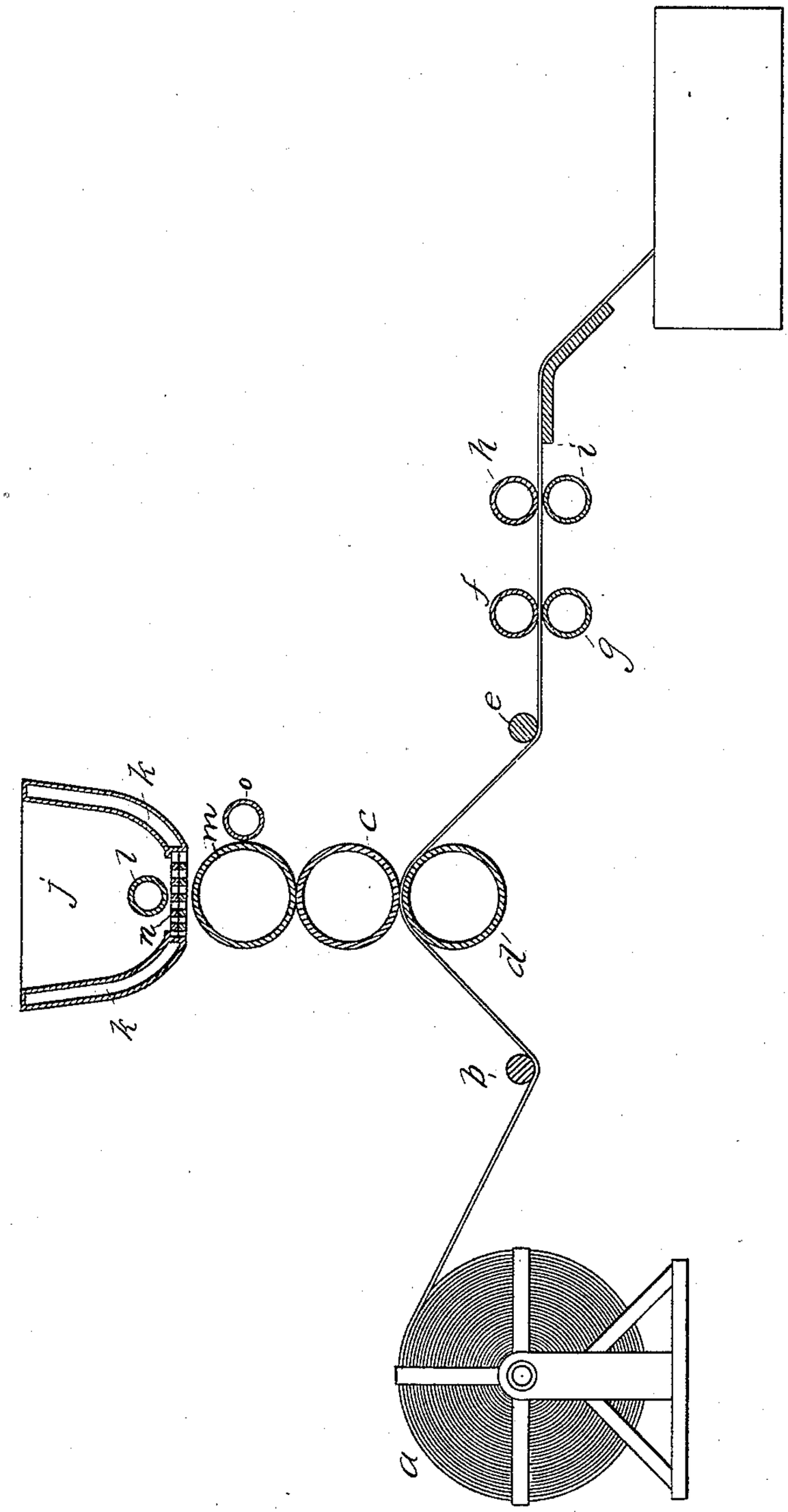
(No Model.)

J. B. ANDERSON.

METHOD OF WAXING PAPER.

No. 395,645. Patented Jan. 1, 1889.



WITNESSES.
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UNITED STATES PATENT OFFICE.

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METHOD OF WAXING PAPER.

SPECIFICATION forming part of Letters Patent No. 395,645, dated January 1, 1889.

