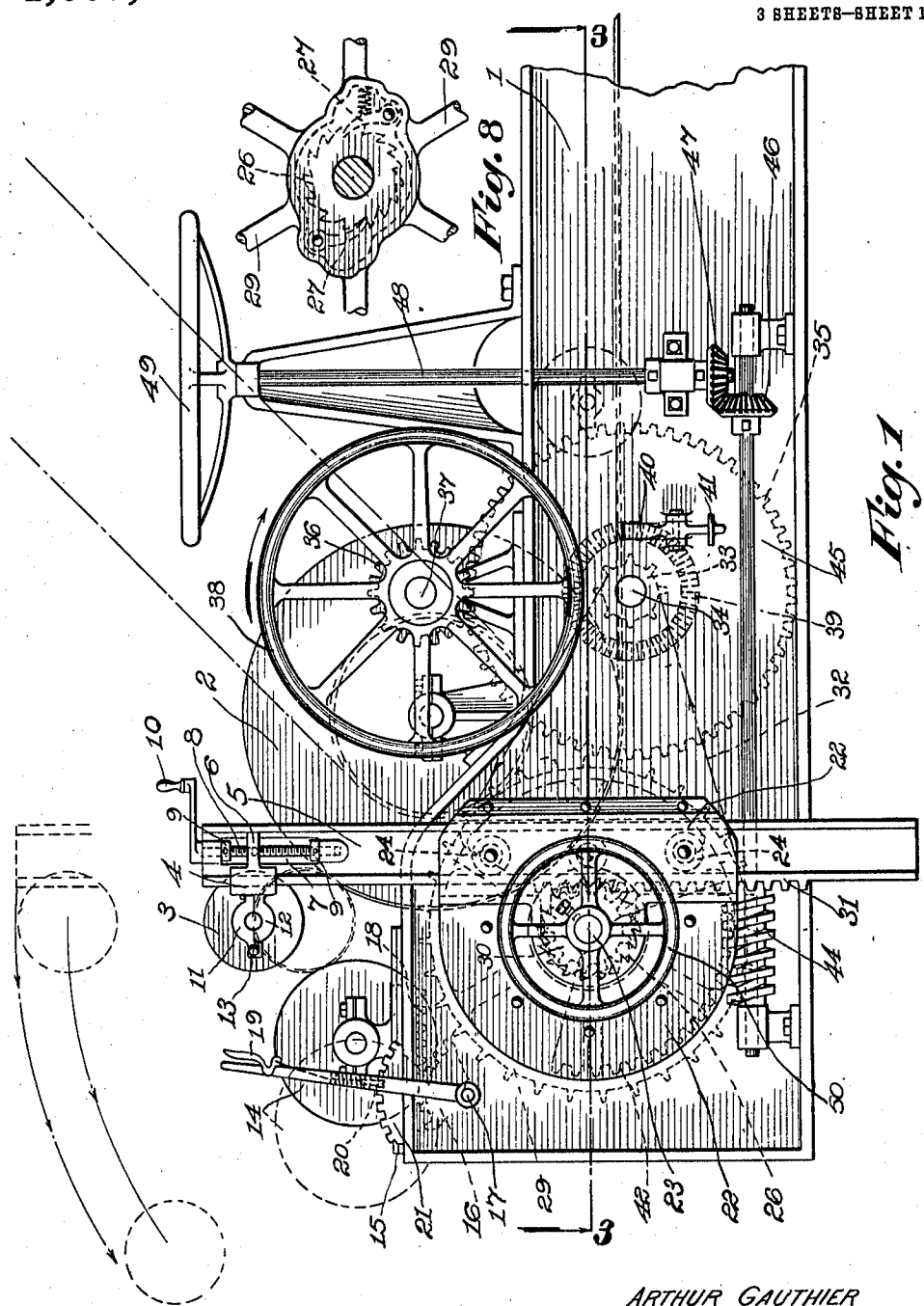


1,004,640.

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PAPER WINDER.
APPLICATION FILED SEPT. 6, 1910.

Patented Oct. 3, 1911.

