be successively placed in winding relation therewith, means to cause a winding shaft to progress over the surface of the winding means, and means controlled by the progress of a shaft over said winding means to feed another winding shaft into operative relation with the winding means.

7. A winding machine including: surface

winding means, a hopper to receive a plurality of winding shafts to be successively placed in winding relation with the winding means, a detent normally restraining the shafts in the hopper from coming into engagement with the winding means, means to cause a shaft to progress over the surface of the winding means, and a release for the detent controlled by the progress of a shaft over said winding means.

8. A winding machine including: surface winding means, a plurality of winding shafts to be successively placed in winding relation therewith, guide means for a shaft whereby the accumulation of material on the shaft causes it to progress over the surface of the winding means, and means controlled by the progress of a shaft over said winding means to feed another winding shaft into operative relation with the winding means.

9. A winding machine including: surface winding means, a plurality of winding shafts to be successively placed in winding relation therewith, means to cause a winding shaft to progress over the surface of the winding means, a travelling transfer device to receive a winding shaft as it progresses over the winding means, and means controlled by the movement of said transfer

device to feed another shaft into operative relation with the winding means.

10. A winding machine including: surface winding means, a winding shaft to be placed in winding relation therewith, means to cause the winding shaft to progress over the surface of the winding means, and a travelling transfer device having a back-and-forth movement, to receive the winding shaft as it progresses over the winding means, normally urged in a direction to receive the shaft and urged by the accumulation of material on the shaft in the other direction.

11. A winding machine including: surface winding means, a winding shaft to be placed in winding relation therewith, means to cause the winding shaft to progress over the surface of the winding means, a receiving support for the winding shaft to sustain it with the material accumulated thereon out of engagement with the winding means, and a transfer device to receive the winding shaft as the latter progresses over the winding means and to eject it to the receiving support.

Signed at New York, in the borough of Brooklyn, county of Kings, and State of New York, this 10th day of August, 1925.

WILLIAM M. STOCKER.