J. L. FIRM.

Machine for Damping Paper.

No. 168,978. Patented Oct. 19, 1875.

Fig. 1.

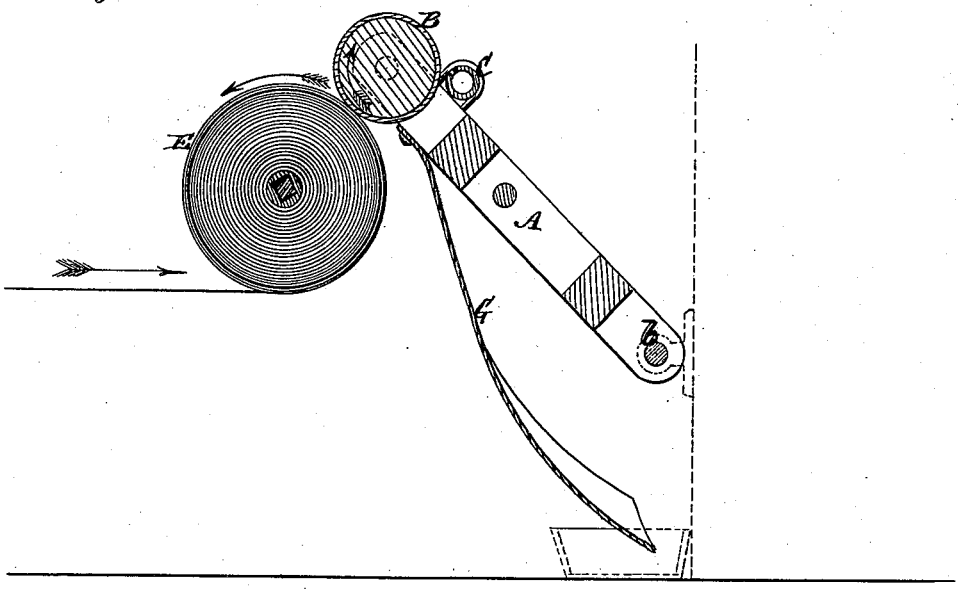
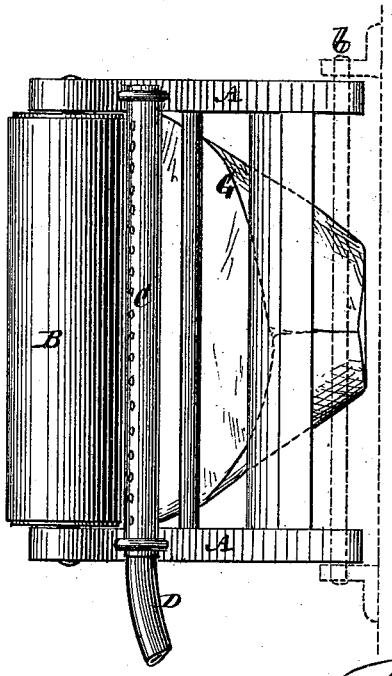


Fig. 2.



Witnesses
John Becker
Fred Haynes

J. L. Firm
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

JOSEPH L. FIRM, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF HIS RIGHT TO CALVERT B. COTTRELL AND NATHAN BABCOCK, OF WESTERLY, R. I.

IMPROVEMENT IN MACHINES FOR DAMPING PAPER.

Specification forming part of Letters Patent No. **168,978**, dated October 19, 1875; application filed August 12, 1875.

To all whom it may concern:

Be it known that I, JOSEPH L. FIRM, of the city, county, and State of New York, have invented certain new and useful Improvements in Paper-Damping Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention relates to the damping of paper put up in roll form for printing purposes.

The damping apparatus or machine which is the subject of the invention is designed to be used for damping the paper as it is unwound from the roll or form in which it comes from the paper-mill onto another roll, for use in the printing-press. Said invention consists in a combination of a damping-roll and sprinkler for wetting the surface of the same, arranged so that said roll rests upon the paper as it is being wound onto the press-roll, and not only dampens the paper, but exerts a certain tension thereon while being rolled up.

The invention also consists in a combination of a swinging frame with the damping-roll and its sprinkler, all moving in common, to adapt the damping-roll to the varying diameter of the roll of paper while being wound or rolled, and to facilitate the introduction of the roll of paper under the damping-roll.

The invention likewise includes a combination, with the damping-roll and its sprinkler, of an apron for carrying off surplus or scattering water.

By means of a paper-damping machine constructed in accordance with this invention, not only is increased facility afforded for damping the paper, but it is done in such a regular manner, free from any severe tension or strain before it is introduced to the press, that paper of a poorer or cheaper quality may be used in the press than is otherwise practicable without tearing it.

Figure 1 represents a vertical section of my improved paper-damping machine in the course of its operation on a roll of paper, and Fig. 2 a top view of said machine.

A is a swinging frame, having its rocking center or pivots *b* below, and carried by any suitable support, which may be against the wall of a shop or building, so that the machine, when not in use, may be thrown up and out of the way against the wall. B is a free damping-roll, having its surface covered with any suitable material that will hold water in a distributed form over it. This roll is carried by the upper or outer end of the frame A and back of said roll. Carried also by the frame A is a sprinkler or perforated water-distributing pipe, C, into one or both ends of which water may be admitted by means of suitable hose or a flexible tube, D. The perforations in said sprinklers are so arranged that the water will be ejected against the back of the roll B.

The roll carrying paper to be damped, and which is afterward conveyed to the printing-press, may, for convenience' sake, be carried by a truck, and the latter be backed under the damping-roll B before commencing to wind the paper on it from the first or mill roll, or it may be placed in a fixed frame under the damping-roll. The press-roll, which has the paper to be damped attached to it, is then rotated by any suitable means, with the damping-roll B resting on it, and so that the friction of the paper E, as it is being wound on said roll, rotates the damping-roll B, which is being constantly supplied with water from the sprinkler C, said damping-roll and sprinkler rising in common with the hinged frame A as the press-roll of paper increases in diameter, and the hinged frame A, with its attached devices, serving, by means of the damping-roll B, to level or straighten and put a moderate tension upon the paper as it is being wound on the press-roll. A weight or spring, to give additional tension, if required, may also be applied to the frame A or its damping-roller B. Attached to the upper portion of the frame A is a pendent apron, G, arranged to catch any scattering or surplus water sup-

plied by the sprinkler, and serving to conduct such water to any suitable receiver or outlet below, to prevent objectionable wetting of the floor. This apron may be made of oil-cloth or any other suitable material.

After the press-roll of paper has been damped and wound or wrapped, as described, it is put on one side or conveyed to the printing-press, ready for use.

I claim—

1. The combination of a sprinkler, C, with the damping-roll B, arranged to rest on the paper as it is being rolled, substantially as and for the purposes herein set forth.

2. The combination of the hinged or rocking frame A with the damping-roll B and its sprinkler C, essentially as described.

3. The combination of the apron G with the rocking frame A, the damping-roll B, and sprinkler C, substantially as and for the purpose specified.

JOSEPH L. FIRM.

Witnesses:
BENJAMIN W. HOFFMAN,
VERNON H. HARRIS.