No. 631,513. Patented Aug. 22, 1899.

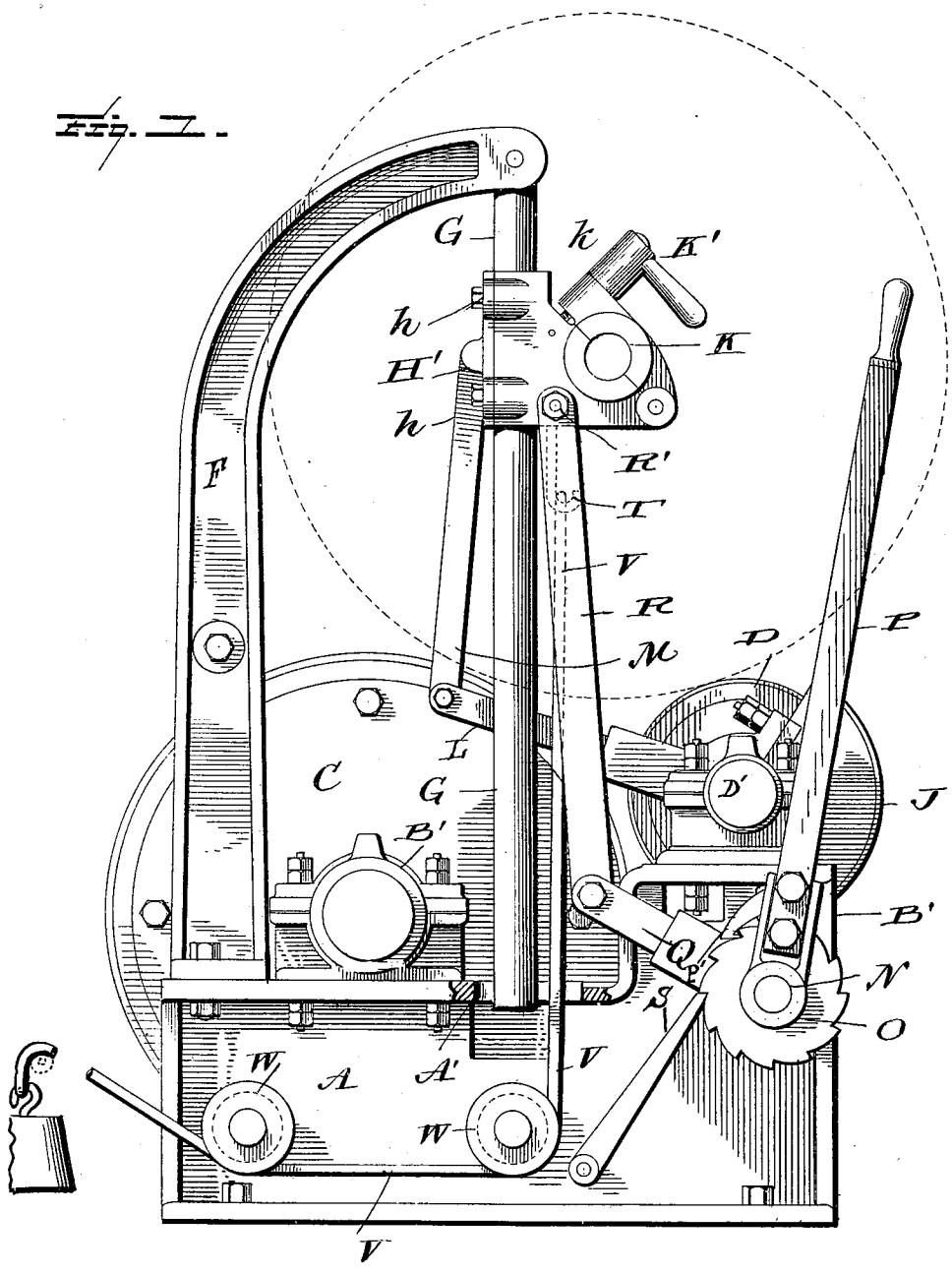
J. J. WARREN.

MACHINE FOR WINDING PAPER.

