No. 854,111. PATENTED MAY 21, 1907.

G. H. SHANNON.

DUPLICATING MACHINE.

APPLICATION FILED FEB. 6, 1907.

Fig. 1,

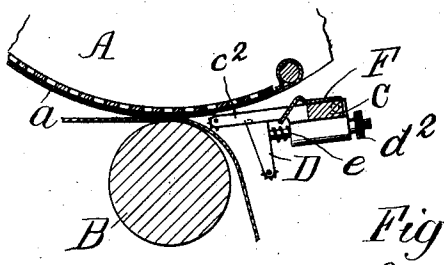


Fig. 2,

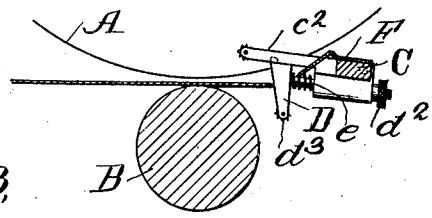


Fig. 3,

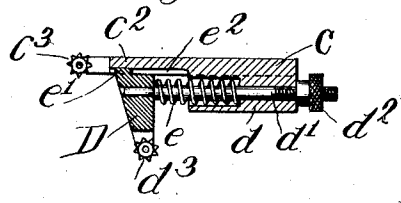


Fig. 4,

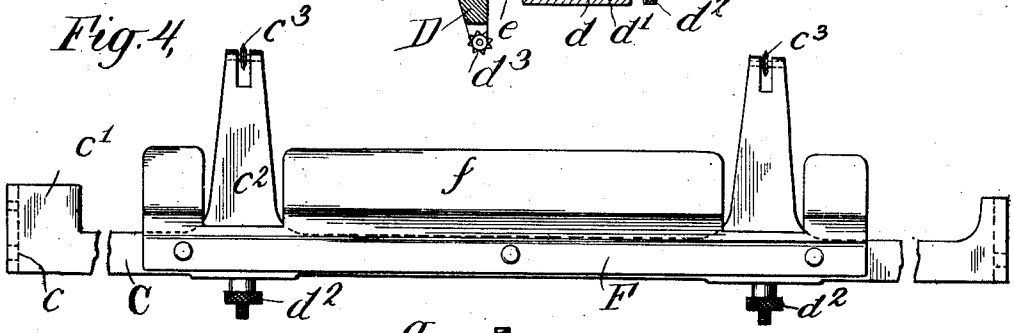


Fig. 5,

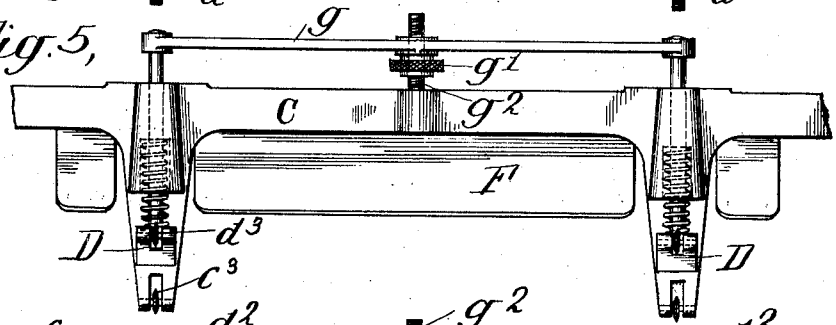
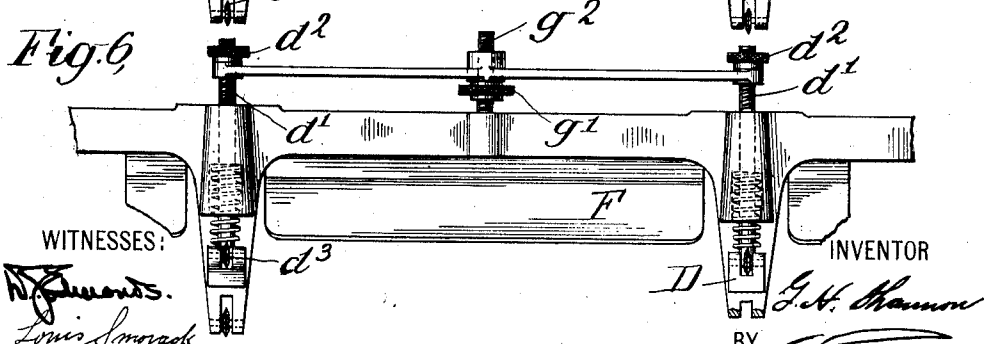


Fig. 6,



WITNESSES:

Louis Simonds.

