C. KAHLER.

Paper-Damping Machine.

No. 165,238. Patented July 6, 1875.

Fig. 1,

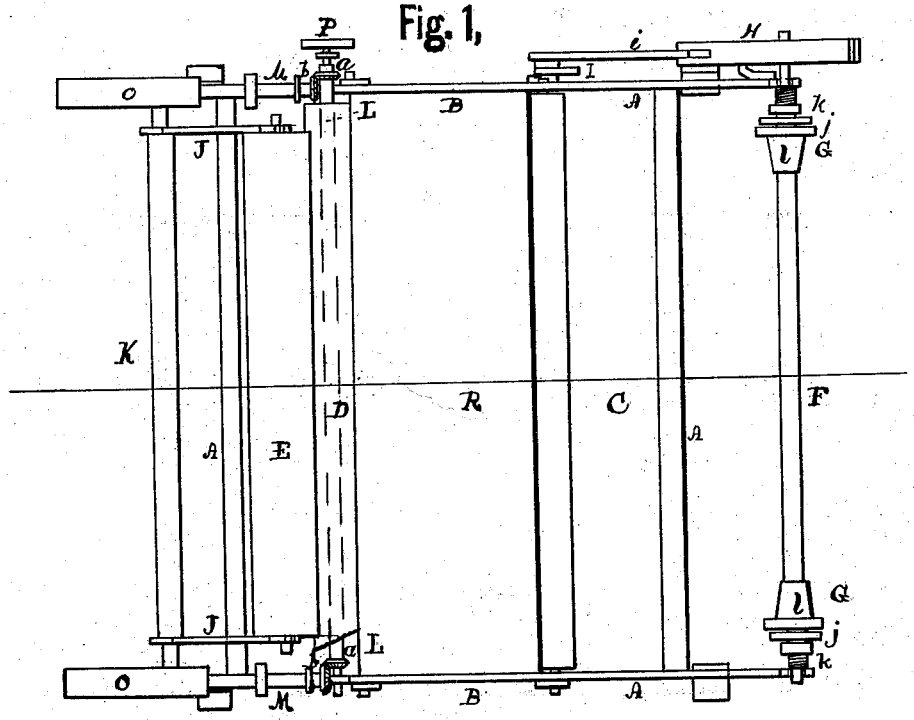

Fig. 2.

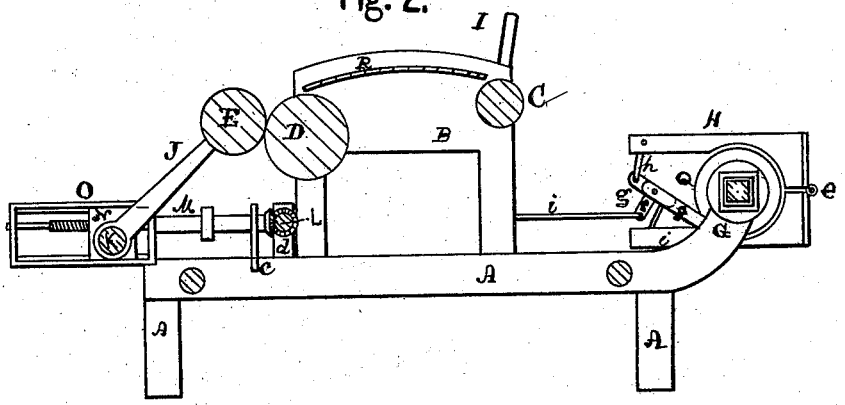

Fig. 3.

Conrad Kahler

Inventor.

Witnesses:

L. L. Bond

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UNITED STATES PATENT OFFICE.

CONRAD KAHLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF, MELVILLE C. EAMES, WILLIAM L. OGDEN, WILHELM SEVERIN, AND PHILIPP EMRATH, OF SAME PLACE.

IMPROVEMENT IN PAPER-DAMPING MACHINES.

Specification forming part of Letters Patent No. **165,238**, dated July 6, 1875; application filed April 17, 1875.

To whom it may concern:

Be it known that I, CONRAD KAHLER, of the city of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Paper-Damping Machines, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a top or plan view; Fig. 2, a longitudinal vertical section; and Fig. 3, a detail.

The object of my invention is to construct a machine for wetting rolled paper for printing-presses, which will unroll and reroll the paper uniformly and evenly; and its nature consists in providing the shaft upon which the rolls are mounted with adjustable slides to fit and hold the spools or cores; in making the roll upon which the paper is rewound adjustable; and in combining with said machine a tension-brake.

