

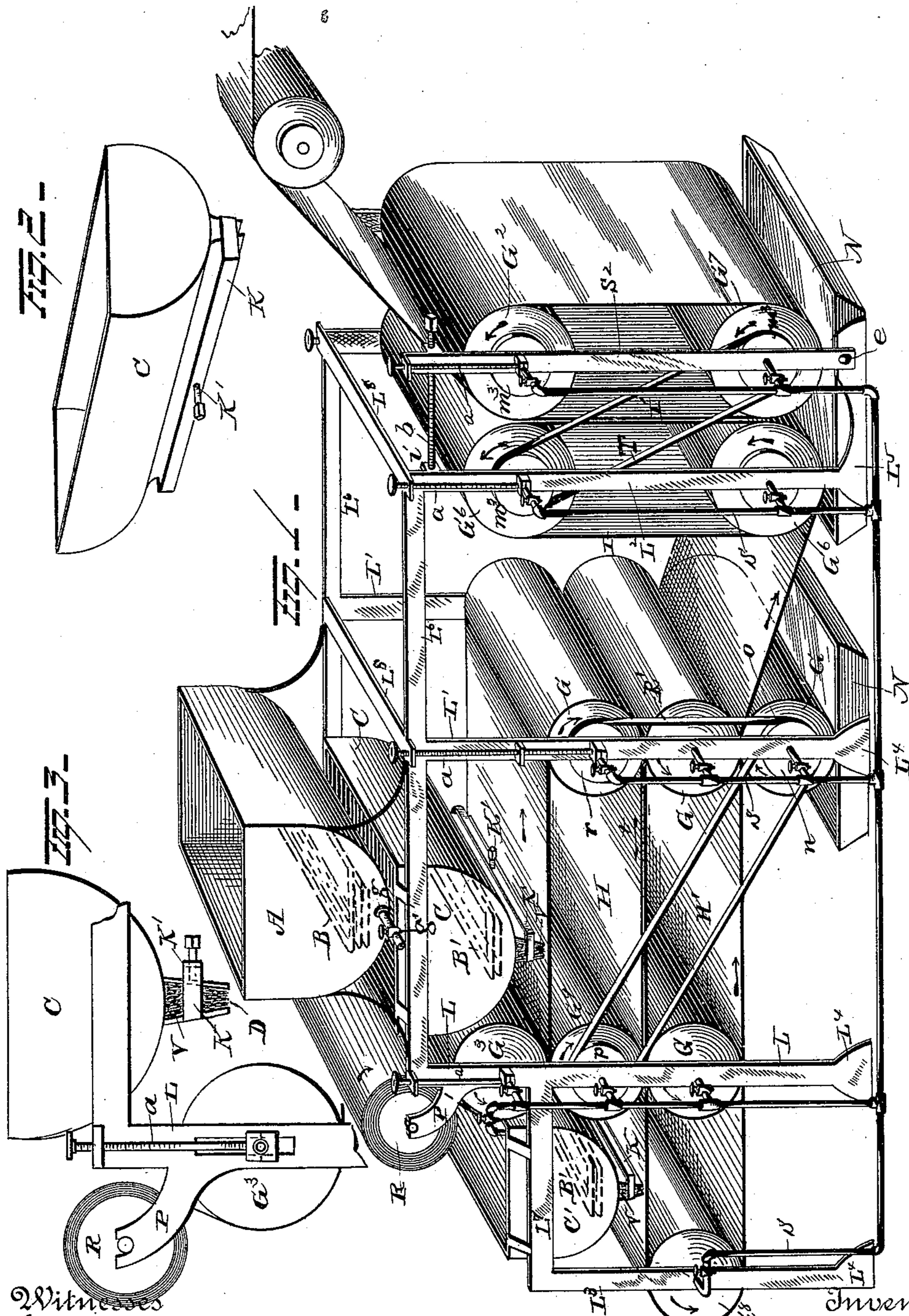
(No Model.)

S. HODKINSON & G. E. RAYMOND.

MACHINE FOR WAXING PAPER.

No. 396,402.

Patented Jan. 22, 1889.