3 SHEETS—SHEET 1.



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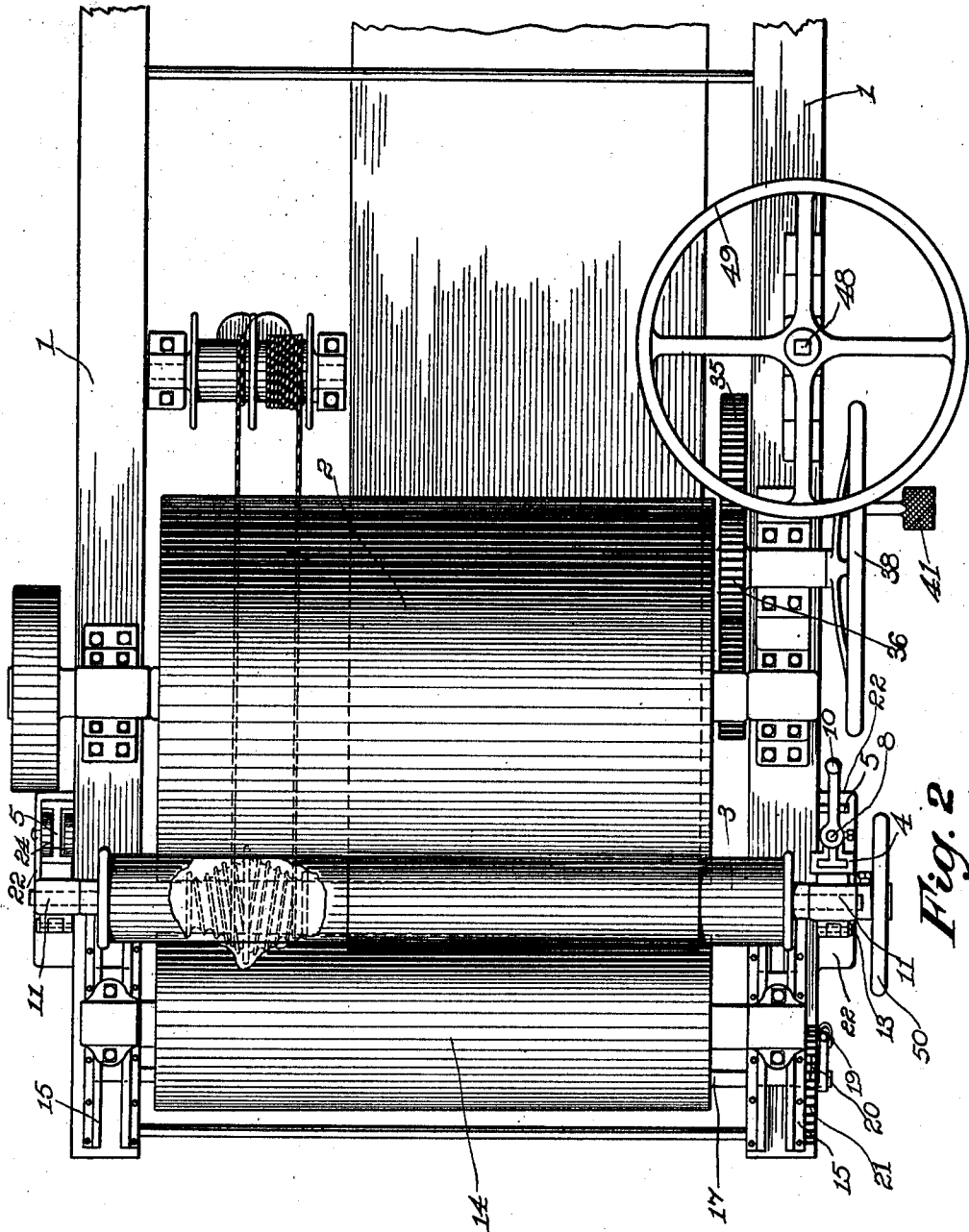
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

