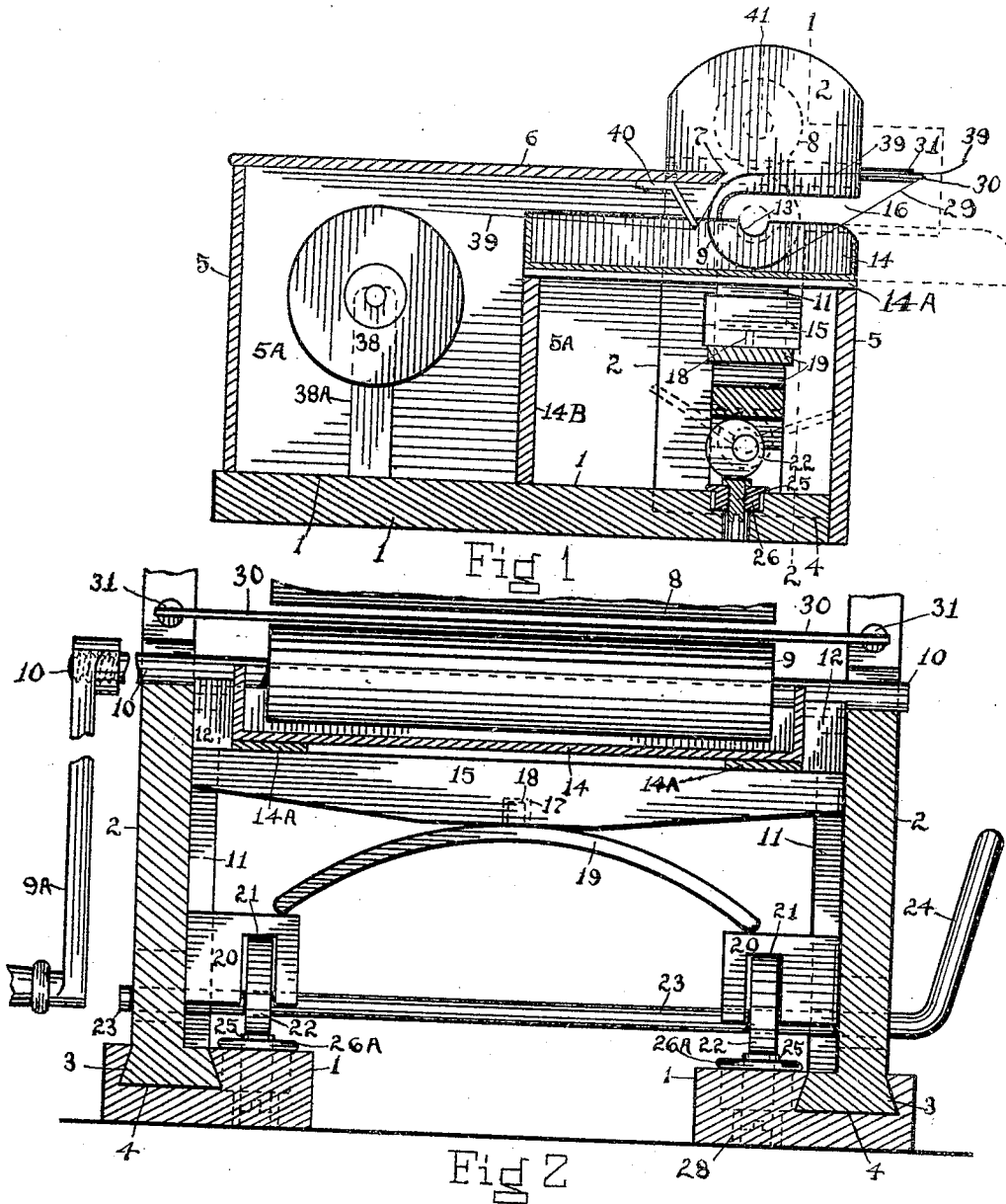


No. 816,399.

PATENTED MAR. 27, 1906.