Witnesses
G. F. Downing
V. E. Hodges

Inventor
Samuel Hodgkinson
George E. Raymond.
By his Attorney
H. A. Symonds.

UNITED STATES PATENT OFFICE.

SAMUEL HODKINSON, OF STEUBENVILLE, OHIO, AND GEORGE EDWARD RAYMOND, OF CHICAGO, ILLINOIS.

MACHINE FOR WAXING PAPER.

SPECIFICATION forming part of Letters Patent No. 396,402, dated January 22, 1889.

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To all whom it may concern:

Be it known that we, SAMUEL HODKINSON and GEORGE EDWARD RAYMOND, of Steubenville and Chicago, in the counties of Jefferson and Cook and States of Ohio and Illinois, respectively, have invented certain new and useful Improvements in Machines for Waxing Paper; and we do hereby 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.

Our invention relates to an improvement in machines for waxing or sizing paper or similar material, the object being to provide a machine which will evenly distribute the wax over the entire surface of the material to be coated and remove and preserve any superfluous coating substance.

A further object is to provide a machine which will wax or size any web—such as paper, cloth, or similar material—and at the same time give it a smooth finished surface, and thus effectually complete the entire treatment in a single passage through the machine.

With these ends in view our invention consists in certain features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of our improved machine. Fig. 2 is a similar view of the feeding-trough, and Fig. 3 is a side elevation of a detailed portion of the machine.

The frame-work of the machine consists of the vertical standards L L' L^2 L^3 , arranged in pairs and resting on bracket-feet L^4 . Stay-
40 rods L^6 connect the standards, and cross-rods L^8 hold the pairs of standards suitably separated. The standards L^3 are preferably shorter than the other standards, and their upper ends are connected to the standards L by rods L^7 . Hollow cylindrical metallic rollers G are journaled in the standards L L' , preferably three between each pair. These rollers are true throughout their length and located in moderately-close proximity to each other, in order to receive the material to be
50 operated upon between them and bear equally upon this material. An endless belt, H , passes

over the upper roller, G , between the standards L L' , and also over its opposed roller between the standards L L' . A similar but longer endless belt, H' , is carried upon the rollers immediately beneath the rollers carrying belt H , and this belt is also passed over the roller G^8 , journaled in the standards L^3 L'^3 . The material of which these belts are formed is desirably some fibrous stuff—such as canvas, felt, or ducking—and these rollers are turned by means of belts carried on pulleys on the ends of the rollers, one of these belts, G^9 , extending diagonally over pulleys p and n , and another, R' , over pulleys r and o , so that the three rollers thus connected are revolved in the same direction, carrying belt H in the direction indicated by the arrow and the belt H' in the opposite direction. Over the pulleys m^3 of the rollers G^6 G^7 a belt, T , is passed diagonally, so that the metallic belts I I' are driven together through the instrumentality of this diagonal belt. The paper now upon leaving roll R is passed beneath roll G^3 , thence over roll G , between it and its adjacent roll, then around roll G^8 , between the middle and lower rolls, G , thence beneath roll G^6 , and between metallic belts I I' , and finally to a winding-drum. Thus those rolls which are not directly driven by belts are driven by frictional contact with an adjacent actuated roller or by passage of the paper between them. The journal-boxes of these rollers are fitted in slots in the vertical standards, as indicated by Fig. 3, in order that their frictional contact with each other may be regulated by adjusting-screws a .

In the standards L^2 a pair of rollers, G^6 , similar to the rollers G , previously described, are journaled, and the upper one is provided with an adjusting-screw, just as the others previously described are. The feet L^5 , upon which these standards rest, are extended forwardly, and standards S^2 are pivoted thereto. Rollers G^2 G^7 , journaled in these pivoted standards, are also similar to those previously described, and the upper one is provided with adjusting-screw a . Over these rollers endless metallic belts I I' are carried, the journals of the rollers being provided with pulleys m^3 , over which a belt, T , is placed in such a way that the contiguous parts of the

belts are either operated together and in one direction or, preferably, as shown, in opposite directions. Screws *b* are provided for increasing or lessening the distance between the rollers and belts, according to the frictional contact required for the treatment of the material being operated upon.

