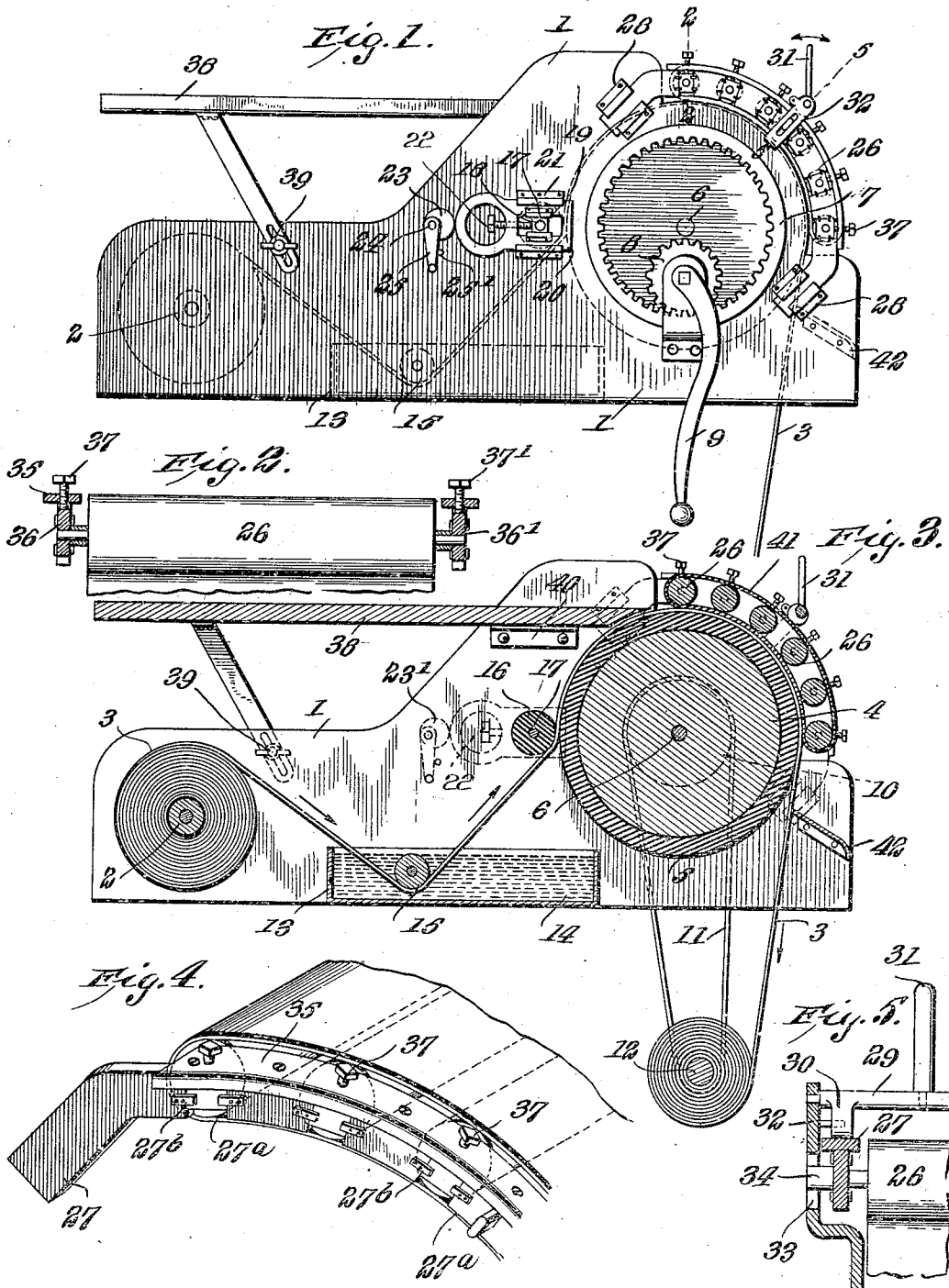


H. A. BENNER.
PRESS COPYING DEVICE.
APPLICATION FILED DEC. 9, 1909.

959,292.

Patented May 24, 1910.



WITNESSES
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HARVEY A. BENNER, OF WASHINGTON, DISTRICT OF COLUMBIA.

PRESS-COPYING DEVICE.

959,292.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed December 9, 1909. Serial No. 532,169.

To all whom it may concern:

Be it known that I, HARVEY A. BENNER, a citizen of the United States, and resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Press-Copying Devices, of which the following is a specification.

My invention relates to devices for making press copies of letters, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a device by means of which a large number of letters may be copied in a short time.

A further object of my invention is to provide a device by means of which clear and perfect copies may be made from type-writing made with ordinary copying ribbons and from writing made with ordinary copying inks, indelible pencils, etc., no special, heavily-inked or quick copying ribbons or inks being necessary, as in the ordinary copying devices of this type, thus obviating the smearing and blurring of letters or other matter in handling before copying, and during the process of copying, as is the case where quick-copying ribbons or inks are used.

A further object of my invention is to provide a device which will automatically moisten the copying sheet and will subject the letters to the same pressure, thereby producing copies all of the same relative clearness, and preventing the smearing of certain copies, and the imperfect impressions of others.

A further object of my invention is to provide means for regulating the pressure upon the letters.

Further objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this specification, in which similar reference characters indicate like parts in the several views, and in which:

Figure 1 is a side view of the device, Fig. 2 is a detail section along the line 2-2 of Fig. 1, Fig. 3 is a central longitudinal section through the device, Fig. 4 is a detail perspective view of the pressure regulating means, and Fig. 5 is a fragmentary section along the line 5-5 of Fig. 1.

