

(No Model.)

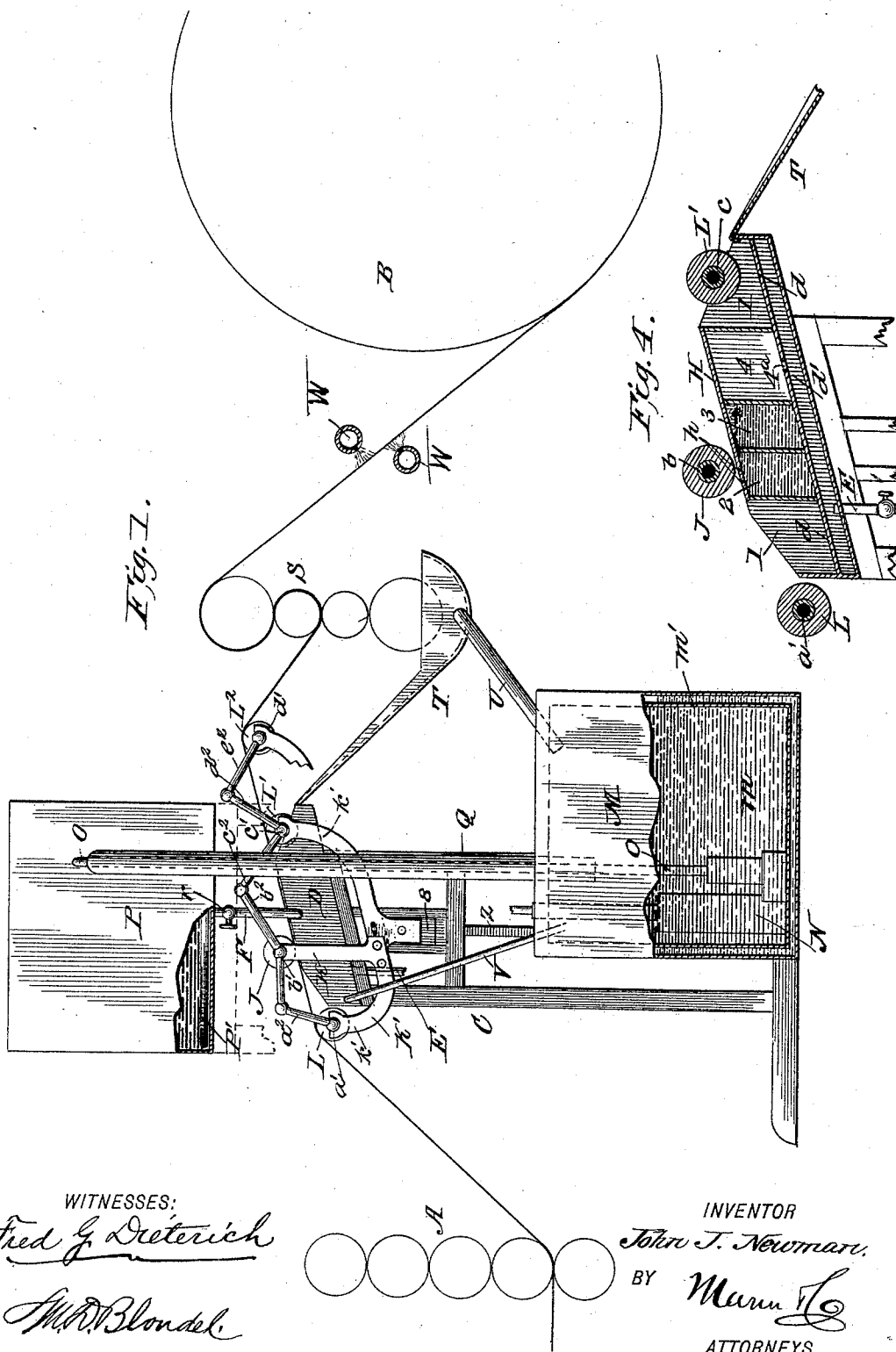
2 Sheets—Sheet 1.

J. J. NEWMAN.

MACHINE FOR WATERPROOFING OR COATING PAPER.

No. 497,198.

Patented May 9, 1893.



