

(No Model.)

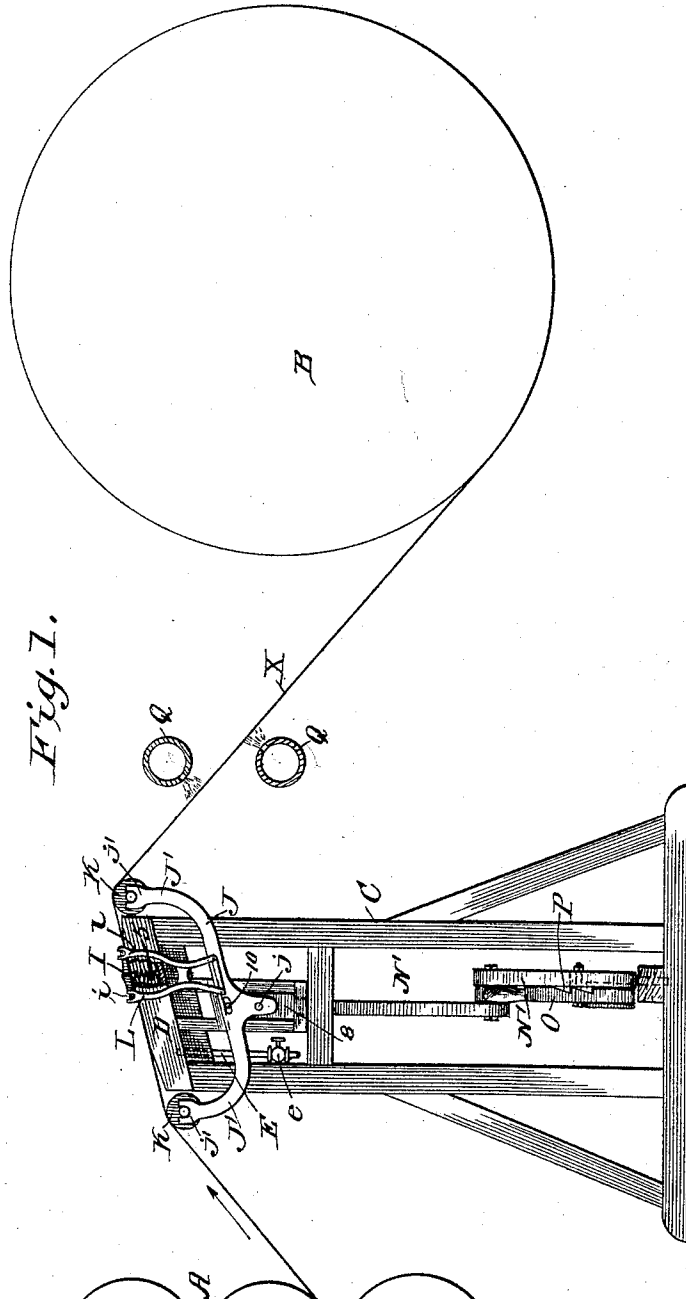
2 Sheets—Sheet 1.

J. J. NEWMAN.

MACHINE FOR WATERPROOFING OR COATING PAPER.

No. 453,090.

Patented May 26, 1891.



WITNESSES:

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Fig. 2.

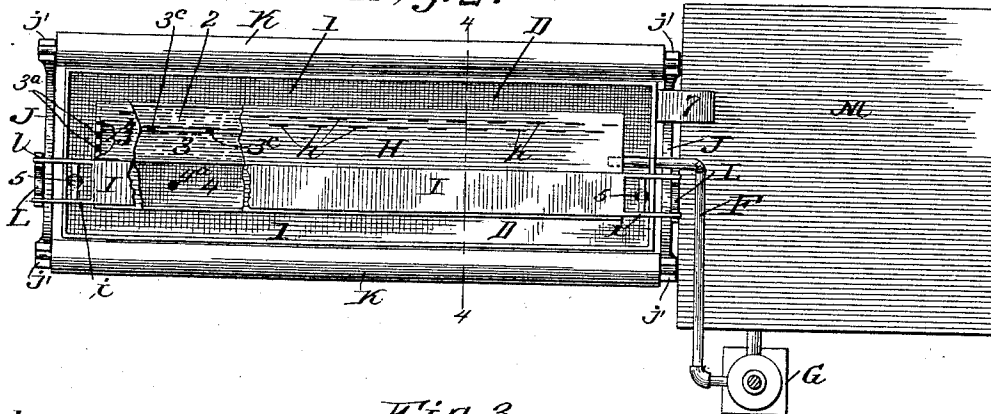


Fig. 3.