G. H. TAYLOR.
LETTER COPYING PRESS.
APPLICATION FILED APR. 15, 1905.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

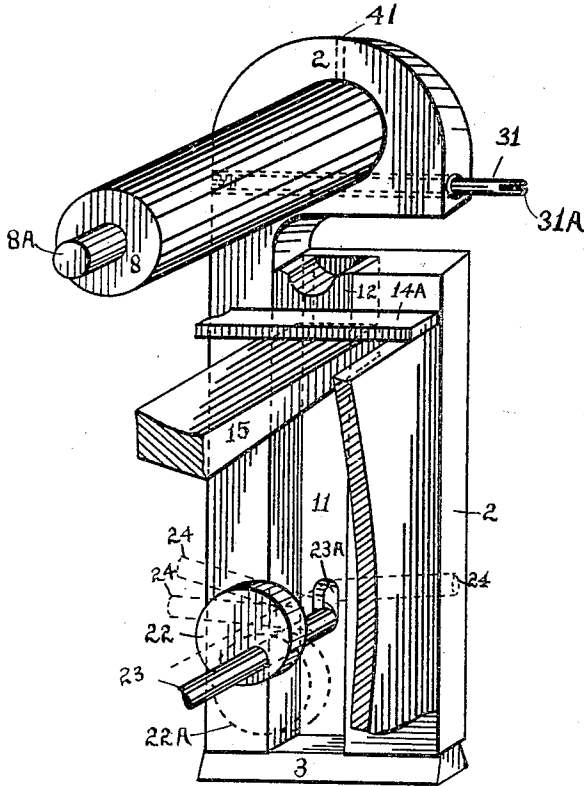


Fig 3

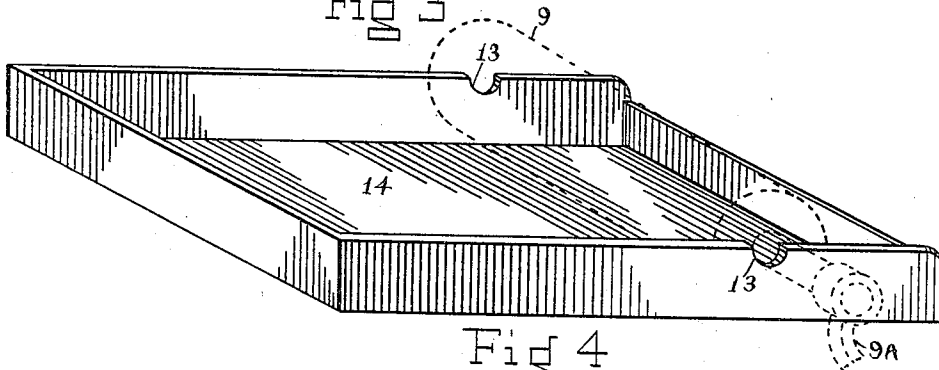


Fig 4

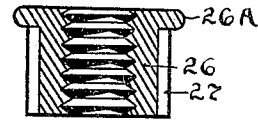


Fig 5

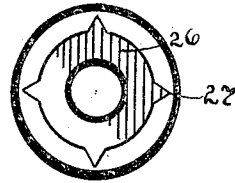


Fig 6

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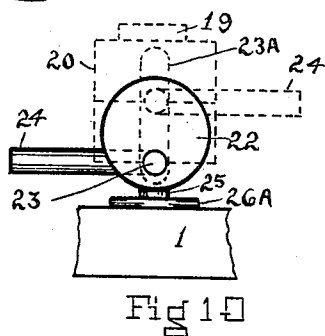
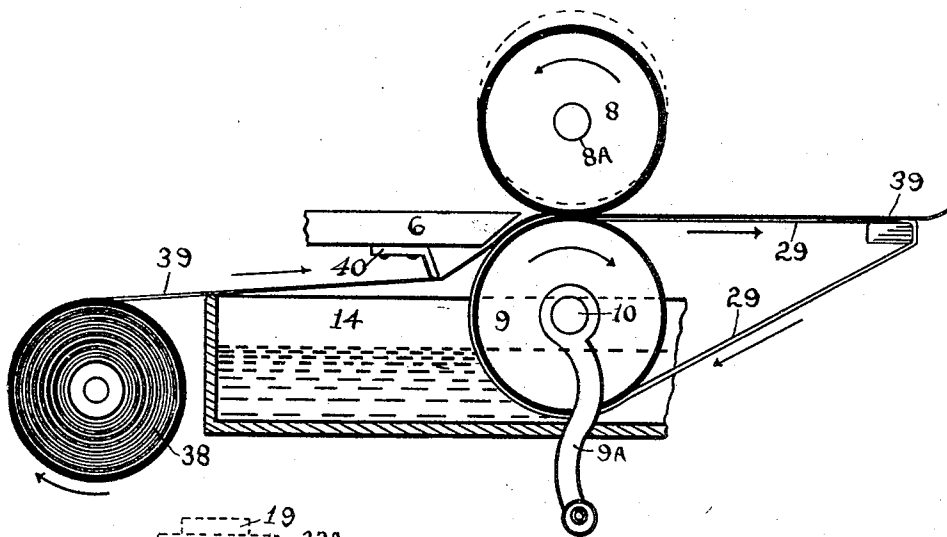
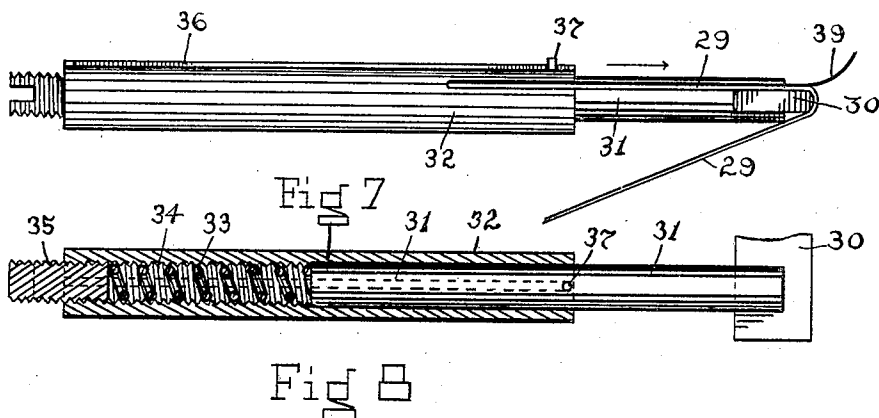
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

GEORGE H. TAYLOR, OF NORFOLK, VIRGINIA.

LETTER-COPYING PRESS.

No. 816,399.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed April 15, 1905. Serial No. 255,714.

To all whom it may concern:

Be it known that I, GEORGE H. TAYLOR, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Letter-Copying Presses, of which the following is a specification.

My invention relates to improvements in letter-copying presses.

The object of the invention is to produce a machine of the character named which is effective, durable, reliable, and comparatively inexpensive of production.

On July 12, 1904, a patent, numbered 764,694, was granted to me for a copying-press, upon which my present invention is an improvement.

The invention consists of certain novel features of combination and arrangement of parts, which will be more fully described, and particularly pointed out in the claims, recourse being had to the annexed drawings, constituting a part of this specification, in which—

Figure 1 is a sectional elevation of the apparatus. Fig. 2 is a cross-section of the line 1 2 in Fig. 1. Fig. 3 is a part perspective of the casing or box with one side removed. Fig. 4 is a perspective view of the water-pan. Fig. 5 is a sectional elevation of the screw-sleeves. Fig. 6 is a bottom plan of the same. Fig. 7 is an elevation of the absorbent-band-tightening sleeves and rods or plungers. Fig. 8 is a sectional plan of the same. Fig. 9 is a side elevation of the rollers, paper-roll, and absorbent band or belt mostly in outline. Fig. 10 is a side view in outline of one of the eccentrics, showing the shaft therefor in two positions.

In the drawings, in which like reference-numerals indicate similar parts in all the views, 1 represents the sills or bottom members, into which is fitted the standards or uprights 2 by the dovetails 3 in slots 4, of corresponding shape in the bottom members or sills 1. By this construction the apparatus is given great strength and is not liable to work loose by usage.

5, Fig. 1, represents the end pieces, and 5^A the side pieces, taken in connection with the cover or lid 6, form a box preferably of a rectangular shape. The lid or cover 6 has a beveled or sloping end 7 to enable it to fit up closely to the bottom roller, as will be more fully described hereinafter.