Application filed April 7, 1887. Serial No. 233,956. (No model.)

To all whom it may concern:

Be it known that I, J. BURNHAM ANDERSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Methods of Waxing Paper, of which the following is a specification.

My invention relates to modes of waxing paper.

It is the object of my invention to provide improvements whereby the wax may be evenly diffused upon the paper in varying quantities to suit various circumstances and qualities or kinds of material being treated, and be thoroughly infused into the paper, avoiding waste and expensive machinery in the operation.

To these ends my invention consists in the mode hereinafter described and claimed, reference being had to the accompanying drawing, and to the letters of reference marked thereon, forming a part of this specification, which drawing represents a vertical sectional view of the prefered form of apparatus employed by me in carrying out my improved process.

The paper to be treated may be a continuous web wound on a roll, *a*, from which it may be drawn, or it may be treated in accordance with my invention as it issues from the paper-making machine. From the roll *a* or the machine, as the case may be, the paper passes under a tension-roller; *b*, and from thence between two hollow heated cylinders or rolls, *c d*. The former cylinder, *c*, is supplied with wax in any desired manner (but preferably by the mechanism hereinafter described) and transfers the same to the paper passing beneath it, thus spreading an even coating of wax upon the upper side and simultaneously, by reason of the heat and pressure of both rollers, effecting a thorough infusion of the wax into the paper. By thus applying the wax to one surface only of the paper all danger of applying a surplus is avoided, by reason of the fact that the amount of wax applied to one side of the paper will diffuse itself through the paper at once, thus permitting the paper to be afterward manipulated without waste and without the necessity of employing squeezing-rollers or scrapers to remove surplus wax.

From the rolls *c d* the paper passes under a tension-roller, *e*, similar to tension-roller *b*, and from thence between two hollow heated finishing-rollers, *f g*, where the impregnation of the paper with the wax is completed, and the paper is next passed between two artificially-cooled rollers, *h i*, when it is ready for use and may be disposed of in any suitable way. The last two sets of rollers, it will be noted, first soften the wax and diffuse it completely and then immediately press and harden the same to give a fine hard and glossy surface.

j indicates a tank which contains the wax to be applied to the paper, which tank is preferably provided with separate chambers *k* at the sides and bottom, and if need be, with one or more pipes, *l*, running through the tank, for the circulation of steam or heat to keep the wax in a hot or liquid state. I have shown the chambers *k* at the sides of the tank; but these may be dispensed with and the pipes *l* alone relied upon to keep the wax in a liquid condition, or the pipes *l* may be omitted and the chambers *k* alone employed, or other equivalent means may be used for the same purpose. The bottom of tank *j* is perforated, through which perforations the wax trickles down upon a hollow heated distributing-cylinder, *m*, which rolls in contact with and distributes the wax upon cylinder *c*.

In order to regulate the supply of wax delivered upon cylinder *m*, I construct a slide, *n*, having perforations corresponding to the perforations in tank *j*, which slide is arranged and adapted to be moved or adjusted on the bottom of tank *j*, so as to entirely close the perforations therein, or open them partially, or fully, as the circumstances of the case may require. By this means just such quantity of wax as is best to use may be supplied to the paper and be evenly distributed thereon and thoroughly infused or incorporated therein.

Upon leaving rolls *h i* the waxed paper may be cut up into sheets of any proper or desired size by any suitable means, or be wound upon a roll, as may be thought best or best suit the requirements of the trade.

If desired, a rotary reciprocating roll, *o*, which may be hollow and heated, may be constructed to run in contact with cylinder *m*,

or be interposed between cylinder *m* and the wax-tank to receive the wax and distribute it the more evenly upon said cylinder.

By the method described a proper quantity only of wax is at all times supplied to the paper and there is no means required for removing any of the wax after it has been spread upon the paper, as in cases where the paper is immersed in the wax in a tank, or wax has been applied by any means to both ends of the paper and a superfluous quantity thus caused to adhere thereto.

What I claim as my invention is—

The method of waxing paper, consisting in simultaneously heating the paper and applying wax to one side thereof, then subjecting the paper to heat and pressure, and finally cooling and pressing it, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 24th day of February, 1887.

J. BURNHAM ANDERSON.

Witnesses:

ARTHUR W. CROSSLEY,

A. D. HARRISON.