(No Model.)

I. SHERCK & J. BATIG, Jr.

DEVICE FOR COATING PAPER AND OTHER MATERIAL WITH WAX.

No. 346,870. Patented Aug. 3, 1886.

Fig. 1.

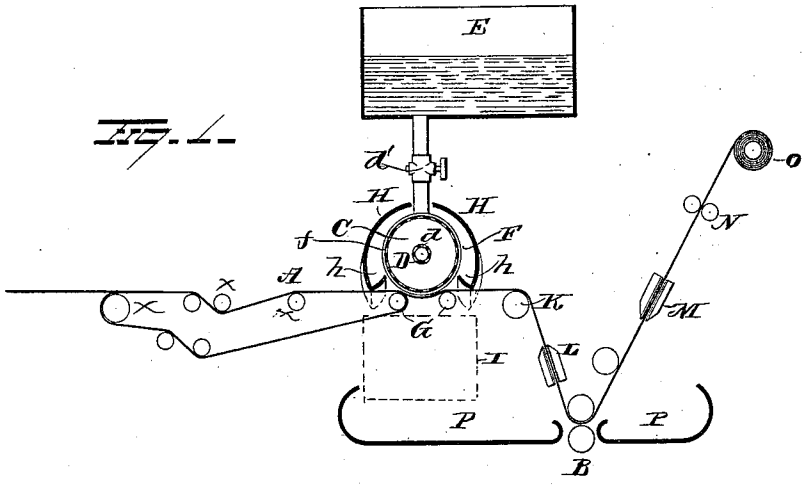
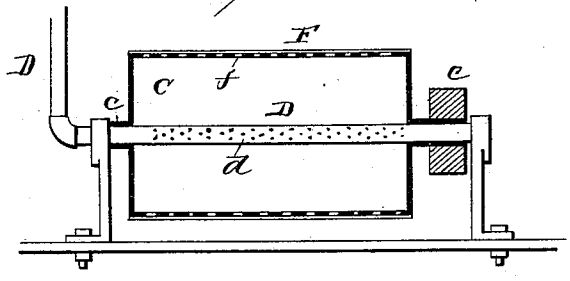


Fig. 2.



WITNESSES

S. G. Nottingham

V. E. Hodges

INVENTOR

Isaac Sherck

Joseph Batig Jr.

B. H. A. Seymour. Attorney

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ISAAC SHERCK AND JOSEPH BATIG, JR., OF FREMONT, OHIO.

DEVICE FOR COATING PAPER AND OTHER MATERIAL WITH WAX.

SPECIFICATION forming part of Letters Patent No. 346,870, dated August 3, 1886.

Application filed June 22, 1886. Serial No. 205,918. (No model.)

To all whom it may concern:

Be it known that we, ISAAC SHERCK and JOSEPH BATIG, Jr., of Fremont, in the county of Sandusky and State of Ohio, have invented certain new and useful Improvements in Devices for Coating Paper and other Materials; 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 devices for coating paper and other materials with wax.

The object is to provide means for applying the wax to the paper as soon as the paper is in a condition to receive it after its manufacture.

A further object is to provide a simple and effective device for applying the wax to and removing the superfluous wax from the paper.

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

In the accompanying drawings, Figure 1 is a view of the waxing device and portion of a paper-mill in longitudinal section, and Fig. 2 is a detached view of the waxing-cylinder.

The device or devices for waxing the paper are intended to form, in effect, an attachment to a paper-making machine, so that the paper, as it passes from the calender-rolls of the mill, may be coated and waxed before it is further handled.

The paper-mill is only partially represented in the drawings, as it forms no part of our present invention further than its location relatively to the waxing device.

A represents the paper as it leaves the calender-rolls *x* of the paper-mill, and is drawn by a pair of synchronously-geared rolls, B, beneath the waxing-cylinder C; or the paper might be led beneath the waxing-cylinder while on or just leaving the gauze or blanket. The cylinder C is hollow, and is provided either with trunnions *c*, one or both of which are hollow and loosely mounted on a hollow shaft, D, extending through the ends of the cylinder, or the cylinder may be provided with one solid journal mounted in a suitable bearing at one end and mounted on a hollow shaft or pipe at at the opposite end.

The shaft or pipe D may either extend entirely or partially within the cylinder, or it may simply enter one of the hollow trunnions. If it extends through the cylinder, it is provide with a series of openings, *d*, within the cylinder, through which the melted paraffine or other wax is fed to the interior of the cylinder, and if stopped short at the end of the cylinder its end is left open to feed the melted wax into the cylinder.

The feed-pipe D leads from a supply tank or reservoir, E, in which the melted wax is held, to the cylinder C, as above described, and is provided with a stop-cock, *d'*, to regulate the flow. The supply tank or reservoir may either be located above the waxing-cylinder C, and the wax be fed thereto by gravity, or it may be forced from the supply-tank into the cylinder.

