

No. 869,593

PATENTED OCT. 29, 1907.

F. SOENNECKEN.
COPYING MACHINE.
APPLICATION FILED APR. 15, 1907.

Fig. 1.

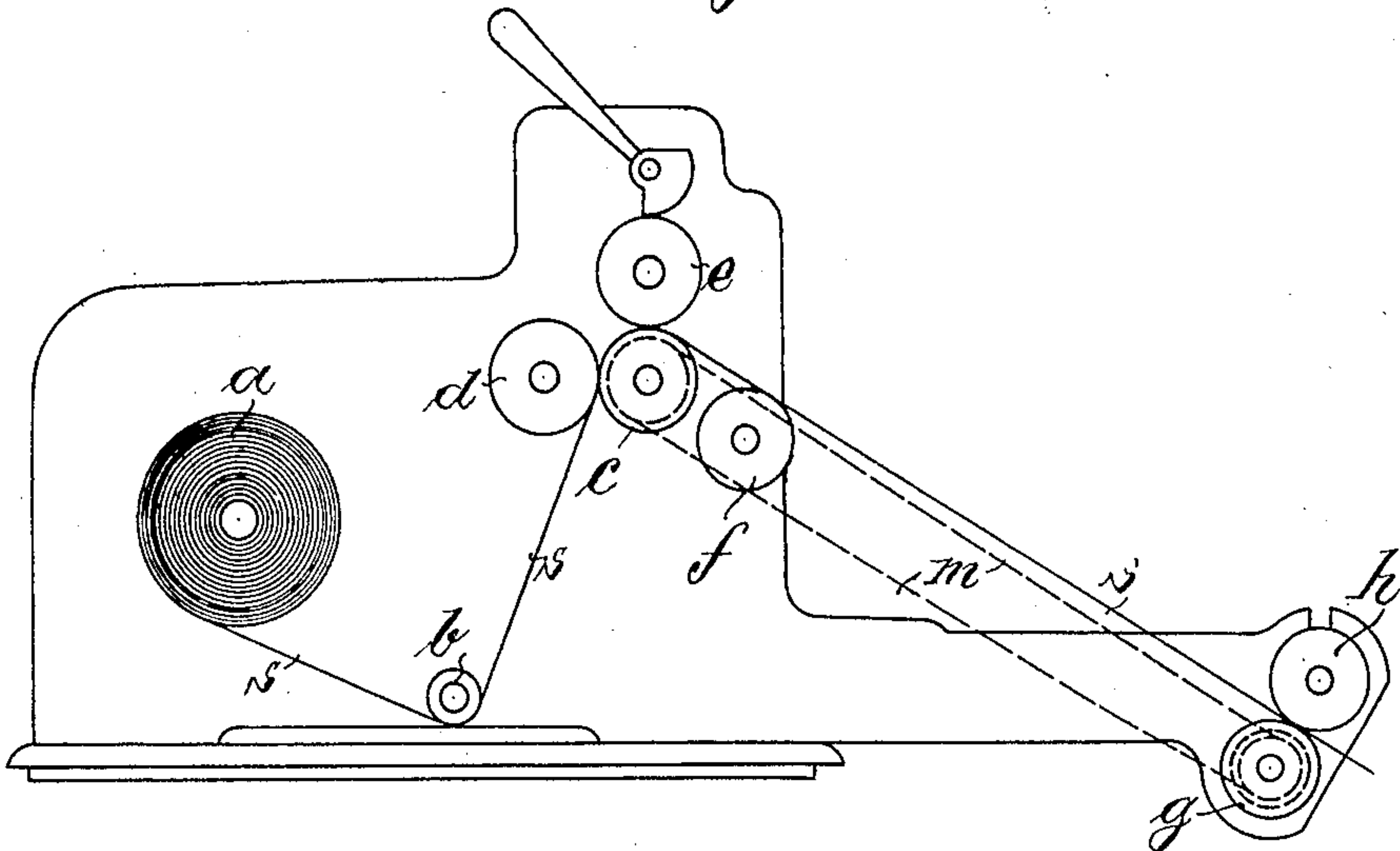
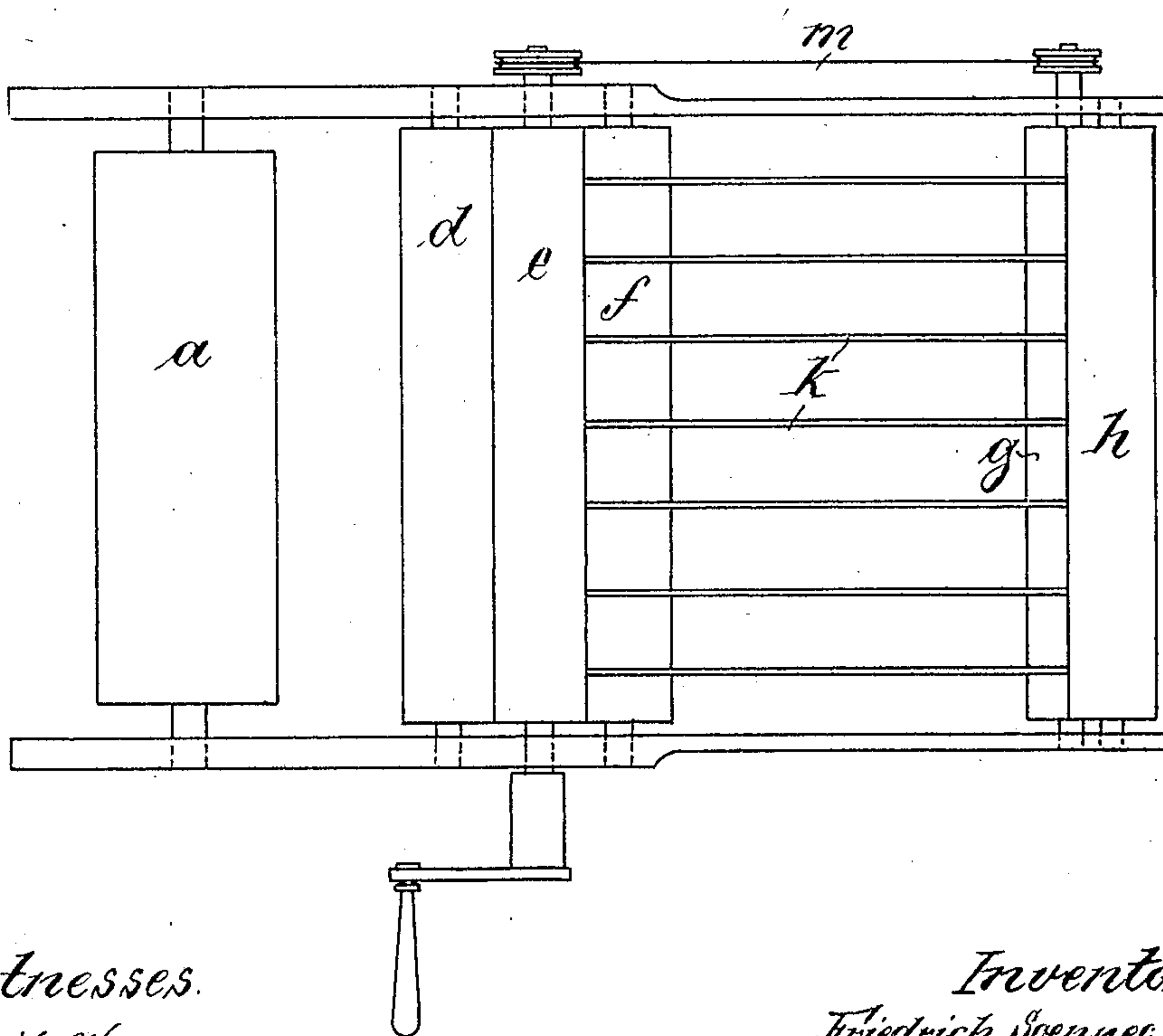