8 is the top or stationary roller usually made of soft rubber and extends from side to

side of the box and located on the upper portions of the standards 2.

The roller 8 is provided with a shaft or spindle 8^A, the ends of which are fitted into brass sleeves forced into the upper portions of the standards 2, though they are not shown in the drawings. I am enabled by their use to reduce the wear which would take place if the shaft were inserted to bear against wood or iron.

9 is the adjustable or bottom roller, which in practice I find most desirable to be made of hard rubber or vulcanite, and is located below the roller 8. The roller is provided with a handle 9^A upon one end of its spindle or shaft 10, by which it is rotated.

11 is a vertical slot or channel in each of the standards 2 for partly inclosing the bearing-blocks 12, which support the roller 9 and for suitably guiding other parts of the apparatus, as will be further described hereinafter.

13 represents semicircular-shaped notches in the water pan or dish 14 for supporting both ends of the shaft 10 when the blocks 12 are at the lowest points or when the roller 9 is not in contact with the roller 8. The notches 13 are for the purpose of forming a bearing or support for the roller 9 when the pan 14 is removed, as shown by Fig. 4.

14^A represents narrow strips of metal supported at their ends by the end piece 5 and central partition 14^B, Fig. 1, for holding the pan 14.

15 is a transverse or equalizing bar having its ends working in the slot 11 and also supporting the bearing-blocks 12.

As described, the pan 14 can be removed from the apparatus by lowering the equalizing-bar 15 and the blocks 12, which allows the ends of the shafts 10 to rest in the notches in the sides of the pan, thus removing the roller therewith, as well as the absorbent band or belt, as will be hereinafter described.

17 is an aperture (shown by dotted lines in Figs. 1 and 2) in the equalizing-bar, in which is located the vertical pin 18 (shown by dotted lines) upon the semi-elliptic spring 19. In this manner the bar 15 is free to adjust itself when actuated by the spring and its connecting members, so that the bearing pressure of the top and bottom rollers is equal throughout their length and is accomplished by the freedom of the bar to oscillate upon the pin 18, which is smaller than the aperture in which the pin works. Both ends of the spring are supported upon the eccentric-

blocks 20, working in the slot 11, slotted, as at 21, Fig. 2, to accommodate the eccentrics 22, located upon the transverse shaft 23, the ends of which rise and fall in the slots 23^A in the standards 2 during the up- and -down movement of the eccentrics. The shaft 23 terminates in a handle or lever 24 on the opposite side to that of the operating-handle 9^A.

Referring to Figs. 1 and 10, the throw of the eccentrics 22 governs the pressure of the roller 9 upon the roller 8. The position shown by the full-line small circle in Fig. 10 indicates the position of the shaft 23 when the rollers are separated, while that shown by the dotted small circle at the upper portion of the larger eccentric circle is the position of the shaft when the machine is in operation or when pressure is exerted upon the roller 8.

In Fig. 10 the handle 24 (shown in full lines) is carried through a semicircular path to that indicated by the dotted lines at the right of the figure, which is the position when the lower roller 9 is against the upper roller 8. The eccentrics 22 always bear against the end of the screw 25, thereby lifting and lowering the blocks 20, the shaft 23 working in the slot 23^A, which acts as a guide. The blocks 20 are slotted to receive the eccentrics and are also provided with semicircular notches to enable them to rest on the shaft, though they are not shown in the drawings except in one position, as in Fig. 2.

25 represents the ends of adjusting-screws, preferably of the headless variety, working in the sleeves 26, Figs. 1, 5, and 6.

The sleeves are driven partly through the bottom members or sills 1 and connect with an aperture 28, (shown by dotted lines in Fig. 2,) which serves as a means for inserting a screw-driver to adjust the screws 25. By means of the adjusting-screws 25 the eccentrics are raised, so that the point of contact of the rollers 8 and 9 can be varied and the pressure of the lower roller against the upper roller will be equal, regardless of the adjusting-screws 25, as the pressure of the spring is transmitted to the equalizing-bar 15 in an adjustable manner, due to its central oscillating pivot. The sleeves 26, Figs. 5 and 6, are provided with a flange or bead 26^A and longitudinally-extending V-shaped ribs 27, to enable a pressure of the screws 25 to be exerted without rotating the sleeves. The sleeves are fitted in apertures provided for the purpose and driven in up to the flange or bead 26, as shown in Fig. 1.

