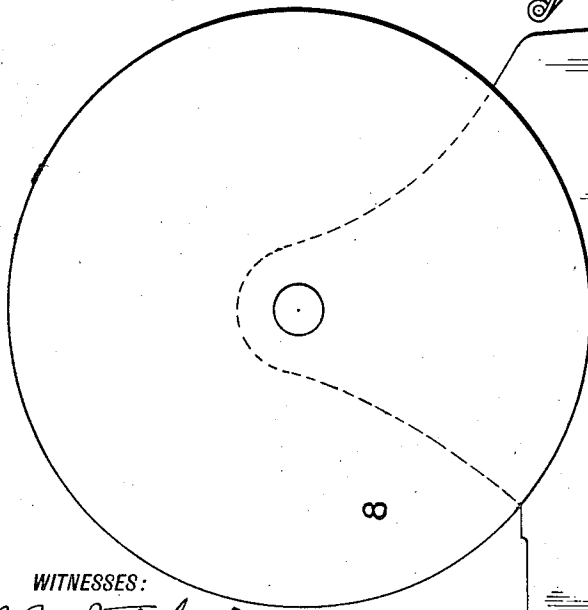
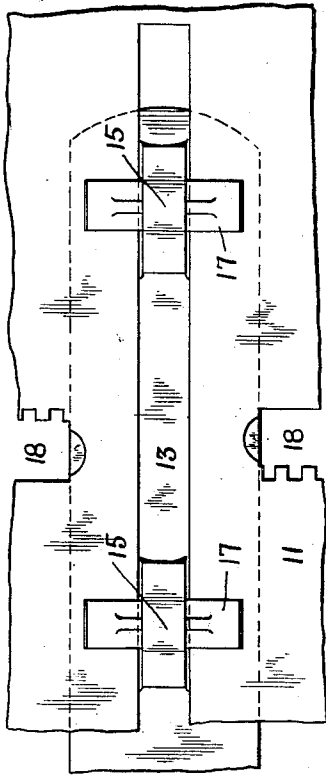


1,086,353.

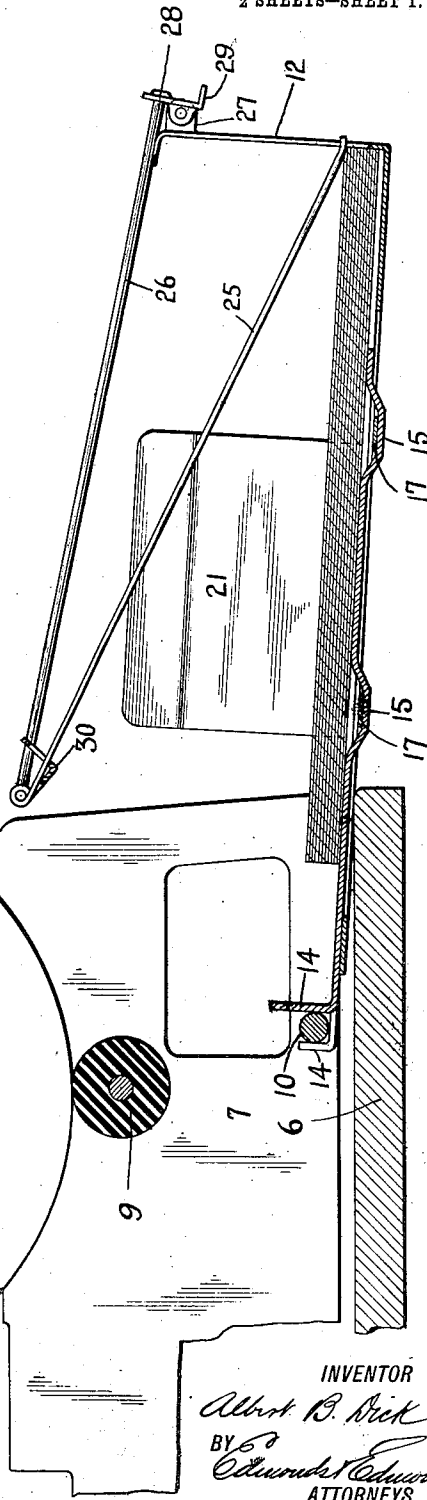
Patented Feb. 10, 1914.

2 SHEETS—SHEET 1.

Fig. 2,



WITNESSES:
L. M. Intest
J. F. Collins
 Fig. 1,



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 BY *Edmund Edwards*
 ATTORNEYS

1,086,353.

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2 SHEETS—SHEET 2.