A supply tank or reservoir, *A*, is located, preferably, on top of the frame, and inside of this tank coils of pipes *B*, for circulating steam or hot water, are located. The bottom of this tank slopes from each side toward the center to deliver the melted contents through one or more pipes, *g*, which project from the bottom of the tank, these pipes having cocks *g'* inserted to afford a means for regulating the discharge of wax, paraffine, or other material to be employed to coat the paper or cloth.

Immediately below the tank *A* the feeding-trough *C* is located. This trough *C* is preferably made of sheet metal, and a bail-clamp, *K*, is secured by its ends to one side of the mouth *D*, and a set-screw, *K'*, is inserted through the longitudinal bar of the bail, to bear against the adjacent side of the mouth, whereby by turning the screw one way or the other the mouth is opened or closed, owing to the flexibility of the jaws forming the mouth, they being formed of sheet metal. A wick or strip of felt cloth or other fibrous material, *V*, may be inserted between the jaws of the mouth, and by tightening or loosening the jaws upon this filling the flow of melted wax or other material contained in the tank is controlled. This trough *C* is preferably located over belt *H*, but its contents may be discharged directly upon a roller, *G*³, above the rollers *G* in the standards *L L*. A similar trough, *C'*, is located over the endless belt *H'*, this tank being preferably supported on the bars *L'*, between the rollers *G* and *G*⁸, and fed from the main supply-tank *A* through pipe *g*. Each of these troughs *C C'* is provided with a heating-coil, *B'*, for keeping the coating material in a liquid state.

A series of connected steam-pipes, *S S*, enter the ends of the hollow journals of the several rollers. The several branches of pipes are provided with valves, by which the influx of steam is controlled, and the pipes are fed from any hot air, water, or steam generator or other supply.

The material to be coated is placed in a roll over roller *R*, supported on brackets *P*, and thence the material passes between rollers *G*³ and *G*, then over belt *H*, where it receives wax, either directly from the belt *H* or from the roller *G*³. From this point the material passes between the belts *H H'* over the roller *G*⁸, thence beneath belt *H'* and between the two lower rollers, *G*, in the standards *L' L'*, and finally up between the heated metallic belts *I I'*, where the paper undergoes a process of ironing. During the passage of the material between these rollers and belts the material, besides being supplied with wax

or paraffine, is also removed of all superfluous wax. At these points—that is, beneath the rollers *G* in the standards *L' L'* and the rollers in standards *L² S²*—drip-pans *N* are stationed to catch all the superfluous wax. At these particular points the pans are most needed; but it is obvious that pans might be located in other places, if needed, and it is also evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of our invention; hence we do not wish to be limited to the exact construction herein set forth; but,

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with fixed standards and rollers journaled therein, of pivoted standards, rollers journaled in said pivoted standards, and metallic belts carried by these rollers, substantially as set forth.

2. The combination, with fixed standards, pivoted standards, and hollow metallic rollers journaled in these standards, of flexible metallic belts and adjusting-screws for varying the contact of these metallic belts, substantially as set forth.

3. The combination, with fixed standards, pivoted standards, and hollow metallic rollers journaled in said fixed and pivoted standards, of flexible metallic belts carried on said rollers, heating-pipes passing through the rollers, and adjusting-screws for varying the relative positions of the rollers, and the metallic belts, substantially as set forth.

4. The combination, with a set of standards, rollers journaled therein, and web and metallic belts carried on said rollers, of wax-troughs, the latter each having a mouth in its bottom, a fibrous filling in the mouth, and an adjusting-screw for opening and closing the mouth, substantially as set forth.

5. The combination, with a set of standards, rollers journaled therein, and drip-pans located in position to catch the superfluous coating material, of fibrous and metallic belts carried on the rollers, belts for communicating motion to the rollers, feed-troughs located over the fibrous belts, and screws for varying the contact of the rollers and belts, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two witnesses subscribing hereto.

SAMUEL HODKINSON.

Witnesses:

E. W. PERRY,
S. M. HODKINSON.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE EDWARD RAYMOND.

Witnesses:

ELERY C. BALKAM,
ROBT. H. MARSTON.