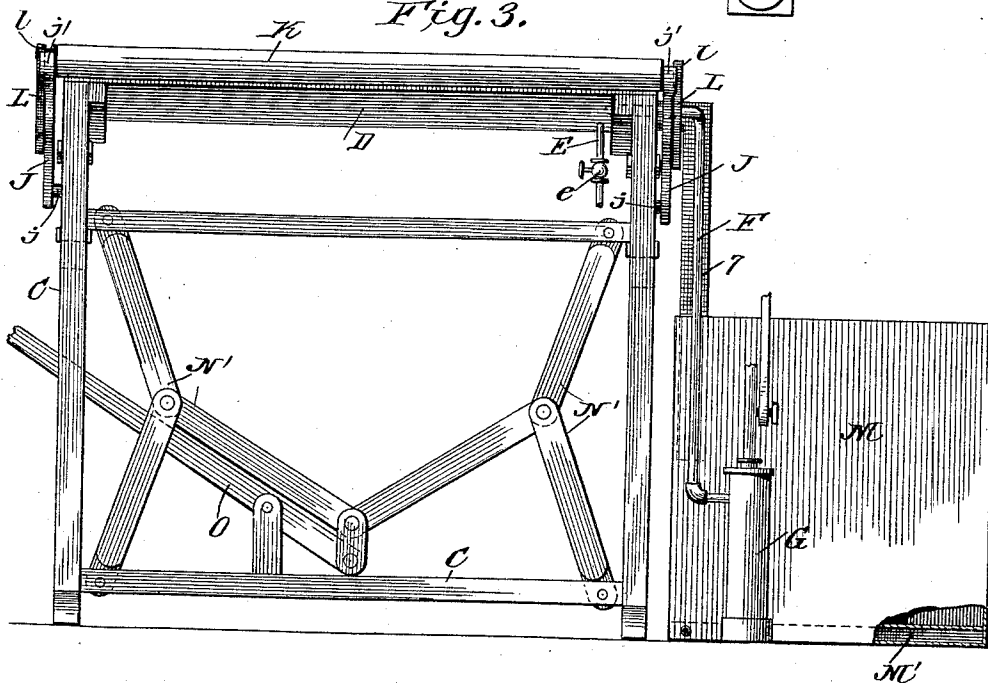
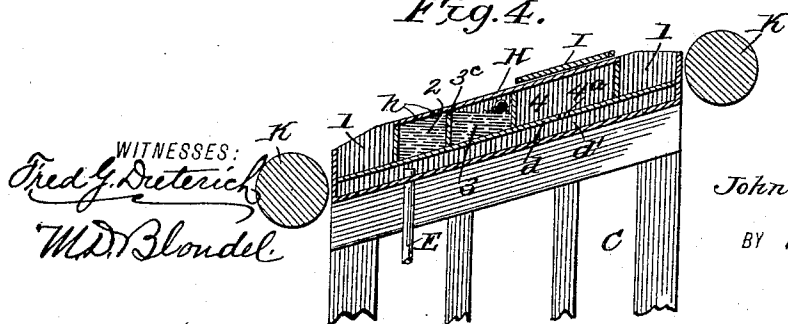


Fig. 4.



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JOHN J. NEWMAN, OF ELKHART, INDIANA.

MACHINE FOR WATERPROOFING OR COATING PAPER.

SPECIFICATION forming part of Letters Patent No. 453,090, dated May 26, 1891.

Application filed March 4, 1891. Serial No. 383,790. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. NEWMAN, residing at Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Machines for Waterproofing or Coating Paper, of which the following is a specification.

My invention relates to improvements in machines for the purpose of waterproofing, waxing, or coating paper; and it has for its object to provide certain devices which will operate in a simple and effective manner, which can be constructed so as to produce a very cheap machine, and which will save a large amount of paper, as the danger of breaking is reduced to a minimum.