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Fig. 3

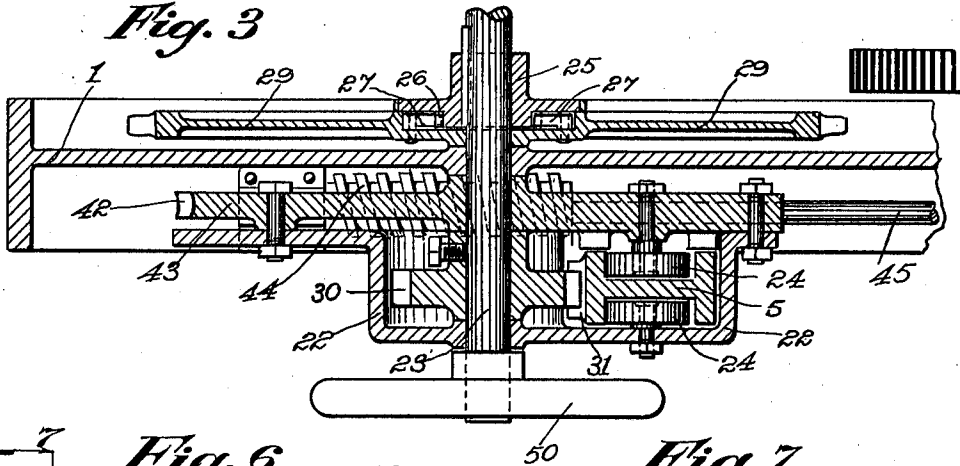


Fig. 6

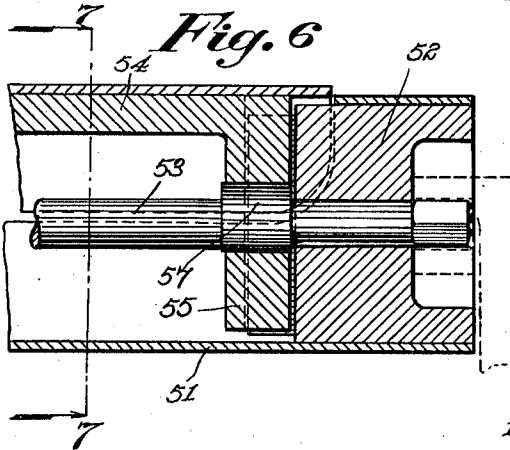


Fig. 7

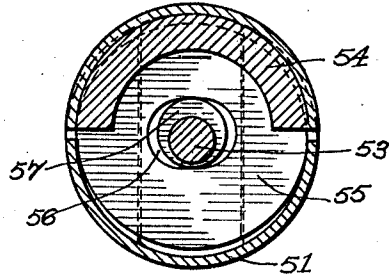


Fig. 4

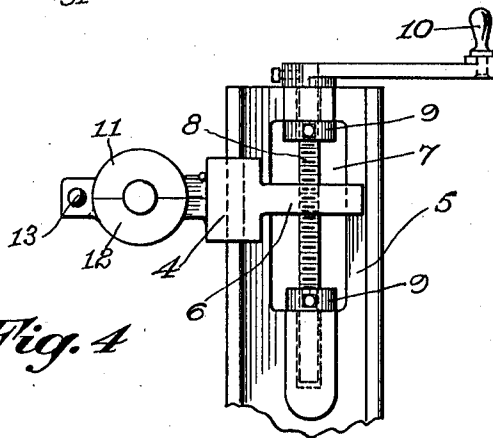
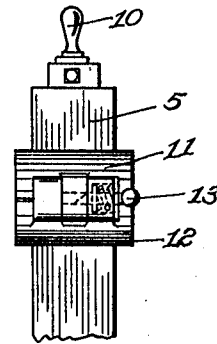


Fig. 5



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UNITED STATES PATENT OFFICE.

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PAPER-WINDER.

1,004,640.

Specification of Letters Patent.

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Application filed September 6, 1910. Serial No. 580,566.

To all whom it may concern:

Be it known that I, ARTHUR GAUTHIER, a subject of the King of England, residing at Portneuf Station, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Paper-Winders; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to paper winding machines.

Broadly speaking, it comprises a framework adapted to support the several working parts, guide and pressure rolls mounted within the framework, supports swingingly and slidably mounted in the framework, an expansible paper receiving roll adjustably mounted in the supports, means for expanding the paper receiving roll, means for adjusting opposite ends of the paper receiving roll to level it, means for raising the supports vertically, and means for swinging the supports to a position to remove the filled receiving rolls.

In order to more clearly disclose the construction, operation, and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings like reference characters designate the same parts.