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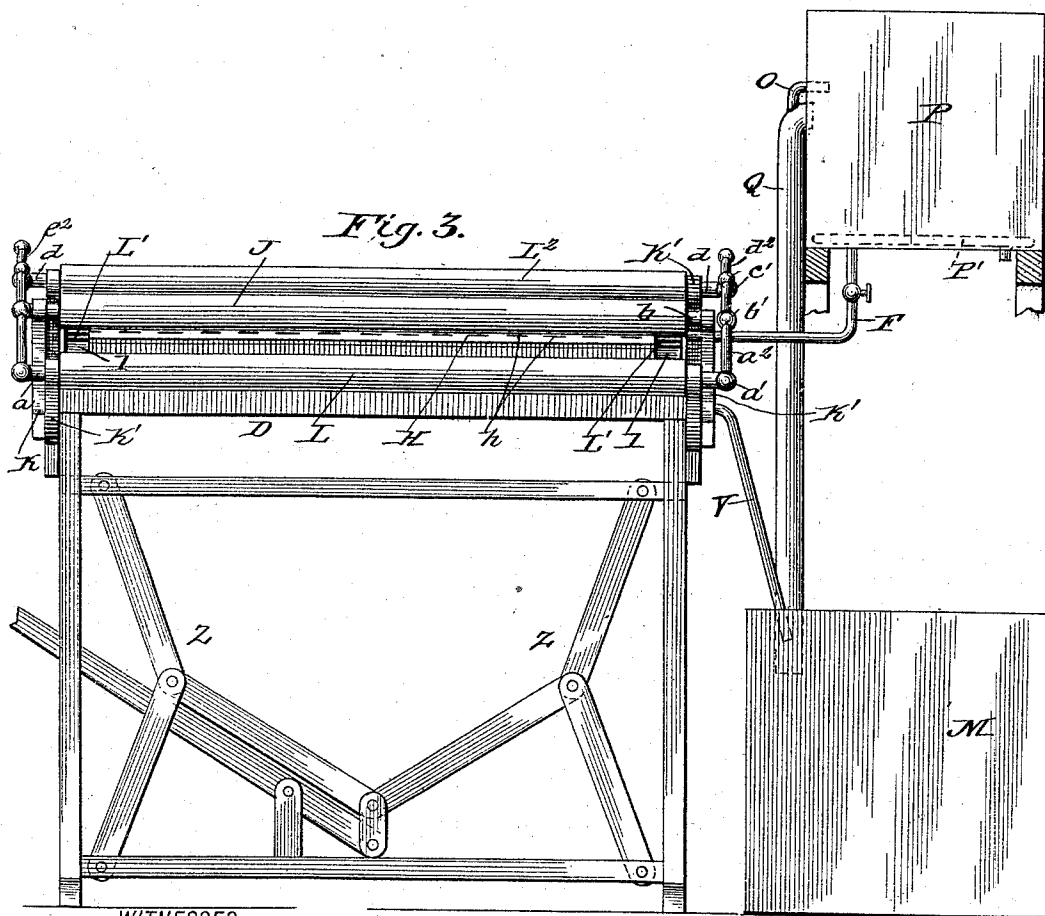
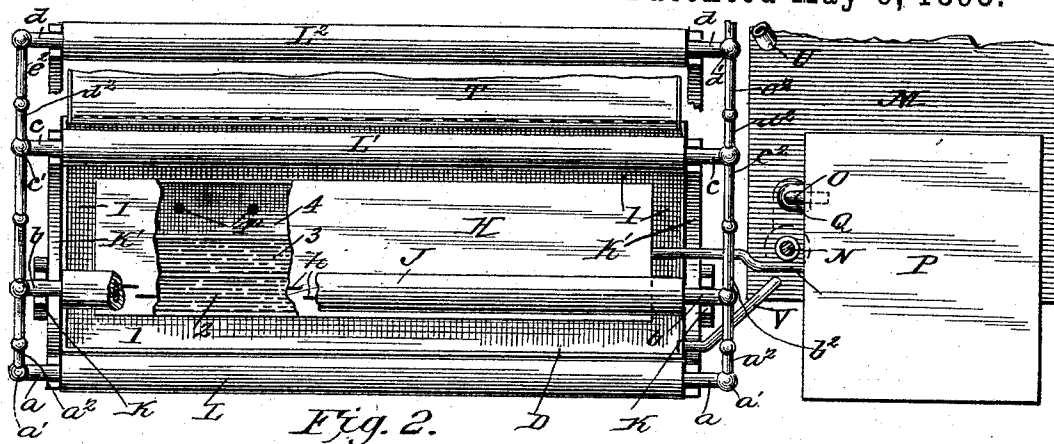
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WITNESSES:

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M. R. Blondel.