In carrying out my invention, I provide

a main frame 1 of the shape shown in the figure. Within this frame is mounted a paper roller 2, carrying the copying paper 3. The opposite end of the frame bears a large pressure roller 4 having a resilient covering 5. This pressure roller is mounted on a shaft 6 at the end of which is a gear 7 arranged to mesh with a driving gear 8, operated by a crank 9, so that when the crank handle 9 is turned, the roller 4 is revolved. The shaft 6 is provided with a pulley 10 around which the belt 11 passes. This belt also passes over the roller 12 upon which the copying paper 3 is wound.

In the bottom of the frame 1 is a trough 13, containing water 14. Rotatably mounted in the trough is the roller 15.

On one side of the roller 4 is a pressure roller 16. This roller is mounted on a shaft 17. The end of the shaft projects through the frame 1 and is mounted in a block 18 which is slidably held by flanges 19 on a plate 20. The plate 20, in turn, is slidably held by flanges 21, on the side of the frame 1. The plate is provided with an opening to admit the head of the adjusting screw 22, whose inner end bears on the block 18. The cam 23 is mounted on a shaft 24 which extends from one side to the other of the device, and is operated by means of a handle 25.

The pressure rollers which are arranged to cooperate with the main roller 4 are shown at 26. These rollers are arranged in a movable frame 27 which is slidable with respect to the main frame in the flanges 28 on the latter. The frame 27 bearing the rollers 26 may be moved toward or away from the roller 4 by means of a cam device. This consists of a rod 29 having cam members 30 and a handle 31. The rod is pivoted at the ends of an extension 32 on the main frame 1, which is provided with a slot 33. The cam member 30 is arranged to bear directly on the upper part of the frame 27, as shown in Fig. 5. The latter has a pin 34 which slides in a slot 33. By moving the handle 31, it will thus be seen that the frame 27 may be moved radially of the roller 4.

The means for adjusting the individual rollers is best shown in Figs. 2 and 4. The frame 27 is slotted at 27^a and provided on its exterior portion with the retaining strips 27^b. Across the top of the member 27 is a strengthening strip 35 which is screwed to the member 27 in the manner shown in

Fig. 4. A series of blocks 36 is disposed in the grooves 27^a. These blocks bear the ends of the rollers 26. The pressure of the rollers upon the roller 4 may be increased by tightening up the screws 37 or may be relieved by unloosening these screws. It will be understood that the opposite ends of the rollers are provided with similar blocks 36', (see Fig. 2) and adjustable screws 37', while the shaft 24 of the cam member 23 bears a similar cam member 23' at its opposite end (see Fig. 3).

From the foregoing description of the various parts of the device, the operation thereof will be readily understood.

The letters are held upon the adjustable table 38 which may be raised or lowered by means of the thumb screws 39, the opposite end of the table resting on a flange 40. The letters are fed between the uppermost roller 26, and the roller 4. The resilient band 41 of cloth, rubber, or other suitable material catches the letter and presses it upon the copying paper. The latter has been moistened by being passed underneath the roller 15 and the surplus water squeezed out between the roller 16 and the roller 4. The pressure of the roller 16 upon the roller 4 may be regulated by means of the screw 22, or the roller may be immediately withdrawn from the roller 4 by manipulating the cam members 23 and 23', by means of the handle 25. The pressure is first adjusted by means of the screw 22 and when the machine is not in use, the handle 25 is moved so as to release the roller 16. Now, by pressing inwardly on the handle, until it reaches the stop 25', the proper pressure is applied to the roller. As the roller 4 is turned by the handle 9, the letter is borne by the band 41 between the rollers 26 and the roller 4. The pressure of the individual rollers may be varied by means of the screws 37, as before explained, while the entire set of rollers 26 may be lifted instantly from the roller 4 by manipulating the handle 31.

As the letters are copied, they are deposited on the chute 42, which delivers them to a basket or other suitable receptacle. The copying paper is passed around the roller 12, which is driven by means of the belt 11 from the pulley 10 on the shaft 6, in the manner already described.

The advantages of my invention are readily apparent. They consist mainly in the regulation of the pressure roller 16 so as to leave the paper in the precise condition for best results; and in the provision of a series of rollers like those shown at 26 so as

to subject the letters to a series of pressures without change of position of the letter with respect to the copying paper. The device for removing the entire series of pressure rollers 26 instantly, I consider of advantage, and also the means for adjusting the pressure on each individual roller. The provision of the band 41 prevents the slipping of the letter, or the copying paper between the individual pressure rollers, which might occur if no band were used.

I claim:

1. In a press copying device, a main pressure roller, a series of pressure rollers, a resilient band carried by said pressure roller, means for simultaneously adjusting said pressure rollers toward or away from said main roller and means for individually adjusting said pressure rollers toward and away from said main roller.

2. A press copying device comprising a main frame, a roll of paper carried by said frame, moistening means, means for regulating the amount of moisture, a main pressure roller, a series of pressure rollers, a resilient band carried by said pressure rollers, means for simultaneously adjusting said pressure rollers toward or away from said main roller, and means for individually adjusting said pressure rollers toward and away from said main roller.

3. A press copying device comprising a main frame, a roll of paper carried by said frame, moistening means, means for regulating the amount of moisture, a main pressure roller, a series of small pressure rollers adapted to co-act with said main roller for producing impression copies, a cam for moving all of said rollers simultaneously toward or away from said main pressure roller, and individual adjusting screws for each of said small pressure rollers.

4. In a press copying device, a main pressure roller, a series of auxiliary pressure rollers arranged concentrically of said main pressure roller, means for moving said concentric series toward or away from said main pressure roller, a paper roller, moistening means therefor, and means for squeezing out the excess moisture, said means comprising a roller, a cam for moving said roller toward and away from the main roller, and additional means for varying the position of the roller with respect to the position of the cam.

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Witnesses:

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