No. 643,234. Patented Feb. 13, 1900.

F. G. J. POST.

METHOD OF MOISTENING COPYING PAPER.

(Application filed Mar. 21, 1899.)

(No Model.)

Fig. 1.

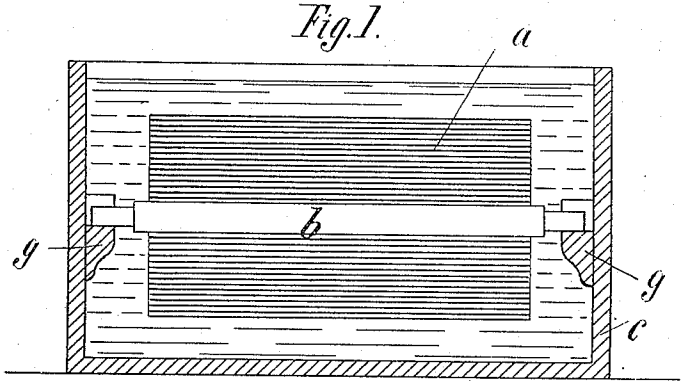


Fig. 2.

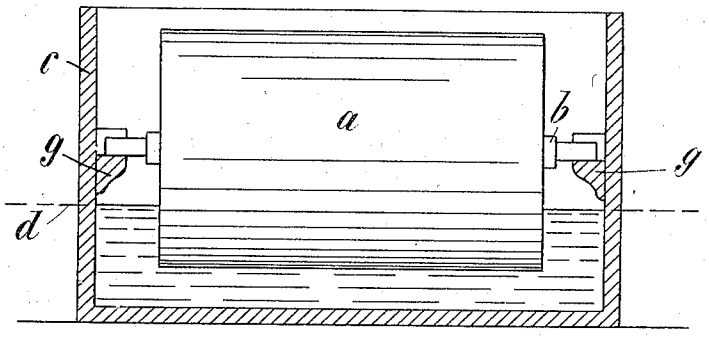
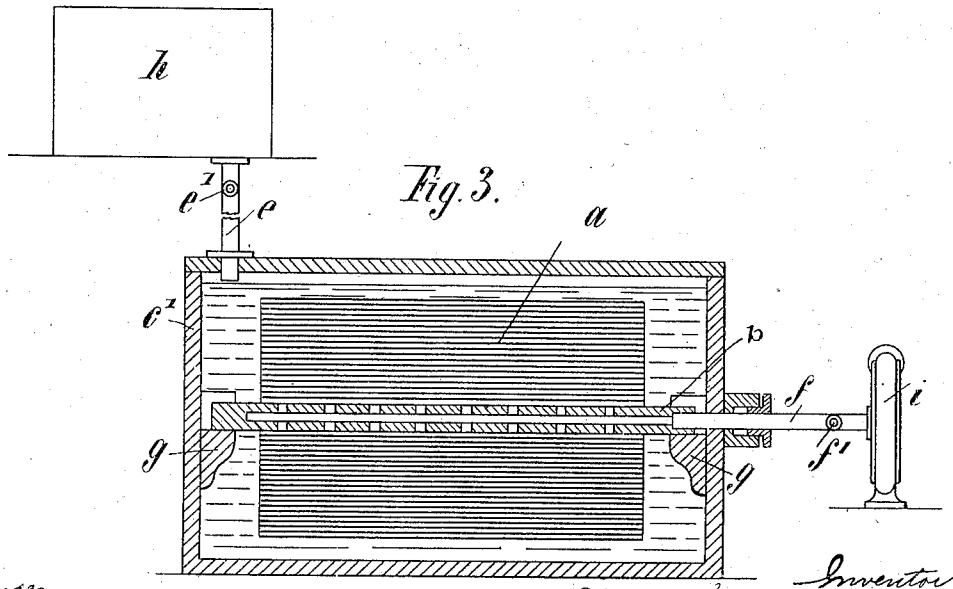


Fig. 3.



Witnesses.

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METHOD OF MOISTENING COPYING-PAPER.

SPECIFICATION forming part of Letters Patent No. 643,234, dated February 13, 1900.

Application filed March 21, 1899. Serial No. 709,943. (No specimens.)

To all whom it may concern:

Be it known that I, FRIEDRICH GUSTAV JULIUS POST, a subject of the German Emperor, and a resident of Hamburg, in the German Empire, have invented a Method of Moistening Copying-Paper for Use in Copying-Presses, of which the following is a specification.

This invention has relation to the preparation of copying or tissue paper so that it may be used in the copying-press.

In copying manuscript and other matter prepared with a soluble ink it has generally been the practice to use sheets of absorbent material which after immersion in water are subjected to pressure to remove excess of water to prevent the ink of the subject-matter to be copied from spreading, or what is usually termed "running," the result of which is an illegible or more or less illegible original and copy. The difficulty in obtaining a so-called "pad" holding just sufficient moisture to produce a clear copy and leave the original undefaced is well known, and this is also coupled with quite an amount of labor and the exercise of considerable judgment, acquired by practice only. Furthermore, these pads require moistening at frequent intervals, as they dry out rapidly. The moistening of the tissue-paper itself by means of a brush has now been practically abandoned, owing to the difficulty in obtaining a uniformly-moistened sheet containing just sufficient moisture to obtain a clear copy and leave the original uninjured.