In the drawings: Figure 1 is a side elevation of the invention, complete; Fig. 2 is a plan view of Fig. 1; Fig. 3 is a vertical longitudinal cross section on line 3—3 of Fig. 1, looking in the direction of the arrows; Fig. 4 is an enlarged, fragmentary detail of the mechanism for adjusting one end of the paper receiving roll; Fig. 5 is a left hand side elevation of Fig. 4; Fig. 6 is a fragmentary sectional view of one end of the paper receiving roll; Fig. 7 is a vertical cross section on line 7—7 of Fig. 6, looking in the direction of the arrow; and Fig. 8 is a side elevation of the pawl and ratchet mechanism forming part of the support raising mechanism.

Referring to the drawings in detail, 1 indicates a framework in which the several working parts are suitably mounted. Mounted in this framework and extending laterally across the same from side to side, is a large guide roll 2 of considerable di-

ameter. In rolling, the paper strip X passes about the under and rear surface of this roll and is wound upon the receiving roll 3. The receiving roll is mounted in bearings extending outwardly from guides 4 slidably mounted on the I-beam supports 5. These guides are each provided with an arm 6 having a screw threaded bore and adapted to move freely in the opening 7 of its support. A threaded rod 8 is revolubly journaled in the upper end of each support and coöperates with the threaded bore of each ear. The rod, of course, is provided with suitable removable stop collars 9 to prevent any longitudinal movement. Rotation of the rod 8 may be effected by the crank handle 10. By turning the rods 8, the ends of the receiving roll may be raised or lowered, as desired; for slight adjustments. When the roll has been filled, its removal is desirable. For this purpose, the upper half 11 of the bearing 12 is hinged to its guide 4 so that it may be swung upward to permit removal and return of the roller. When the roll is in position, a spring pressed pin 13, passed through openings in the outer ends of the upper and lower halves of the bearing, holds it in operative position.

The paper should be wound tightly and closely on the roll 3 in order to get the best results. For this purpose, an adjustable pressure roll 14 is provided. The ends of this roll are journaled in blocks or bearings adapted to slide freely in guides 15 extending longitudinally of the frame. The roll 14 is slightly below the receiving roll 3. Consequently, by sliding the roll 14 in one direction or the other in its bearings, it may be made to approach or recede from the surface of the receiving roll 3, thereby regulating the amount of pressure it exerts on the paper of the receiving roll. In order to adjust the pressure roll, rack and segment gears are provided. The segment gears 16 are fixed to opposite ends of a shaft 17 which is journaled in the framework beneath the guides 15. These gears each mesh with and operate a toothed rack 18 depending from the under face of each bearing of the roll 14. The shaft 17 may be operated by means of a lever handle 19 fixed thereto. The handle is provided with the usual spring catch 20 adapted to coöperate with the notched arc plate 21 to hold the roll in its various adjusted positions.

The weight of the roll 3 and its paper,

bearing upon the drum 2 and pressure roll 14, provide sufficient friction to enable the roll 3 to be driven from the drum 2. Therefore, it is only necessary to drive drum 2 in order to operate the receiving roll 3.

5 The supports 5 are slidably mounted in casings 22 pivotally suspended from the ends of a shaft 23 which is journaled in the framework 1. In order to guide the supports accurately in their vertical movements, several pairs of guide rollers 24 are provided. These rollers are arranged to fit into the channels of the supports and engage the walls or edges thereof, as shown in Fig. 3. Several pairs of rollers are provided for each support. The rollers on each side are exactly alined, of course. They are, preferably, arranged so that the rollers on one side will fall directly opposite the rollers on the opposite side. In this way, a strong, efficient, and accurate guiding means is provided.

As the paper on the receiving roller 3 increases in thickness, the roller will be gradually forced upward, carrying the supports with it.