(Application filed Mar. 9, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



Witnesses

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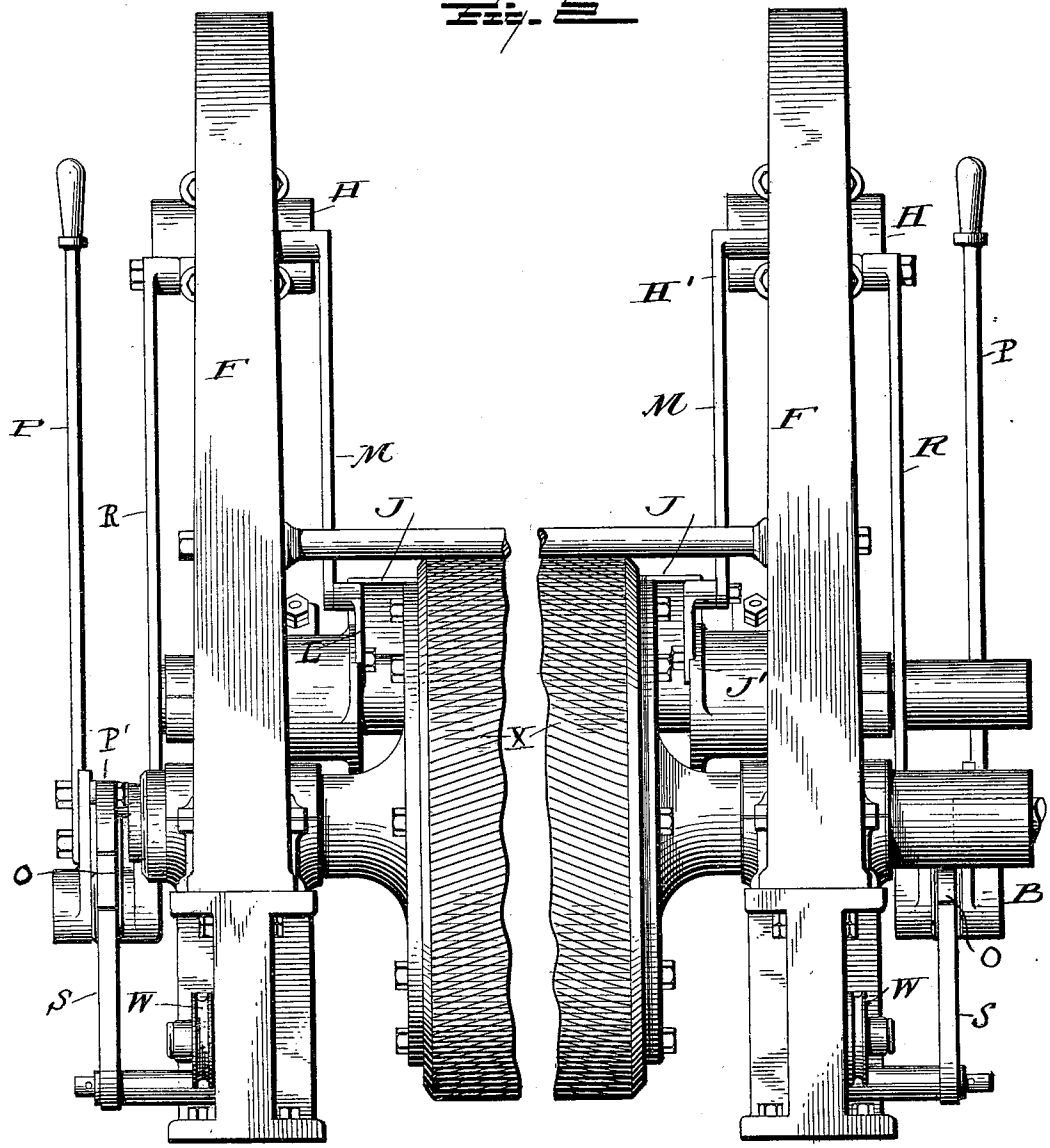
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Fig. 2.



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Fig. 3.