29 is an endless band or belt, of some woven fabric, such as cloth or other liquid-absorbing material, and passes over the roller 9 and is operated thereby. The other end of the belt is supported by a rectangular non-rotary bar 30, supported by the tension-rods or plungers 31 in the slots 31^A, Fig. 3, at their ends.

32, Figs. 7 and 8, represents sleeves fitted into the standards 2 and having springs 33, inclosed by the sleeves. The sleeves are screw-threaded, as at 34, to approximately one-half of their length, as shown in Fig. 8, to receive the headless screw 35, which increases and decreases the compression of the spring and the degree of tension of the absorbent band 29. The sleeves 32 are provided with slots, as at 36, for the passage of the stop-pin 37, located upon the rods 31, the object of such being to prevent the rods from being expelled from their partly-inclosing sleeves 32 by the pressure of the spring when under compressive strain.

38 is a roll containing paper or copying-tissue and is supported upon the standards 38^A.

39 indicates a sheet of the copying-tissue, preferably rule-perforated at approximately every ten inches of its length.

40 is a conforming or guide bracket attached to and removable with the lid or cover 6, and its object being to make the copying tissue or paper conform to a part of the circumference of the roller 9, thus exposing it to a greater surface of the absorbent band and rendering the process of dampening the paper before its passage between the rollers more efficient.

41, Figs. 1 and 3, represents oil-holes by which the ends of the shaft 8^A of the roller 8 are lubricated.

By the use of the adjustable spring-pressed rods 31 the absorbent band is kept tightly stretched by extending the bar 30 outward, and also by means of the springs the band remains tightly in contact with the roller 9 and the bar 30, so that shrinkage of the band when it is dried and other effects are compensated for by the springs.

The band can be quickly removed from the bar by pushing in the tension-rods 31, taking out bar 30, and the band, together with the roller 9, can be separated from the apparatus. The band is always guided in a straight line, without any movement to one side or the other. The shape of the bar 30 is preferably of a rectangular cross-section with rounded edges or corners, as shown in Fig. 8, so that when the absorbent band passes over it the paper is more readily dislodged therefrom on account of the sharp angle of the stationary bar, and therefore the paper becomes loosened from the absorbent band better than it would if the band passed over a smooth surface, like a roller, which rotates as the paper and cloth pass over it.

The pan 14 contains water or other liquid and is situated under the lower roller 9 and by one of its edges, together with the downward-projecting bracket or guide 40, causes the copying-tissue to be fed between the rollers in an approximately straight line with the lower roller.

When the lid or cover 6 is removed, the copy-

ing-tissue is more readily removed than if the guide were affixed to another part of the apparatus.

The pressure acting on the top roller by the lower is regulated by the handle 24 on the eccentric-shaft 23.

In order to prevent the machine from being operated backward, I prefer to use a screw-thread for attaching the handle 9^A to the shaft 10, which would become detached when it is rotated in a reverse direction.

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

1. A copying-press comprising a water-reservoir, an adjustable roller transversely disposed and partly immersed therein, an absorbent band driven by the roller, a polygonal bar adapted to support the band, and spring means actuating the said polygonal bar to keep the band in a stretched condition.

2. A copying-press comprising a water-reservoir, a vertically-adjustable roller bearing transversely thereupon and partly immersed therein, an endless liquid-absorbing band adapted to be driven by the said roller, a rectangular-shaped bar adapted to support the band, and spring-pressed means at each end of the said rectangular-shaped bar for maintaining the said band in a state of tensile stress.

3. A copying-press comprising a water-pan, a vertically-adjustable roller adapted to periodically bear upon and partly immersed therein, a non-adjustable roller juxtaposed to the said adjustable roller, an absorbent band adapted to be driven by the said roller, a polygonal bar having rounded edges adapted to support the said band, adjustable spring-pressed means acting on the said bar to normally maintain a tensile stress upon the said band, means for feeding a continuous strip of copying-tissue between the said rollers, and means for guiding the said tissue to conform to a part of the circumference of the said adjustable roller.