INVENTOR

G. H. Shannon

BY

J. K. Edmunds

ATTORNEY

UNITED STATES PATENT OFFICE.

GRANT H. SHANNON, OF CHICAGO, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DUPLICATING-MACHINE.

No. 854,111. Specification of Letters Patent. Patented May 21, 1907.

Application filed February 6, 1907. Serial No. 356,021.

To all whom it may concern:

Be it known that I, GRANT H. SHANNON, 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 Duplicating-Machines, of which the following is a specification.

This invention relates to machines for duplicating typewritten or autographic matter from a stencil having the characters to be printed cut therein.

More particularly, the invention relates to machines of the type disclosed in Patent No. 749,983 granted to A. B. Dick January 19, 1904, having a drum mounted for rotation in suitable bearings and provided with means for securing a stencil thereon, and a pressure roller movable toward and away from the drum to coact with the stencil and thus print upon an impression sheet which is fed between them.

The object of the invention is to provide an improved form of paper-stop and stripper for positioning the impression sheets so that the characters will be properly printed thereon and for stripping and guiding the sheets from the drum after they have been printed upon.

An important feature of my invention resides in the provision of an adjustment for the paper-stop whereby such an accurate adjustment of the relation of the parts can be obtained as will cause the printing to appear upon the impression sheets in exactly the desired position.

In the operation of these duplicating machines it is common to cut the characters in the stencil-sheet at such positions thereon as will give approximately the proper position of the printing upon the impression sheets. But it is often desirable to secure even greater accuracy in the positioning of the printing, as for instance in printing a date upon a date line. By the provision of an adjustment of the paper-stops an exact alinement of such characters can be obtained and the appearance of the impression sheets is therefore much improved.

An embodiment of the invention is illustrated in the accompanying drawings in which

Figure 1 is a longitudinal section of a portion of a stencil duplicating machine, Fig. 2 is a similar view showing the other position of the paper-stop and stripper, Fig. 3 is a central section through one of the paper-stops and stripper arms, Fig. 4 is a top view of the paper-stop and stripper and Figs. 5 and 6 are bottom views of a paper-stop and stripper illustrating modifications.

Referring first to Figs. 1 and 2, A indicates a drum having means for securing a stencil-sheet a on the cylindrical surfaces thereof and B indicates a rotatable pressure-roller mounted directly below the drum A and movable toward and away from the same in accordance with the rotation of the drum, all as more fully set forth in my patent above referred to. The paper-stop and stripper consists of a bar C mounted so as to have a rocking movement upon the side frames of the machine; its ends have openings c therein, as shown in Fig. 4, to receive pivot pins on the side frames. The bar C is enlarged at one end as indicated at c' and this enlarged portion is adapted to engage a cam on one of the heads of the drum A to actuate the bar on its pivots in one direction, movement in the other direction being effected by a suitable spring as is usual in machines of this type.

Formed integral with the bar C are two stripper arms c^2 extending at a right angle to the bar and having star-wheels c^3 pivotally mounted in their ends. Also integral with or secured to the bar, preferably directly under the arms c^2 are barrels or housings d each having an opening therethrough to receive a rod d'. At one end rod d' is threaded and has a knurled nut d^2 thereon. At its opposite end each of the rods d' has a stop D secured thereto consisting of a short arm extending downwardly at substantially a right angle to the stripper arm and having a star-wheel d^3 pivotally mounted in its lower end. Each of the stops D is pressed outwardly toward the end of the stripper arm by a spring e coiled about rod d' and lying between the stop and the casing d; preferably the opening in the casing for rod d' is countersunk to receive the end of the spring. In order to guard against the possibility of catching the edge of an impression sheet between the stop and stripper arm, I may strike up a small projection e' on the upper surface of each stop and provide in the under side of each stripper arm a groove e^2 into

which stud e' extends. A guard F is secured upon the upper surface of bar C; this guard consists of a sheet-metal plate extending between and on either side of the stripper arms c^2 and having an inclined portion f, extending beyond bar C and toward the pressure-roller B.