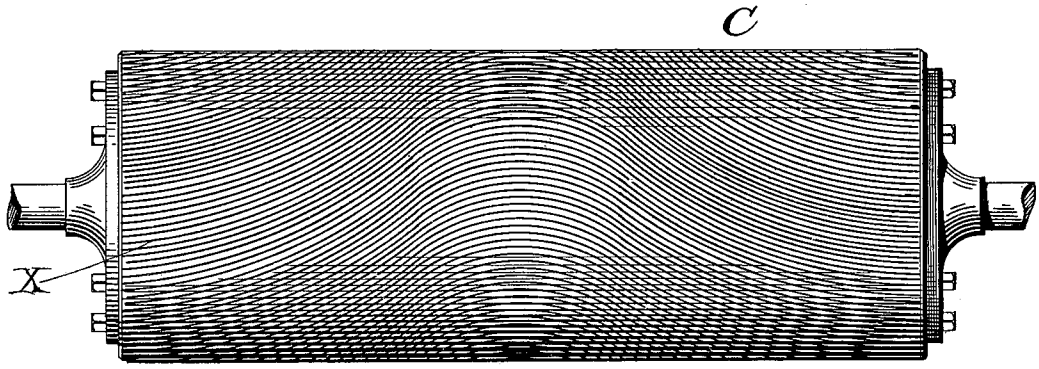
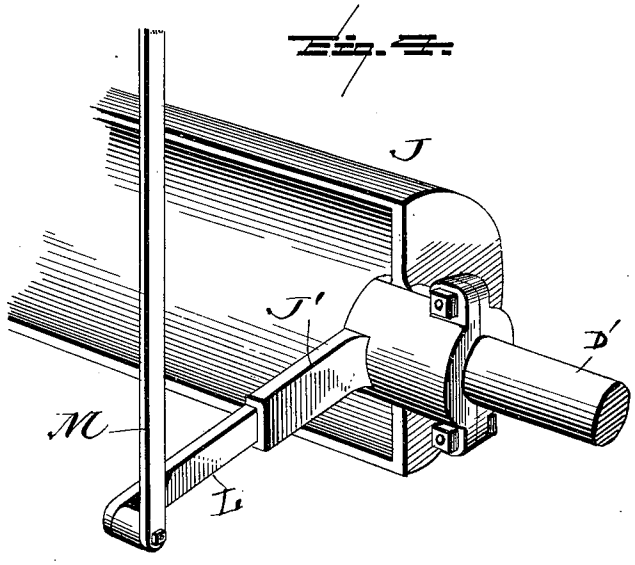


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN J. WARREN, OF WATERTOWN, NEW YORK.

MACHINE FOR WINDING PAPER.

SPECIFICATION forming part of Letters Patent No. 631,513, dated August 22, 1899.

Application filed March 9, 1899. Serial No. 708,441. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. WARREN, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Double-Drum Winders for Paper-Machines; and I do declare the following to be 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in mechanism for attachments to paper-making machines, and especially to a two-drum winder, in which a reel of paper is mounted on a shaft carried by journal-boxes which are adjustably guided on swinging guide-bars pivoted at their upper ends to brackets on the frame of the machine, whereby as the reel of paper increases in size said journal-boxes, carrying the shaft on which the reel of paper is mounted, are allowed a vertical and an outwardly-swinging movement.

The invention relates, further, to mechanism in connection with a two-drum winder whereby a guard about the outer of the two drums is caused to be held adjacent to the circumfrence of the roll and automatically held at a given distance from the roll as the latter increases in diameter.

Another part of the invention resides in means for raising the winder-shaft, carrying the roll of paper from contact with the drums, and holding it suspended.

My invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which drawings similar letters of reference indicate like parts throughout the several views, in which—

Figure 1 is an end elevation of the winding-shaft and drums with operating mechanism. Fig. 2 is a front elevation of the mechanism. Fig. 3 is a detail view of one of the winder-rollers. Fig. 4 is a detail view showing the construction of the automatically-operated guard to the outer drum.

Reference now being had to the details of the drawings by letter, A designates the frame of the machine, in which is journaled the shaft B of the drum C in suitable bearing-boxes B', and D designates the second drum, which is mounted on the shaft D', which is journaled in bearing-boxes E on the frame.

Mounted vertically on the framework is the bracket or arm F, there being one on each side of the machine, and to the upper ends of these brackets are pivoted the guide-bars G, the lower free ends of which have a limited play in the elongated apertures A' in the top of the frame supporting the mechanism. Mounted on these bars are the journal-boxes H, which are vertically adjustable on said bars, being allowed to slide thereon for a purpose which will hereinafter appear. Set-screws *h* in the journal-boxes are provided, whereby the journal-boxes may be held in a fixed relation if desired for any purpose. In these journal-boxes are held the ends of the roll or shaft K, on which the paper is wound. In order to make it convenient to remove the roll and shaft for any purpose from the journal-boxes, the upper portion of the box on each side of the machine is hinged to the lower portions and a screw K' is provided, which has a suitable handle K^2. This screw passes through threaded apertures in the box-sections and may be easily operated to retain the roll or shaft in position in its bearings or unscrewed to allow the shaft when the roll of paper is completed to be removed.

A guard J of semicircular shape, which has a bearing on the shaft D', is disposed about a portion of the circumference of the drum D and has an arm J', to which a rod L is connected, having pivotal connection with the lower end of the link M. The upper end of this link is pivoted to a lug H' on the journal-box H, whereby as the roll of paper increases in size and the journal-box H rises on the guide-bar G the guard J will gradually turn down, always keeping its upper edge at a uniform distance from the circumference of the roll of paper. This guard is provided for the purpose of preventing any person or thing from getting between the outer drum and the winding-roll.

