

O. W. ANDERSON.
LETTER COPYING PRESS.

Patented May 5, 1896.

No. 559,657,

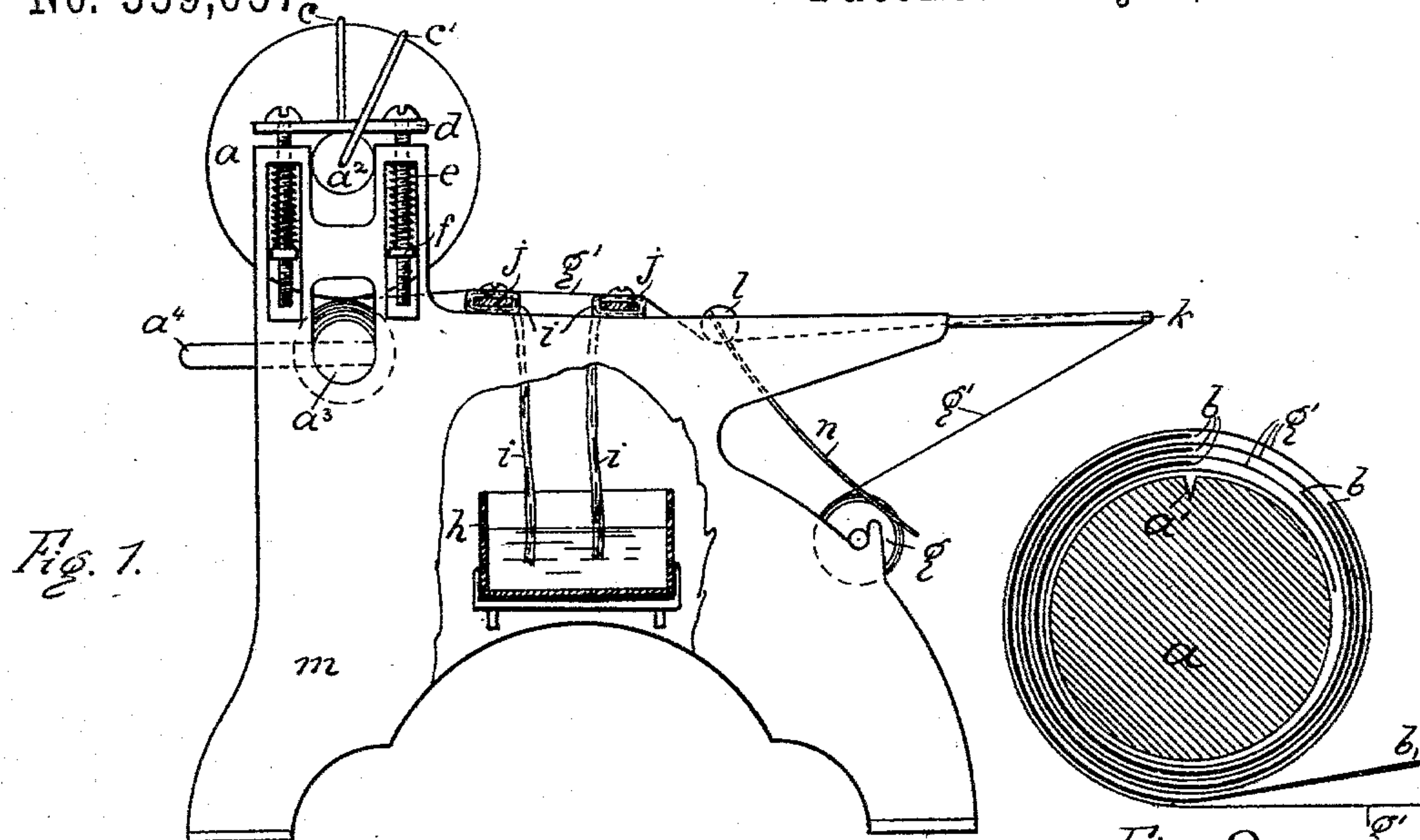
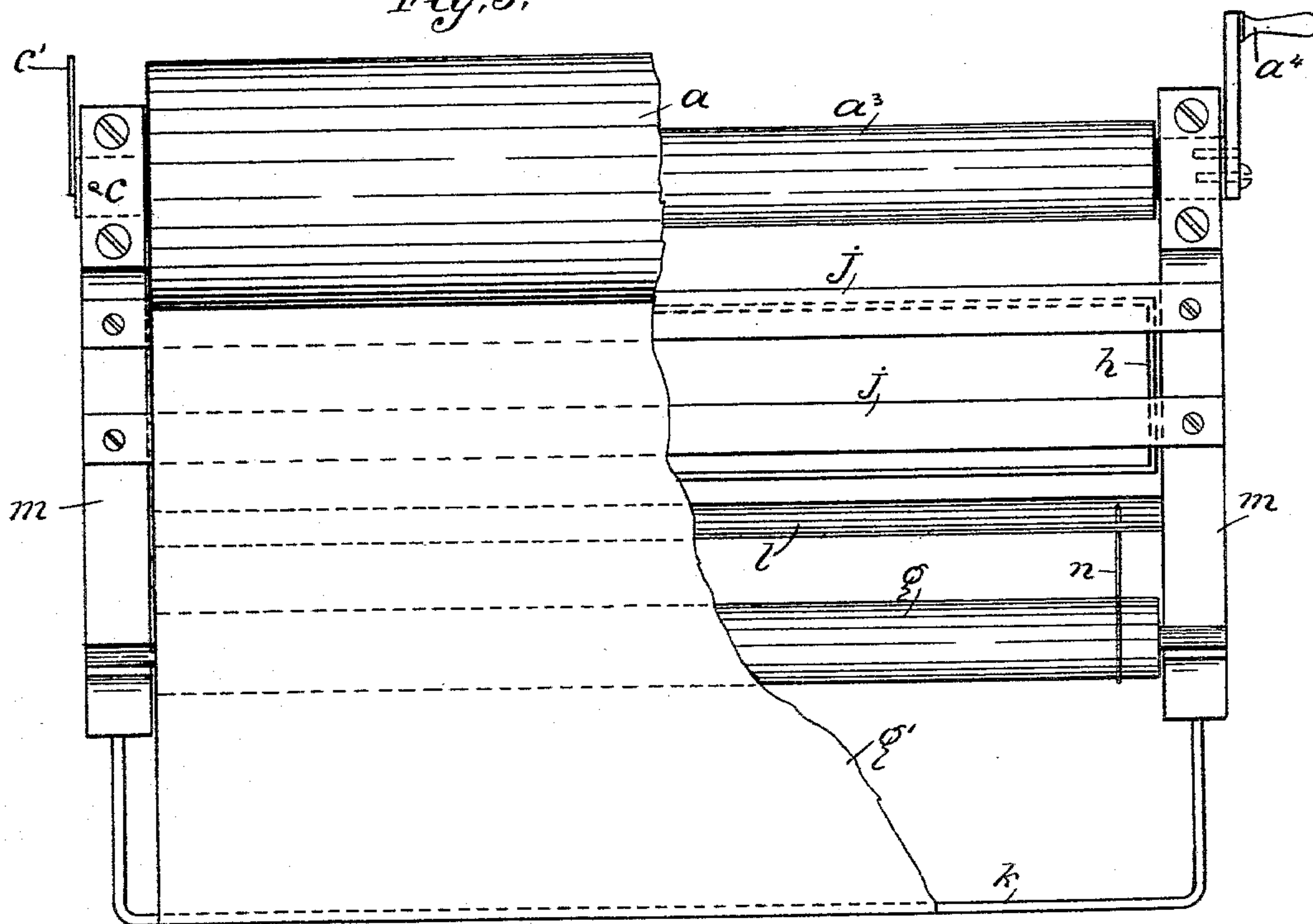