In the drawings, A represents the main frame; B, a secondary frame, mounted on the main frame; C, an anti-friction roller; D, the driving-roller; E, the roller upon which the paper is rerolled; F, the shaft upon which the mill-rolls of paper are mounted; G, slides on the shaft; F, for centering and holding the spools; H, the brake; I, brake-lever; J, swinging arms, supporting the roll-shaft E; K, shaft upon which, or with which, the arms J turn; L, shaft for adjusting the pitch of the arms J and the position of the roller E; M, screw-shafts for advancing or receding the shaft K; N, journal-bearings for the shaft K, and through which the screw-shafts M pass; O, frame or case for the bearing-blocks N; P, hand-wheel for operating shaft L; Q, wheel on shaft F, upon which the tension-brake H operates; R, the sliding or wetting board; *a b*, miter or other suitable gear-wheels for operating the screw-shafts M by the shaft L; *c*, journal-bearings for the shafts M; *d*, similar bearings for the shaft L; *e*, hinge or pivot of the brake-shoe; *f*, support for the brake-lever-rod couplings; *g*, a T-shaped rod coupling; *h*, rod or link connecting the brake-shoe with the coupling *g*; *i*, rod connecting the coupling *g* with the lower end of the hand-lever I; *i'*, rod for holding the outer end of the coupling *g*; *j*, screw-nuts for forcing the slides G into the ends of the spools; *k*, lock-nuts, and *l* inclines on the slides G, for fitting them into the varying openings of the spools or cores upon which the paper is originally wound.

The frames A B are made usually of iron, but they may be made of any suitable material, and the machine is made of a width suitable for transferring ordinary rolled paper. The shaft F is usually made square, so as to prevent the slides G from turning or revolving thereon without clutches or other fastening. The slides G are fitted to the shaft, so as to move back and forth thereon, and they are provided with inclines *l*, so as to fit into and securely hold the cores or spools upon which the paper is rolled at the mill. The power is applied to the roller D at either end, as may be most convenient. The arms are applied or fastened to the shaft K, and their upper ends are provided with open journal-bearings, so that the rollers E can be readily taken out or inserted. The journals N are fitted into the case O, which is provided with feathers, as shown at Fig. 3, over which grooves in journal-blocks are fitted. The shafts M pass through these blocks and are provided with screw-threads, so that by revolving them the blocks N can be moved backward or forward. They may be moved in unison by turning the shaft L, by means of the hand-wheel P, or by other suitable means, so as to adjust the position of the roller E, in reference to the roller D, as the amount of paper on the roller E increases.

Sometimes the paper is strained more on one side than on the other, so as to cause the paper to run to one side or wrinkle. In order to correct this tendency, and make the paper wind true, the shaft L is drawn back so as to disengage the wheels *a b*, when either of the shafts M may be turned by hand till the paper runs true. These adjustments are important, for, unless the paper is wound true and without unequal strain, it is not only liable to tear in the wetting-machine, but if

not torn it is left in a condition to be torn in the press, and if it does not part in wetting, it is liable to become cracked so that the press will tear it; and these adjustments are also important in regulating the position of the roller E. As the size of the paper-roll increases upon it, it climbs up on the roller D, and interferes with the tension and the feed, as the roller D may turn when E is nearly full without revolving it, so as to wind the paper tightly and uniformly. As the paper usually lies about twenty-four hours after being wet before it is put in the press, it is important that it should be wound true and even at the ends of the rolls, for if it is not so wound the drying will be unequal, which will cause the paper to tear in the press.

The tension-brake is applied to the outer end of the spool-shaft F by means of the wheel Q and the shoe H, which is brought to bear upon the wheel by means of the lever I. The lever I is pivoted above its connection with the rod *i*, so that it is a push-rod, as shown; but by changing the pivot it may be made to operate as a draft-rod.

The operator cannot only regulate the tension of the paper by means of the brake, but can stop the paper from unwinding from the spool in case of any tear or breakage.

In operation, the roll of paper with its spool is placed on the shaft F and crowded onto the slide G, nearest the brake. The other slide G is then pushed in and held in position by the screw-nut *j*, which, for additional security, may be held by the lock-nut *k*. When the spool is in position, the paper is taken across the machine over the roller D, and under the roller E, around which it is given one or two turns to start it. Motion is then given to the roller D, which draws the paper from the spool and drives the roller E, on which the paper is rewound.

By driving the machine from the roller D, the varying diameter of the rolls on the roller E and shaft F does not effect or vary the speed of the paper.

A suitable sprinkler is placed over the sliding board R, so as to wet the paper evenly as it passes over this board in its movement from the spool on shaft F to the roller E. When the roller E is full, it is taken out and another roller is put in its place.

As the rollers E are the same ones that are used in the printing-press, a sufficient number of these rollers E to wind the required amount of paper will be necessary.

By the use of this machine the paper can be wet and rerolled so perfectly that a great saving of time is not only effected in this operation, but also a great saving of paper and time in printing from the rolls so wound and wet.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the roller E, journaled on the swinging arms J, with the adjustable shaft K and the driving shaft or roller D, substantially as specified.

2. The combination of the shaft L, screw-shafts M, and sliding blocks N with the shaft K, arms J, roller E, and beveled wheels *a b*, substantially as set forth.

3. The combination of the brake H, wheel Q, and spool-shaft F with the sliding board R, driving shaft or roller D, and swinging and adjustable roller E, arms J, and adjusting-shaft K, for regulating the tension of the paper and controlling the spool, substantially as specified.

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Witnesses:
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