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UNITED STATES PATENT OFFICE.

JOHN J. NEWMAN, OF ELKHART, INDIANA.

MACHINE FOR WATERPROOFING OR COATING PAPER.

SPECIFICATION forming part of Letters Patent No. 497,198, dated May 9, 1893.

Application filed December 20, 1892. Serial No. 455,839. (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 a Machine for Waterproofing or Coating Paper, of which the following is a specification.

My invention relates more particularly to improvements on a similar machine, for which a patent was granted me May 26, 1891, No. 443,090, and it consists in the construction and combination of parts hereinafter fully described in the specification and pointed out in the claims, reference being had to the accompanying drawings in which—

Figure 1 is a side elevation of my improved machine partly in section. Fig. 2 is a top plan view of the same. Fig. 3 is an end view thereof and Fig. 4 is a cross section of the coating devices, taken on the line 4—4 Fig. 2.

In carrying out my invention I employ the usual cold calender rolls A and the paper receiving reel B between which are located the coating devices proper. These devices which are most clearly illustrated in Figs. 1 and 3, comprise the supporting frame C on the upper end of which is disposed the inclined coating tank D, formed with the false bottom d , and a steam space d' into which discharges a valved steam supply pipe E. The upper part of this tank is divided into a series of spaces or troughs, one of which (indicated by 1) extends around the sides and ends of the tank and forms a basin to receive the surplus wax as it is scraped from the paper.

2 indicates the wax distributing chamber, 3 the receiving chamber which receives the wax from the feed pipe F, presently more definitely referred to, and 4 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 it having a series of longitudinal slits h at a point over chamber 2 through which the wax is forced against the paper, as it passes over such slits.

So far as described the construction of the

coating tank is substantially that shown in my other patent. In this case however I dispense with the smoothing plate shown in such patent and employ a roll J which is held over the plate H, but does not quite touch it, it serving to keep the paper down against the face of such plate and such roll has a hollow shaft formed by a steam pipe passed therethrough as shown. The roll J is journaled on the bracket members K, K, of the vertically movable brackets K' K', which are pivotally connected to blocks 8 held to slide on the main frame; their outer ends being turned up as at $k' k'$ to form journal bearings for the end guide rolls L L', such ends being adapted for a slight rocking movement by pivoting the brackets K' K' as shown.

L² indicates an additional guide roll fixedly journaled on the main frame of the machine at a point to the rear of the coating box.

By reference to Fig. 1 it will be noticed that the rear roll L' on the distributor, is located in the rear portion of the basin 1, or reservoir of the tank D, so that the surplus wax from such roll will be caught in the said basin or trough 1.

The several rolls over the coating tank are kept hot, by steam pipes which pass through them, and which form the journals therefor, and to provide for an oscillatory movement of such rolls, relatively to each other, the several transverse steam pipes $a b c$ and d have universal joint connections $a' b' c' d'$ with feed pipe sections $a^2 b^2 c^2 d^2$ and e^2 as most clearly shown in Fig. 1.

M indicates a wax holding tank, supported on the floor, which has an inner wax holding chamber m surrounded by a steam or hot air chamber m' , and such tank I term the melting tank, as all the surplus wax is fed back into it to be remelted. Inside of this melting tank is arranged a pump N, adapted to force the melted wax up into a discharge pipe O which projects up and discharges into a main supply tank P, located above the coating devices, such pipe passing up through a larger pipe Q, extended up into the upper tank and discharging into the lower, such pipe serving as an overflow for the upper tank. This tank P which has a steam coil P' in its bottom to keep the wax hot, has a discharge pipe F

through which the wax flows by gravity, it having a valve *r* to regulate the flow, the lower end of such pipe discharging into the receiving chamber 3 of the coating tank D as shown.

5 S indicates a set of hot squeeze rolls through which the coated paper passes after it leaves the coating tank which serve to more effectually remove the surplus wax from the paper, such rolls being disposed over a suitably arranged catch basin T from which extends a waste pipe U which discharges into the melting tank. V indicates a similar waste pipe which connects the basin or trough 1 of the coating tank D with the melting tank as shown. In

10 practice all of the wax pipes have steam pipes surrounding them to keep the flowing wax hot.