Journaled in the frame of the machine at any suitable location is a shaft N, which has keyed thereto two ratchet-wheels O, one at each end of said shaft, and to each of said

ratchet-wheels is secured an operating-handle P, which carries a pawl P′, which engages with the teeth on the ratchet-wheel. Also keyed to the same shaft N is an arm Q, to the end of which is pivoted a link R, the upper end of which is in turn pivoted to the journal-box H at R′. Pawls S, one on each side of the machine, are provided, which engage with the teeth of the ratchet-wheels O to hold the purchase when it is desired to raise the roll of paper from contact with the drums.

On the under side of the journal-box H is a hook T, to which one end of the cable V is connected. This cable passes over the pulleys W, and its other end may be secured to a weight, which is shown in Fig. 1, which is provided to hold the shaft on which the paper is wound in contact under pressure against the drums C and D, which is essential while the roll of paper is beginning to form, as at this stage of the winding of the paper there is absent the weight of the roll which later on serves to cause the paper to wind tight about the roll.

The circumferences of the drums C and D are corrugated or contain spirally-arranged grooves, as seen at X on the drawings. These grooves are arranged as shown for the purpose of preventing a rough surface or, in other words, so that the roll of paper will not drop into each individual groove as the drums pass under the roll of paper.

In operation the shaft K is adjusted in its journal-bearings and is at its lowest limit when the roll of paper begins to form, and when in this position said shaft is held under the pressure of the weights connected to said cables against the drums C and D, and the drums, which may be rotated in any suitable manner, are started. The paper winds on the roll or shaft K, and as the roll of paper increases in size the journal-box carrying the ends of said shaft is caused to be forced up on the guide-bar G, and as it rises the guard J will, through its connections with the journal-box H, be caused to turn or rock down correspondingly to the increase in the diameter of the roll of paper, the upper edge of said guard always remaining the same distance from the circumference of the roll of paper. By the use of the handles P, one at either end of the shaft N, it will be noted that the journal-box H and roll of paper carried on the shaft having a bearing in said box may be raised from contact with the drums and be held from contact therewith by means of the pawls S, which engage with the ratchet-wheels O. When the roll of paper is in its elevated position, it may be removed and the shaft lowered for the purpose of forming a new roll.

In constructing a machine as hereinbefore described, and illustrated in the accompanying drawings, I am able to eliminate the trouble which is experienced, particularly on wide machines, of the winder-shaft springing at the center or out from place when the roll is slit into different widths. It is also designed so that the weight of the roll of paper being wound will be utilized in pressing the roll against the drums to make the roll tight and hard.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. A double-drum winder for paper-machines, comprising in combination with the drums suitably mounted in a frame bracket-arms at the ends of the drums, guide-bars pivoted to the upper curved ends of said bracket-arms, their lower free ends having a limited movement in elongated slots in the frame, combined with the journal-boxes sliding on said bars, the winding-roll mounted in said boxes, and means for raising the journal-boxes so that the roll will not contact with the winding-drums, as set forth.

2. A paper-winder, consisting of the drums mounted in a suitable frame, bracket-arms at the ends of the drums, swinging bars pivoted to the upper ends of the arms, and their lower ends guided in slots and allowed a limited play, the journal-boxes sliding on said bars, combined with the shaft carried by said journal-boxes, a shaft and ratchet-wheel keyed thereto, a handle secured to said ratchet-wheel, a pawl for engaging the teeth of the wheel, and a pawl pivoted to the frame, and a link connection between the journal-box and the shaft carrying the ratchet-wheel, whereby the shaft on which the paper is wound, may be raised and held suspended, as set forth.

3. In a double-drum winding-machine, the combination with the frame, the drums mounted therein, the bracket-arms, the guide-rods pivoted thereto, the journal-boxes sliding thereon, the rocking guard for the outer of the said drums, and link connection between said guard and the journal-box, whereby, as the size of the roll of paper being wound, increases, the guard is lowered, as shown and described.

4. In a device for winding paper, the combination of the drums mounted in a suitable frame, the bracket-arms, the guide-bars pivoted to said bracket-arms, the journal-boxes sliding on said bars, the semicylindrical-shaped guard, mounted to rock on one of the drum-carrying shafts, and a link connection between the journal-box and a bar or extension of said guard, whereby as the roll of paper increases in diameter, the upper free edge of said guard is kept at a given distance from the circumference of the roll of paper being wound, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN J. WARREN.

Witnesses:

ARCHIE C. RYDER,

GEO. H. COBB.