Fig. 2 shows the position of the parts when an impression sheet is fed in between the drum and pressure-roller, the latter being then depressed to inoperative position. The bar C is so disposed that the stripper arms c^2 are elevated and the edge of the sheet strikes the stops D. When the roller B is raised to grip the sheet between it and the stencil on the drum A, the bar C is rocked to the Fig. 1 position in which the arms c^2 strip the impression sheet from the drum and guide it downward as shown. It will be seen that the position of the characters upon the stencil sheet and that of the sheet upon the drum determine the position of the printing upon the impression sheets, but considerable difficulty is experienced in securing sufficient accuracy in the alinement of the printing upon the impression sheets by predetermining these positions. To secure such accurate alinement, it is only necessary to vary the position of the stops D by means of the nuts d^2. This increases or decreases the length of the sheet extending beyond the line of initial coaction of the pressure-roller and stencil and thus increases or decreases the amount of margin at the top of the sheet. The guard F is of special utility when the machine is used for printing on postal cards. With such cards, a very small margin is desired at the top, much less than the distance between the top of the pressure-roller and the stops D and therefore the cards are not fed in until their forward edges engage the stops. For this reason when the stripper arms c^2 are lowered they do not engage the cards and the latter pass out above the arms, the stiffness of the cards preventing them from being carried around with the drum. The inclined portion of the guard prevents the cards from catching on the bar C as they pass out of the machine.

Fig. 5 shows a construction similar to that in the preceding figures save that a single adjustment is provided for both stops. The rods d' are connected by a bar g which is positioned by a thumb nut g' on a screw g^2 projecting from bar C.

Fig. 6 shows a further modification in which both a simultaneous and an independent adjustment is provided. The rods d' are adjustable relatively to the bar g by nuts d^2 as in Figs. 1 to 4 and the bar is adjustable by a nut g' as in Fig. 5.

Having described my invention, what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. In a duplicating machine, the combination of a rotatable drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum in accordance with the movements of the drum, a bar mounted parallel to the line of coaction of the drum and roller, paper-stops movably mounted on said bar, a spring for moving each of said stops in one direction and a screw adjustment for moving each of said stops in the opposite direction, substantially as described.

2. In a duplicating machine, the combination of a drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum, stripper arms and paper-stops mounted adjacent to the line of coaction of the roller and drum, means for adjusting the position of said stops independently of said stripper arms, and means for preventing the impression sheets from catching between a stripper arm and stop, substantially as described.

3. In a duplicating machine, the combination of a rotatable drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum in accordance with the movements of the drum, a bar mounted parallel to the line of coaction of the drum and roller, stripper arms extending from said bar toward said roller, paper-stops extending downwardly from said arms, and means for adjusting said stops along the under sides of said arms, substantially as described.

4. In a duplicating machine, the combination of a drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum, a bar mounted parallel to the line of coaction of the drum and roller, stripper arms extending from said bar toward said roller, paper-stops extending downwardly from said arms, and means for adjusting said stops relatively to said arms comprising rods coacting with said stops, springs for moving said stops in one direction and nuts coacting with said bar for moving said stops in the opposite direction, substantially as described.

5. In a duplicating machine, the combination of a drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum, a bar mounted parallel to the line of coaction of the drum and roller, paper-stops mounted on said bar and means for simultaneously adjusting said stops relatively to said line of coaction, to various operative positions, substantially as described.

6. In a duplicating machine, the combination of a drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum, a bar mounted parallel to the line of coaction of the drum and roller, paper-stops mounted on said bar and means for simultaneously o

independently adjusting said stops relatively to said line of coaction, substantially as described.

7. In a duplicating machine, the combination of a drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum, a bar mounted parallel to the line of coaction of the drum and roller, paper-stops mounted on said bar, and a guard secured on said bar having an inclined portion for guiding a sheet over the bar, substantially as described.

8. In a duplicating machine, the combination of a drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum, a bar mounted parallel to the line of coaction of the drum and roller, stripper arms extending from said bar toward said roller and a guard on said bar having an inclined portion for guiding a sheet over said bar, substantially as described.

9. In a duplicating machine, the combination of a drum having means for securing a stencil-sheet thereon, a pressure-roller movable toward and away from the drum, a bar mounted parallel to the line of coaction of the drum and roller, stripper arms extending from said bar toward said roller, stops extending downwardly from said arms and adjustable relatively thereto and a guard secured on said bar and having an inclined portion for guiding a sheet over said bar, substantially as described.

This specification signed and witnessed this 31st day of January, 1907.

GRANT H. SHANNON.

Witnesses:
W. H. ROSENSTEEL,
JAMES P. HACKETT.