4. A copying-press comprising a water-pan, an adjustable roller partly immersed therein, a non-adjustable roller above the said adjustable roller, shafts for supporting the rollers, an endless belt adapted to be driven by the said adjustable roller, a polygonal bar adapted to support the said belt, adjustable spring means for separating the said bar from the roller to stretch the belt, means for feeding a strip of paper between the said rollers at an incline, and spring-pressed equalizing means for normally causing the rollers to compress the said belt and the strip of paper.

5. A copying-press comprising a water-pan, an adjustable roller periodically supported by and partly immersed in the pan, a non-adjustable roller above the said adjustable roller, shafts for supporting the rollers,

an endless woven band adapted to be driven by the adjustable roller, a polygonal bar adapted to support the band, a plurality of slotted end rods for holding the polygonal bar, a set of internally-screw-threaded sleeves for partly inclosing the said rods, springs within the sleeves and acting on the rods to expel the same for tightening the band on the roller, and screw means acting on the springs to regulate the tension of the said band.

6. A copying-press comprising a normally supported water-reservoir, an adjustable roller periodically supported by the reservoir and partly immersed therein, a roller in proximity to the adjustable roller, an operating-handle on the shaft of the adjustable roller to rotate the same in one direction, an endless absorbent belt adapted to be driven by the said adjustable roller, a polygonal rod adapted to support said belt, a band of paper adapted to be fed over the belt and between the rollers, a set of vertically-slotted standards for supporting the rollers, a plurality of slotted end rods for supporting the polygonal rod, a set of internally-screw-threaded sleeves for the slotted end rods, springs in the sleeves acting on the rods and the polygonal rod to tighten the belt, adjusting-screws for increasing the tension of the springs, slots in the said sleeves, and stop-pins on the slotted end rods and adapted to reciprocate within the slot for limiting the stroke of the said slotted rods.

7. A copying-press comprising a water-pan, a non-adjustable roller above the pan, an adjustable roller partly within the same, an endless moving absorbent belt driven by the roller and passing between the rollers, means for feeding copying-paper thereupon, a centrally-pivoted equalizing-bar adapted to maintain alinement of the rollers, a curved spring under the bar, and eccentric cams adapted to raise and lower the said adjustable roller to resiliently unite the rollers to compress the band and the copying-paper.

8. A copying-press comprising a water-reservoir, a non-adjustable roller above the reservoir, an adjustable roller partly immersed and periodically supported by the reservoir, an endless absorbent belt passing around the said adjustable roller and driven thereby, means for feeding a band of paper upon the said belt and between the rollers, a centrally-pivoted rockable bar for maintaining transverse alinement of the rollers, a semi-elliptic spring beneath the bar and yieldably supporting the same, means for resiliently operating the said rollers to compress the belt and the band of paper, a series of eccentric cams for actuating the rollers, and means for adjusting the degree of pressure acting on the said belt and paper band by the eccentric cams.

9. A copying-press comprising a box or casing, sill or bottom members having grooves

therein, a vertical set of dovetailed end members or standards extending above the upper surface of the box, a lid or cover having an inclined end, a horizontal slot in the upper portions of the end members, a non-adjustable roller above the slot, a horizontally-disposed water-pan, an adjustable roller below the first-named roller periodically carried by and partly immersed in the said pan, a shaft therefor, a plurality of detachable bearing-blocks for supporting the ends of the shaft, vertical grooves or channels upon the inner sides of the said standards for movably supporting and partly inclosing the bearing-blocks, a spring-pressed equalizing-bar extending from side to side of the box or casing having its ends movably positioned in the said groove or channel, pressure means for normally causing the said rollers to be in transverse alinement with each other by the said equalizing-bar, an absorbent band passing around and driven by the said adjustable roller and extending outwardly from between the rollers, a spring-pressed polygonal bar for exerting a tensile strain upon the band, means for feeding a strip of paper between the rollers and upon the absorbent band from a point at or near the center of one of the rollers, and means for detaching the said adjustable roller and the band with the water-pan from the said standards when the said rollers are separated.