When the roll has received the required amount of paper and it is desired to remove it, the supports will be raised vertically and swung rearwardly, as indicated in dotted lines in Fig. 1. In order to effect the vertical raising, a pawl and ratchet mechanism and suitable gearing have been provided. This comprises a hub 25 keyed to the shaft 23 and provided with a ratchet 26 adapted to be engaged by the spring operated pawls 27 pivotally mounted on a plate 28 secured to the center of a sprocket wheel 29 freely revoluble on the shaft 23. Rotation of the sprocket wheel 29 in a counter-clock-wise direction causes engagement of the pawls 27 with the teeth of the ratchet 28, thereby rotating the shaft 23. To each end of the shaft 23 is secured, by a set screw or the like a small pinion 30 which meshes with a rack 31 formed on the face of each support 5. Thus, rotation of the shaft 23, in a counter-clock-wise direction, causes raising of the supports 5 and the roll 3. For driving the sprocket a sprocket chain 32 has been provided. This sprocket chain is driven from a small sprocket wheel 33 fixed to a stub shaft 34 journaled in one side of the frame 1. To the stub shaft 34 is also connected a large gear wheel 35 which meshes with and is driven by a smaller gear wheel 36 fixed to the inner end of a second stub shaft 37 journaled in a bearing mounted on the frame 1. The outer end of this stub shaft is provided with a hand wheel 38 by which it may be operated. Rotation of the hand wheel, in the direction of the arrow, therefore, causes a raising of the receiving roller 3. In order to stop the raising mechanism at exactly the right point, a gear

face 39 has been formed on the gear 35 and a dog 40 has been mounted adjacent the gear face to engage the teeth and hold the gear 35 against rotation. One arm or branch of the dog is extended considerably beyond the framework 1 and provided with a treadle 41. Raising of the treadle effects engagement of the gear teeth by the dog, in this way stopping the raising of the roller 3.

When the roller 3 has been raised to the dotted line position of Fig. 1, it is then necessary to swing it rearwardly in the direction of the arrows. To accomplish this, it is necessary to swing the casings 22 through which the supports 5 slide. This is accomplished by means of a quadrant gear 42 formed on the disk or plate 43 which is detachably bolted or otherwise removably secured to the casing 22. Cooperating with the quadrant gear is a worm 44 formed on a shaft 45 which is journaled in suitable bearings mounted on the frame 1. A bevel gear 46 is keyed to one end of the shaft 45 and adapted to intermesh with and be driven by a similar gear 47 on a vertical shaft 48 mounted in bearings on the frame and provided with an operating hand wheel 49. Thus, by operating the hand wheel 49, the supports 5 may be swung to move the roller 3 in the direction of the arrows of Fig. 1, so that the filled roller 3 may be removed and carted away.

The guide roll or drum 2 may be driven from any suitable source of power and in the usual manner.

It may be desired to raise the supports by a more direct and somewhat quicker mechanism. To accomplish this, a hand wheel 50 has been fixed to one end of the shaft 23. Rotation of this hand wheel, of course, effects immediate raising of the roller 3, therefore pinion 30 and rack 31.

It may be desired, for many reasons, to increase the diameter of the receiving roller 3. For this reason, the roller may be made in two longitudinal sections; a section 51 provided with hubs 52 adapted to receive the ends of the roller axis 53, and a second section 54 fitting against the first and provided with depending end pieces or plates 55 each having an elongated slot 56 adapted to freely receive an eccentric 57 fixed to the axis 53. The axis is adjustably mounted in the hubs 52 and provided with any suitable means for securing it in its adjusted positions. By rotating the axis 53, in the hubs 52, the eccentrics 57 will engage the opposite walls of the slots 56 and so force the section 54 toward or from the axis 53 and the section 51, thereby causing either expansion or contraction of the roller, as desired.

It is thought that the operation and use of the invention will be clear from the preceding detailed description.

Changes may be made in the construction, arrangement, and disposition of the several parts of the invention without in any way departing from the field and scope of the same, and it is meant to include all such within this application wherein only a preferred form has been disclosed.

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

1. A machine of the character described comprising a frame, a guide roller mounted therein, casings swingingly mounted on opposite sides of said frame, supports slidably mounted in said casings, a receiving roll mounted on said supports, plates secured to said casings and provided with segment gears, and worms meshing with said seg-

ment gears and adapted to drive the same to swing the casings and their supports. 20

2. A machine of the character described comprising a frame, a shaft journaled in said frame, casings pivotally mounted on the opposite sides of said frame, supports slidably mounted in said casings and provided with racks, a receiving roll mounted on said supports, means for driving said shaft by power, independent means for driving said shaft manually, and means for swinging the aforesaid casings with their supports. 25 30

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

ARTHUR GAUTHIER.

Witnesses:

NARCISSE PERRANT,
ULRIC FRENETTE.

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