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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LETTER-COPYING PRESS.

SPECIFICATION forming part of Letters Patent No. 559,657, dated May 5, 1896.

Application filed September 4, 1895. Serial No. 561,427. (No model.)

To all whom it may concern:

Be it known that I, OLOF W. ANDERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Letter-Copying Machines, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 shows my invention in side elevation, partly in section. Fig. 2 shows a sectional end view of the drum *a*, wound with tissue and letters to show its work. Fig. 3 shows my said device in plan view, one-half of the drum with part of the tissue-sheet being removed to expose the lower parts.

The object of my invention is improvement in the construction of this class of letter-copying machines. In this case it relates more particularly to the operation of the drum or reel and the mechanism for dampening the tissue and the manner of feeding it and the letters into the machine and in a few minor details.

My construction is substantially as follows, namely: Between two frames *m* are held two rollers, of which the one in fixed bearings *a*³ is covered with felt or other yielding material, while the upper roller or drum *a* is a naked-surfaced hard-wood or similarly-devised roller or drum. Said drum is held in yielding bearings. Its journals *a*² move in vertical slots of the frame *m* and are held down by a cross-bar or block *d*, through the ends of which pass screws which play in nuts *f*, held from turning in slots in the frame, and upon said nuts press coiled springs *e*, which yield to matter fed between *a* and *a*³. The driving-crank is applied to the lower roller. To one of the bars *d* is attached a fixed pointer *c*, and to the shaft or journal thereof is attached an index *c'*, which revolves with the drum, and in the drum *a* is a longitudinal groove *a'*, which extends from one end of the drum to its other end to which said index is adjustable, so as to point in any position relatively to said groove. On the top edge of the frames lie two bars *j*, wrapped with felt *i*, which extends down and dips into a water-trough *h*, held at its ends by the sides *m*. Back of the

bars *j*, and slightly lower than said bars, is a smooth cylindrical rod *l*, and beyond it and extending from the frame is a guide *k*, of wire, affixed to the frame, of which its transverse part is parallel to the axis of the rollers *a* and *a*³, and below the said parts and hung upon one edge of the frames is a roller *g*, on which is wound a supply of tissue *g'*, and from one or both ends of the bar *l* pass springs *n*, which press upon the drum *g* and serve on it as friction-brakes.

The operation of my said device is substantially as follows, namely: The drum *g* is wound with tissue or copying paper *g'*, placed as shown, and passed over the outer guide *k*, then under the rod *l* and over the felted bars *j j*, and then between the rollers *a a*³ by turning the crank *a*⁴ in the proper direction, the felt on the bars *j* having been properly dampened by water in the box *h*, from whence, by capillary attraction, the felt on the bars *j* is, after a short time, duly moistened, after which, when the tissue-paper is drawn over said bars at a certain speed, it will become wet enough to make good copies of writing done in copying-ink laid upon it. It will be observed that the tissue on the bars *j* is higher than on either side of them. In this way contact of the tissue on said bars is assured with uniformity of moisture. After the parts are ready to work and the groove *a'* is near to the tissue a letter *b* is laid on the tissue just at the groove, as shown in Fig. 2, and the crank turned until the drum *a* has just made one revolution, which may be seen from the index *c'*. Then another sheet is fed in, and so on until as many as twenty-five or fifty letters are on the drum *a*. Said letters may then be allowed to remain on said drum to dry, after which a knife or cutting-roller is passed through said tissue into said groove *a'* through its entire length when all the letters and their tissues may be taken from the machine.

Two important advantages are gained by means of this structure. They are speed and the contact of the copies with their letters when cut from the machine, while at the same time there is a long-continued pressure of tissue and writing upon each other, which pressure grows harder as the drying progresses on account of the shrinkage of the

tissue. Thus the perfection of the copying is brought to its most favorable condition that can be produced, while at the same time the speed of making copies is of the most rapid that can be desired or made. The index here shown is a convenient one, but it may be greatly varied. In this case the moving pointer c' is fixed in the center of the journal a^2 and is set so that when it points up with c it indicates that the groove a' is at the proper point for feeding another sheet of paper to the machine. Two bars j are used in place of only one, because whenever it happens that a spot is left untouched by one of said bars the other one will be liable to make contact with it and thus moisten the whole surface of the tissue and thus insure perfect copying. It will be observed that the drum a is of such circumference that a letter-sheet on it will not surround it, but leave a space, as shown in Fig. 2, and that with the index it becomes a measure for the tissue required for each letter. The tissue is supplied continuously from a roll g until exhausted.

What I claim is—

1. The combination with a longitudinally-grooved yielding drum and a driving-drum, of a tissue-carrying drum, felt-covered bars

with a trough and connection between said trough and bars adapted to moisten said bars and means to secure pressure of the tissue on the felt-covered bars, substantially as specified.

2. The combination with a longitudinally-grooved yielding and indexed measuring-drum and a driving-drum, of tissue-moistening mechanism, substantially as specified.

3. The combination with a longitudinally-grooved yielding and indexed measuring-drum and a driving-drum, of a tissue-carrying drum, tissue-moistening bars, water-trough and means connecting said tissue-moistening bars and water-trough whereby said bars will moisten, automatically, substantially as specified.

4. The combination with a longitudinally-grooved yielding and indexed measuring-drum, and a driving-drum, of a block, d , with screws and coiled springs and non-turning nuts, f , pressed by said springs, e , to adjust the pressure of said drum, a , on its driving-drum, a^3 , substantially as specified.

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Witnesses:

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