10. A copying-press comprising a box having an approximately central partition, a plurality of horizontally-slotted and vertically-grooved standards at one end of the box, a non-adjustable roller above the slotted portion of the standards, an adjustable roller below the slot, a water-pan beneath the adjustable roller and periodically supporting and partly immersing the roller, a shaft for the roller, detachable bearing-blocks for supporting the ends of the roller-shaft and working in the said grooved portion, a transversely-disposed centrally-pivoted equalizing-bar for supporting the said bearing-blocks at its ends, a set of horizontally-disposed detachable narrow plates supported upon the said central partition and the end members of the box or casing, means for keeping the bearing-blocks in the grooves by the said narrow plates, a semi-elliptic spring beneath the said equalizing-bar, and a plurality of cams for raising and lowering the said spring and equalizing-bar with their attached mechanism.

11. A copying-press comprising a box, a set of grooved and slotted standards, a roller mounted for non-adjustment upon the upper portion of the standards, a roller mounted for vertical adjustment beneath the first-named roller, shafts for the said rollers, a set of bearing-blocks for the ends of the shaft of the adjustable roller, a detachable water-reservoir for periodically supporting and partly immersing the said roller, an operating-handle

for the roller, means for causing the said roller to rotate in one direction by the handle, a set of plates for supporting the said water-reservoir when under the rollers, a transversely-disposed equalizing-bar having a central aperture therein, a curved spring having a vertically-projecting lug or pin for rockably supporting the equalizing-bar when engaged with the said aperture, means for causing the rollers to be in transverse alinement by the said equalizing-bar when the rollers are in operation, and eccentric means acting on the said equalizing-bar and its connecting members to vary the pressure of the lower roller upon the upper roller.

12. A copying-press comprising a box or casing, a set of sill members therefor, a set of dovetailed standards inserted therein, a non-adjustable and an adjustable roller between the standards, supporting-shafts for the said rollers, a water-pan for partly immersing one of the rollers, vertical channels in the standards, a set of notched bearing-blocks adapted to rise and fall in the channel, a transversely-disposed rockable equalizing-bar, a curved spring beneath and pivotally supporting the said bar at its center, a set of slotted vertically-movable blocks working partly in the said channel and supporting the curved spring at its ends, a set of roller-compressing eccentric cams partly within and partly without the said slots in the blocks, a shaft for the said cams, means for supporting the lower ends of the vertically-movable blocks on the said shaft, adjustable screw means on the said sill members for forming a constant bearing-surface for the edges or face of the eccentric cams.

13. A copying-press comprising a box or casing, a set of sill members therefor, a set of vertical standards at one end of the casing having vertical channels and horizontal slots therein, means for connecting the said standards and the sill members by a dovetail joint, a roller in the upper portion of and between the standards, an adjustable roller in normal transverse alinement therewith and insertible in the said horizontally-slotted portions of the standards, shafts for supporting the rollers at their ends, an operating-handle on the adjustable roller for operating the same in one direction of rotation, a water pan or reservoir having notches in the sides thereof for the shaft of the adjustable roller for periodically supporting and partly immersing the same, a set of detachable concave-ended bearing-blocks working in the said vertical channel of the standards, a plurality of plates for supporting the water-pan and confining the bearing-blocks in the channel, a centrally-pivoted and transversely-rockable bar for supporting the said bearing-blocks, an arched spring for yieldably mounting the bar, a set of transversely-separated notched blocks having slots therein and working partly inclosed

in the said channels of the standards, a set of
eccentric cams within the said slots in the
blocks and adapted to cause them to rise and
fall to compress the said arched spring to
5 unite and separate the said rollers, a shaft
for the eccentric cams extending through to
each side of the casing or box, a lever or han-
dle on one end of the eccentric-shaft for oper-
ating the eccentrics, axially-ribbed sleeves in
10 the said sill members having screw-threads
therein, a set of screws adapted to pass
through the sleeves for forming a bearing-
joint for the edges or periphery of the cams

during their movement, and means for ad-
justing the said rollers by the sleeved screws, 15
means for raising the eccentric-shaft during
movement of the eccentric, and slots on the
lower portions of the said standards to ac-
commodate the movement of the said shaft.

In testimony whereof I have hereunto af- 20
fixed my signature, in the presence of two
witnesses, this 8th day of April, 1905.

GEORGE H. TAYLOR.

Witnesses:

WALTER B. BURROW,
V. C. BURROW.