My invention has for its object a method whereby the preparation of tissue or copying paper for the press is greatly facilitated and all danger of sursaturation practically avoided and whereby a supply of prepared paper sufficient for obtaining great numbers of copies may be had in a very compact form.

In carrying out my invention I wind a web of tissue-paper of the required tensile strength to be unwound when wet without tearing into a compact roll, the winding being preferably effected under pressure. Inasmuch as the capacity for absorbing water by paper wound into a roll depends upon the pressure under which the paper is wound—*i. e.*, the compactness of the roll—the amount of water to be used can readily be determined or regulated, so that sursaturation can be effectually avoided; hence also the necessity of removing excess of moisture before use. The roll of tissue or copying paper may then be immersed in water, or the absorption of the water may be expedited by winding the tissue on a tubular perforated mandrel, immersing said roll in a body of water and applying suction to the mandrel to form a partial vacuum therein, and thus draw the water through the layers of tissue. I prefer, however, to partly immerse the roll of tissue in a body of water of greater volume than is actually required to moisten the roll of tissue to the required degree, so that after absoption by the tissue of the desired or required quantity of water the level of the latter will be lowered to such an extent as no longer to be in contact with the roll. Immediately after the desired quantity of water has been absorbed the outer convolutions of the roll will contain a greater amount of moisture than is necessary, while the inner convolutions will not contain sufficient moisture, but the excess of moisture in said outer convolutions will then be gradually absorbed by the inner convolutions until the moisture is uniformly distributed throughout the convolutions, as will be readily understood. In these operations the roll is preferably revolved. Furthermore, with a view to obtaining manifold copies a plurality of webs of tissue or copying paper may be simultaneously wound into a roll and moistened, as described, and then unrolled simultaneously, as will be readily understood.

To prevent the outer convolutions of the roll from puckering and from becoming too soft by reason of sursaturation and thus readily separating and tearing from the roll, I envelop the same in a fabric capable of absorbing and holding considerable moisture—as, for instance, a sheet of felt or the like—this being also of advantage where a number of rolls of tissue are prepared for future use, thus preventing evaporation of the water from the outer convolutions.

In the accompanying drawings I have shown in Figures 1, 2, and 3 by vertical sectional views various means for moistening the rolls of tissue.

The apparatus consists, essentially, of a

suitable vessel *c*, provided with forked bearings *g* for the journals of the mandrel *b* of the roll of tissue *a*.

As shown in Fig. 1, the roll of tissue *a* may be immersed in the water until a sufficient quantity thereof has been absorbed, the roll being revolved or not, as desired, after which the roll is removed. In Fig. 3 I have shown the vessel *c'* connected with an overhead water-reservoir *h*, the connecting-pipe *e* being provided with a stop-cock *e'*. The mandrel on which the roll *a* is mounted or wound is in this case tubular and perforated and closed at one end, its open end being connected with a pipe *f*, extending outside of the vessel *c'* through a suitable stuffing-box and provided with a stop-cock *f'*, said pipe *f* being connected with a suction-pump *i*.

As hereinbefore stated, the preferred mode of moistening tissue in the roll is to partly immerse the same in a body of water, as shown in Fig. 2, so that after absorption of a certain quantity of the water the level thereof will sink below and out of contact with the roll. These rolls of moistened tissue are for use preferably transferred to a casing adapted to be closed and to be arranged in proper relation to the copying-press, the casing being provided with bearings for the mandrel and with a narrow slot, through which the web of tissue is drawn.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The mode of preparing tissue-paper for copying purposes, which consists in compactly winding a web of such into a roll, placing the latter in contact with water until a given quantity thereof has been absorbed, removing the roll from contact with the water and allowing the inner convolutions of tissue-paper to absorb the excess of water in the outer convolutions, for the purpose set forth.

2. The mode of preparing tissue-paper for copying purposes, which consists in compactly winding a plurality of webs of such simultaneously into a roll, placing the latter in contact with water until a given quantity thereof has been absorbed, removing the roll from the water and allowing the inner convolutions of tissue to absorb the excess of water in the outer convolutions, for the purpose set forth.

3. The mode of preparing tissue-paper for copying purposes, which consists in winding a web of such into a compact roll, enveloping the latter in an absorbent fabric and placing the roll in contact with water until a suitable quantity thereof has been absorbed by said fabric and tissue, for the purpose set forth.

4. The mode of preparing tissue-paper for copying purposes, which consists in compactly winding a web of such into a roll, placing the same into a body of water so that when a given quantity thereof has been absorbed its level will be so changed as no longer to be in contact with the roll, and allowing the inner convolutions of tissue-paper to absorb the excess of water in the outer convolutions, for the purpose set forth.

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Witnesses:
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