My invention consists in the novel arrangement and peculiar combination of the several parts, hereinafter fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is an end view of my improved machine. Fig. 2 is a top view of a portion of the machine; Fig. 3, a side view of the same; and Fig. 4 is a cross-section of the coating devices, taken on the line 4 4, Fig. 2.

In the practical application of my invention it is used in connection with paper-making machines, being, as it were, a part of such machines, and it is arranged to operate to coat the paper after it leaves the cold calender-rolls, such coating devices being arranged between the said calender-rolls and the reel, means being also provided whereby the coated paper is cooled before it reaches the said reel.

In connection with the coating devices, I arrange adjustable means for straightening the paper before the wax is applied.

In the accompanying drawings, A indicates the calender-rolls, which, in the present instance, are cold rolls, and B the paper-receiving reel, between which and the rolls A are located the coating devices, which consist of the supporting-frame C, on the upper end of which is arranged the horizontally-disposed but downwardly and forwardly inclined coating tank D, which is most clearly shown in Fig. 4 of the drawings, by reference to which it will be seen the same consists of a main tank having a false bottom *d*, whereby a steam-space *d'* is formed, with which com-

municates a steam-supply pipe E, provided with a valve *e*, as shown. The upper part of the tank is divided into a series of spaces or troughs, one of which, the waste-trough, (marked 1,) extends around the sides and ends of the box D, and is arranged to receive the surplus wax as it is scraped from the paper, a pipe 7 being connected with the waste-trough 1, which serves to return the wax to the wax-reservoir M, as shown, a heating-chamber M' being provided under the reservoir to keep the wax fluid.

2 indicates the wax-distributing chamber; 3, the supplying-chamber, which receives the wax through a feed-pipe F, connected with a pump G, which forces the wax up from the reservoir M through said pipe F into the said chamber 3, such chamber having overflow-apertures 3^a 3^a in the end 3^b, through which the wax escapes into the waste-trough 1 when a too great amount is pumped into the said supplying-chamber, thereby providing for a regular and even flow of the wax from the chamber 3 through the apertures 3^a 3^a into the distributing-chamber 2.

4 indicates the heating-chamber, which is of a much larger area than the chambers 2 and 3, and has a series of perforations 4^a in its bottom, which communicate with the steam-space *d'* and through which the heating-chamber is supplied.

H indicates a smooth metal plate or cover which extends over the chambers 2, 3, and 4, and serves to effectually close the same, it being provided with a series of longitudinal slits *h* at a point over the chamber 2, through which the wax is forced against the paper as it passes over said slits. Said plate H, which is kept hot by the steam in the chamber 4, serves the purpose of heating and spreading the wax evenly on the paper.

I indicates a light smooth metal plate which is disposed over the chamber 4, said plate I being kept hot by contact with the cover H at such point, said plate I serving to smooth the wax on top of the paper, it being arranged for slight pressure against the paper, such pressure being regulated by means of the springs 5 5, arranged as shown.

J indicates brackets pivoted at *j* to slide blocks 8 8, and arranged for a slight rocking movement on their pivots, such movement

being limited by the elongated slot and pin 10, as shown in Fig. 1, the outer ends of each of the brackets having upturned ends J' J' , formed with bearings j' j' , in which fit the journals of guide-rollers K K, over which the paper X passes and is guided.

To the brackets J J is secured the smoothing-plate I, said plate having projecting studs i i , which fit in bearings l l on the supports L L, projected up from the brackets J J, as shown. By this construction it will be observed that when it is desired to lift the paper from the waxing-table or plate H, so as to straighten it preparatory to waxing, the plate I as well as the paper can be elevated, such operation being accomplished by means of the compound pivoted toggle-levers N' N' , which are connected with the slide-blocks 8 8, and are operated by a hand or foot lever O in a manner clearly understood by reference to Fig. 3 of the drawings, said lever being held in any of its adjusted positions by engagement with the rack P P on one of the levers N' .

Q Q indicate cold-blast pipes, which are arranged between the coating devices and the reel and disposed one under and the other above the paper, and arranged to operate to effectually cool the paper before it reaches the reel.

From the foregoing description, taken in connection with the drawings, the advantages and operation of my improved machine will be readily understood.