Fig. 2.



Witnesses.
Emil Kayser
Therese Herpich.

Inventor
Friedrich Soennecken
by *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

FRIEDRICH SOENNECKEN, OF BONN, GERMANY.

COPYING-MACHINE.

No. 869,593.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed April 15, 1907. Serial No. 368,397.

To all whom it may concern:

Be it known that I, FRIEDRICH SOENNECKEN, a subject of the King of Prussia, German Emperor, and a resident of Bonn-on-the-Rhine, German Empire, have invented certain new and useful Improvements in Copying-Machines, of which the following is an exact specification.

My invention relates to an improved copying machine which permits of a continuous paper-band to be divided into single sections without using any cutting apparatus.

In the known copying machines having a continuous paper band there is a great difficulty in dividing the paper into single sheets by a cutter after copying has taken place. The wet and thin copying paper does not permit to be cut safely during a longer time and in cutting the paper in a dried condition there is a considerable loss of time by rendering straight and smooth the paper which has previously become curled up.

According to the present invention the disadvantage is avoided by subjecting the continuous paper band to tension, the paper band being weakened or rendered less resistant at single spots. It is attained thereby that the paper band is torn at those places without using the objectionable cutting process.

It is well known to use continuous paper bands having spots which are rendered less resistant, as for instance in rotation-machines, and copying presses, but heretofore it has not been subjected to a mechanical tension process. The considerable advantage resulting therefrom will be obvious and the unlimited employment of continuous paper-bands in copying machines is insured thereby and at the same time the objectionable cutting operation is perfectly dispensed with.

For having the paper band taut or stretched and separating thereby the latter at the spots less resistant, the paper written upon is caused to be caught for instance by a roller pair, whereas at the same time the paper band is between rollers being opposite to the first mentioned rollers or otherwise conveniently arranged. If now this pair of rollers is put into a quicker revolution than the other rollers, tension is produced and the paper band torn off at the spot less resistant.

Instead of tension-rollers, graspers or similar acting means can be provided. The separation can be effected in a modified manner thereby that the paper band is kept taut only whereas a rail or the like is forced laterally against or transversely upon the paper, whereby the latter is taut or stretched thus that separation takes place.

In order to make my invention more clear, I refer to the accompanying drawing, in which:

Figure 1 shows a side view, and Fig. 2 a plan.

In the figures *a* illustrates the supply roller upon

which the paper band having single weakened or less resistant spots is wound. The paper on this roller is in a dried condition.

b is a roller intended for moistening or dampening the paper starting from the supply roller *a*; *c d* represents a pair of rollers by means of which the paper is squeezed after its moistening.

e is a roller which coöperates with the roller *c* for providing the paper band *s* with the writing and copy respectively, in that the paper to be copied is introduced between these rollers.

k is a feeding band to which the copying paper is conveyed by means of the roller *f*.

g h is a pair of rollers between which the paper is guided by said feeding band *k*. The roller *g* is in communication with the roller *c* by any pulling organ, as for instance a chain *m* (diagrammatically shown). The arrangement must be provided thus that the roller *g* is rotated more quickly than the roller *c*.

The operation of the machine as foregoing described will be obvious. The paper band starting from the supply roller *a* and rendered less resistant at single places for instance by perforations is moistened by the roller *b* and is introduced when squeezed between the rollers *c* and *e*, for making the copy. The paper band is then conveyed to the stretching rollers *g h* by means of the feeding band *k* in such manner that the paper band is caught by the rollers *g h* when a less resistant or perforated place has just passed through the rollers *c e*. As the rollers *g h* revolve more quickly tension is produced in the copying paper and separation thereby takes place at the perforated place.

It will be observed that the foregoing described copying machine will be understood as an example only and that modifications can be provided in different directions, without departing from the essence of my invention, which consists in making the copying paper which is provided with weakened or less resistant places, to be subjected to tension whereby separation takes place at the aforementioned place.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent of the United States is:—

1. In a copying machine or press, working upon a continuous paper band, which is weakened or rendered less resistant at various places, means for producing tension in the paper band thereby dividing or tearing off the paper band at the places less resistant.

2. A copying machine or press, comprising a supply roller journaled in the machine standard and having wound on to it a continuous paper band having weakened or less resistant places, a moistening roller over which the continuous paper band is guided for its moistening or dampening, squeezing rollers between which the paper band passes, pressure rollers for providing the paper band with copies, rollers catching the paper band when the copies are made, and means for operating the catching rollers thus that they revolve more quickly than the pressure rollers.

3. A copying machine or press, comprising a supply roller journaled in the machine standard and having wound on to it a continuous paper band having weakened or less resistant places, a moistening roller, over which the
5 continuous paper band is guided for its moistening, squeezing rollers between which the paper band passes, pressure rollers for providing the paper band with copies, a feeding band receiving the paper band, when copies are made, rollers catching the paper band fed by the feeding band,

and a pulling organ connecting a pressure roller and a catching roller in such manner that the catching rollers 10 revolve more quickly than the pressure-rollers.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FRIEDRICH SOENNECKEN.

Witnesses:

N. BOSTIDON,

ALBERT COQUET.