The cylinder C has a band-pulley or pinion, *c*, secured to one of its trunnions or to a sleeve or journal attached thereto, by means of which a rotary motion is imparted to the cylinder from a drive-wheel. (Not shown.) The cylinder is covered with a soft porous material, F—felt, for example—adapted to distribute the wax evenly over the surface of the cylinder as it is fed through perforations *f* in its shell. The curved shell of the cylinder may be formed of staves and crevices left between them for the passage of the wax, or it may be formed solid and perforations formed in it, or the staves might be set closely together and perforated.

The wax is forced outwardly through the perforations in the cylinder-shell by the centrifugal force of the revolving cylinder, and it is obvious that the greater the centrifugal force the greater will be the amount of wax fed to the surface of the cylinder; hence the regulating of the speed of the cylinder becomes an effective means for regulating the amount of wax deposited upon the paper, the travel of the paper remaining uniform. One or more perforations or valves, S, are provided in the end of the cylinder to supply air.

A pair of small rollers, G, are located in positions to hold the paper in contact with the face of the cylinder C, and a jacket or shield,

H, is supported over the cylinder a short distance away from and conforming to the general curve of the cylinder, to prevent the waste of the wax by its being thrown from the surface. The lower edge of the shield H is provided with a trough, *h*, which collects the wax that is thrown against the shield and conducts it off to one end of the cylinder and into a suitable receptacle, I, located beneath it.

A roller, K, serves to change the direction of the paper soon after it leaves the waxing-cylinder, and after passing over the roller K the paper passes downwardly between a pair of stripping and smoothing pads, L. The pads may be made of soapstone, or any material which is a conductor of heat, and are faced with felt or its equivalent, and heated in any well-known or approved manner.

The synchronously-geared rolls B, above referred to, are located beneath the pads L, and serve to draw the paper from the calender-rolls into contact with the waxing-cylinder and stripping-pads, as described. From the rolls B the paper extends upwardly between another set of smoothing-pads, M, which are adapted to be adjusted toward and away from each other to regulate the tension of the paper; thence it passes between another set of synchronously-geared rolls, N, and thence to a winding reel, O.

Dripping-pans or wax-receptacles P are located beneath the stripping and smoothing pads L and M, to catch the wax as it falls from the pads. The wax which is thrown from the surface of the cylinder C is conveniently conducted by the trough or troughs on the shield into one of the receptacles P.

The jacket or shield H may be a simple sheet of metal, or it may be hollow and provided with radiating-coils to keep the wax on the face of the cylinder warm.

It is 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 limit ourselves strictly to the 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 a paper-making machine or mill, of a waxing device adapted to receive the paper directly from the calender-rolls, gauze, or blanket of the paper-making machine, substantially as set forth.

2. The combination, with a paper-making machine or mill, of a waxing-cylinder located in convenient proximity thereto and feeding-rolls adapted to draw the paper directly from the calender-rolls, gauze, or blanket of the paper-making machine or mill into contact with the waxing-cylinder, substantially as set forth.

3. The combination, with a hollow perforated cylinder and means for rotating the same, of a pipe adapted to conduct melted wax from a supply-tank into the interior of the cylinder, an absorbent jacket on the surface of the cylinder, and means for holding paper in contact with the face of the cylinder, substantially as set forth.

4. The combination, with the rotary cylinder provided with a perforated shell and the pipe adapted to conduct the melted wax into the cylinder, of the rolls adapted to hold the paper in contact with the cylinder and the shield partially surrounding the cylinder and adapted to collect the wax thrown from the surface of the cylinder and convey it to a suitable receptacle, substantially as set forth.

5. The combination, with the waxing-cylinder and the feed-rolls, of the stripping and smoothing pads and the wax-receptacles located beneath them, substantially as set forth.

6. The waxing-cylinder consisting, essentially, of the perforated cylindrical shell provided with an absorbent jacket, and having a hollow trunnion for loosely mounting the cylinder on a feed-pipe, and air inlets or valves in its end or ends, substantially as set forth.

7. The combination, with the waxing-cylinder, its shield, and the feed-rolls for drawing paper in contact with the cylinder, of the stripping and smoothing pads, one set being adjustable toward and away from the paper, the roll for changing the direction of the paper, and the receptacle for collecting the waste wax, the whole constructed and arranged substantially as set forth.

8. A waxing-cylinder provided with perforations in its shell and adapted to feed wax through the perforations by centrifugal force, substantially as set forth.

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

ISAAC SHERCK.
JOSEPH BATIG, JR.

Witnesses:
MORRIS E. TYLER,
JOHN B. B. DICKINSON.