W W indicate the cold blast pipes, arranged as shown which operate to effectually cool the

20 paper before it reaches the reel.

The slide blocks 8—8 before referred to, to which are connected the rocker frames K are connected to and operated by the toggle levers Z Z arranged and constructed substantially in the manner shown in my patent

25 above referred to.

The small guide rolls on the coating tank are driven by the calender rolls to travel at the same speed as the paper, suitably arranged sprocket wheel and chains being provided for such purpose, such not being here shown.

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From the foregoing description taken in connection with the drawings it will be observed, that the paper as it leaves the calender rolls A, passes over the hot rolls L L' under the smoothing roll J over the fixed guide roll L², through the supplemental squeeze rolls S, between the pipes W and then over the reel.

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By providing the hot guide rolls L L' and a hot smoothing roll J arranged substantially as shown ample means are provided for keeping the paper in a proper condition to receive the coating, such rolls also serving to straighten the paper.

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The paper as it is fed in a forward direction passes with its lower face over the wax bed, and receives the wax as it is forced up through the slits *h* from the feed chamber 3, and is thoroughly saturated thereby, the hot surface of the bed plate and the hot smoothing roll serving to effectually polish and keep smooth the upper and lower faces of the paper.

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By arranging the additional hot squeeze rolls the waste is the more effectually removed from the paper, and by providing two tanks connected in the manner shown, ample means are provided for maintaining the wax at a proper consistency, for a continual reuse, thereby effecting a great saving and rendering the application of the coating material uniform at all times.

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

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1. In a paper coating machine the combination with the calender rolls A, the reel B, and the intermediate waxing tank, having wax supplying devices and a hot coating plate over which the paper passes, of the vertically movable frames K K', the smoothing roll J, and guide rolls L L' journaled on such frames, said rolls J, L L' having transverse steam pipe shafts, provided with steam pipe connections, and means for vertically moving such frames K K', all substantially as and for the purposes described.

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2. In combination with the rolls A, the reel B, and the coating tank D, formed with a wax receiving, and a hot air chamber, a cover plate over which the paper passes, and a surrounding waste trough, of the frames K K', the smoothing roll J and the end guide rolls L L' held on such frames the upper guide roll L' held in the waste trough of the tank D, all substantially as and for the purpose described.

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3. In a paper coating machine the combination with the calender rolls A, the reel B and the coating tank D, arranged substantially as shown, of the vertically movable and oscillatory frames K K', the smoothing roll J, the guide rolls L L', said rolls having transverse steam pipes forming journal bearings said pipes mounted on such frames K K', steam feed pipes, and universal connections between such feed pipes and the transverse steam pipes, of the rolls J, L L' and means for moving the frames K and K' vertically substantially as shown and described.

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4. In a paper coating machine, the combination with the coating tank D, having a wax distributing chamber, and a waste trough, of the wax holding tank P, disposed above the coating tank D, a supply pipe projected from the wax tank P and discharging into the distributing chamber of the coating tank, the melting tank M adapted to receive the waste from the coating tank D and a pump connection between such tanks M and P all substantially as and for the purposes described.

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5. In a paper coating machine essentially as described, the combination with the coating tank D having a wax distributing chamber and waste receiving compartment, the main supply tank, a valved feed pipe connected with such distributing chamber, a waste receiving tank, having a hot air chamber, a waste pipe connecting such tank with the waste compartment of the coating table, a discharge pipe connecting the two wax tanks, a pump for forcing the wax up through such pipe into the main tank and an overflow pipe surrounding such discharge pipe, discharging into the waste tank, all substantially as and for the purposes described.

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6. As an improvement in paper coating machines, the combination of the calender rolls A, the reel B, the coating tank D, the smoothing roll J, guide rolls L L' L² arranged substantially as shown, the supplemental squeeze rolls S, the upper wax tank P, having a feed

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pipe to supply the coating table, the lower waste receiving tank, a waste pipe connecting such tank with the coating table, a catch basin under the squeeze rolls, a waste pipe
5 connecting such basin and waste tank and a pump and pipe connection between the upper and lower tanks, whereby the waste wax is forced back into the upper or main tank all substantially as and for the purposes described.

JOHN J. NEWMAN.

Witnesses:

NEWEL H. MILLER,
JAMES C. BARNES.