It will be seen that the paper is first calendered by the rolls A, and then passes over the waxing devices after it is straightened by means of the vertically-adjustable guide-rollers K K. As the paper is fed forward in the direction indicated by the arrow, its lower face will pass over the heated plate or cover H, and the wax, as it is forced through the slits h , will penetrate and pass through the paper and thoroughly saturate it, the smooth hot surface of the plate H serving to smooth and polish the lower face of the paper, the smoothing-plate I doing the same for the upper face thereof, the surplus wax being scraped from the under face of the paper by engagement with the forward or lower edge of the plate H, and dripping into the lower part of the chamber 1, while such as may still adhere to the paper as it passes over the upper end of the plate H will be caught in the upper part of the said chamber 1.

It will be seen that by the construction shown and described the paper is first calendered and then waxed, thereby effecting a saving of a large amount of broken paper, as it can be the more easily handled when it is calendered before waxing, and such paper as is broken between the calenders and the coating devices will be free of wax and can be worked over without loss.

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

1. The combination, with the calender-rolls A and the reel B, of the coating devices C, arranged between the rolls and reel B, and vertically-adjustable guides or lifting devices arranged to straighten the paper on the said coating devices, substantially as and for the purpose described.

2. The combination, with the rolls A and the reel B, of the coating devices C, arranged as shown, and consisting of a supporting-frame, the tank D on the top thereof, said tank formed with a heating-chamber 4 and a wax-distributing chamber 2, a cover or coating plate disposed over the said chambers 2 and 4 and formed with openings at a point over the chamber 2, the supplying-chamber 3 and the waste-trough 1, surrounding the chambers 2 and 4, and means for supplying wax to the chamber 3 and heat to chamber 4, substantially as shown and described.

3. The combination, with the calender-rolls A and the reel B, of the coating devices C, consisting of a supporting-frame, a wax-distributing chamber, a heating-chamber, a coating-plate disposed over the said wax and heating chambers and supplied and heated thereby, said plate disposed horizontally and inclined downward toward the rolls, and means for supplying the wax and heat, substantially as shown and described.

4. The combination, with the rolls A and the reel B, of the coating devices, consisting of a frame or support, the tank D, formed with a steam-space d , the chambers 2, 3, and 4, arranged above said space d , the chamber 4 connected therewith, the coating plate or cover H, arranged over said chambers 2, 3, and 4 and having apertures or slits opening into the chamber 2, said chamber 2 communicating with and supplied with wax from the chamber 3, means for pumping wax to said chamber 3, as shown, a waste-trough 1 surrounding the chambers 2, 3, and 4, and the steam-supply connected with the space d , all arranged substantially as and for the purpose described.

5. The combination, with the rolls A and the reel B, of the frame C, the coating-tank D on the top thereof, formed with a coating-plate H and wax-supplying and heating chambers, as stated, vertically-movable supports 8 8, the brackets J secured thereto, paper-supporting guide-rollers K, carried by said brackets, and the smoothing-plate I, secured to the said brackets J and disposed over the heating-chamber and the plate H and arranged for vertical movement with the brackets J, as and for the purpose described.

6. The combination of the frame C, the tank D, formed with a heating-space d , the heating-chamber 4, communicating with the space d , the supplying-chamber 3, the distributing-chamber 2, supplied from chamber 3, the plate H, the waste-trough 1, the smoothing-plate I, disposed over the plate H, and means for adjusting the pressure of such plate I against the plate H and for supplying the wax to

chamber 3 and steam to space *d*, all arranged as and for the purposes stated.

7. The combination of the frame C, the tank D, formed with heating and wax-supplying chambers and a coating-plate, as shown, of the vertically-movable blocks 8 8, the toggle-levers N'N' connected therewith, the brackets J, pivotally connected to the blocks 8 and arranged for a slight swinging motion on their
10 pivots, and means for holding the levers in their adjusted positions, substantially as and for the purpose described.

8. The combination, with the frame C and the tank D held thereon, formed with wax and heating chambers, as described, of the wax-reservoir M, the pump G, connected therewith, a supply-pipe connecting the pump and wax-chamber in tank D, and the steam-supply pipe E, for the purpose described.

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Witnesses:

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