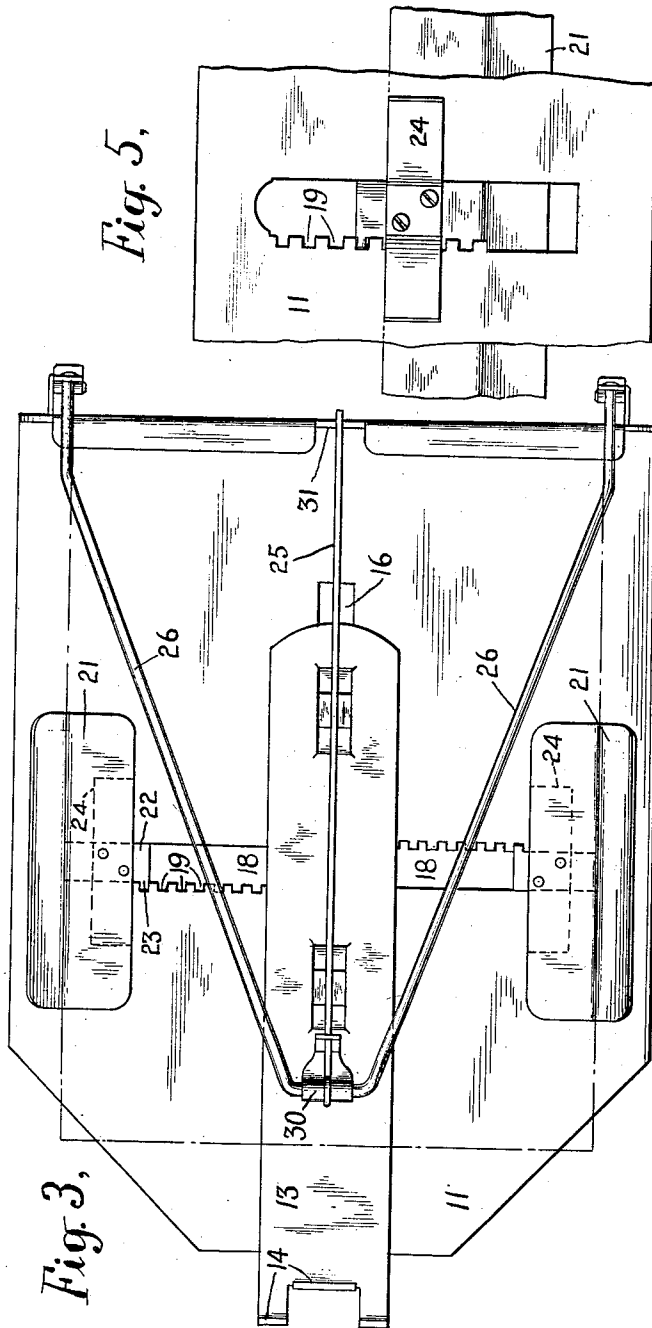


Fig. 3,

WITNESSES:
L. M. Buttrick
J. F. Collins

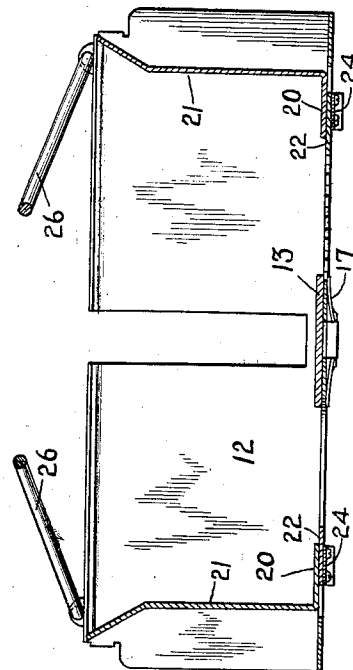


Fig. 4,

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UNITED STATES PATENT OFFICE.

ALBERT B. DICK, OF LAKE FOREST, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DELIVERY DEVICE.

1,086,353.

Specification of Letters Patent. Patented Feb. 10, 1914.

Application filed July 31, 1913. Serial No. 782,168.

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing at Lake Forest, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Delivery Devices, of which the following is a specification.

This invention relates to delivery devices for use with printing and folding machines for receiving the sheets of paper after they have passed through the machine and stacking them so that they may be conveniently handled thereafter.

The invention is directed to the provision of an improved form of delivery device which is inexpensive to manufacture, which is convenient to operate, which is readily adjustable for use with sheets of varying sizes and which is specially useful in connection with small printing machines such as stencil duplicating machines.

One feature of the invention resides in the provision of a guiding device for guiding the sheets delivered by the machine downwardly upon a pile in the delivery tray. This consists of one or more arms pivotally mounted above the sheet-pile and extending downwardly at an angle to a point adjacent to the edge of the sheets in the tray distant from the machine. The arm or arms thus arranged guide the sheets so that they move to the proper position in the tray and because of its pivotal mounting, the arm will rise as the thickness of the pile increases. Preferably the arm extends beyond the edge of the pile so that it will not contact with the ink on the sheets, as by extending it so that it projects through a slot in the end wall of the delivery tray. The tray is made largely of sheet-metal parts so that it may be manufactured at low cost, the construction being such as to facilitate manufacture from sheet-metal. These parts are so shaped and arranged as to permit adjustment of the length of the tray and the distance between the side-guides thereof.

The preferred embodiment of the invention is illustrated in the accompanying drawings in which—

Figure 1 is a central longitudinal section through the device showing a printing machine diagrammatically, Fig. 2 is a view of a portion of the bottom of the tray, Fig. 3 is a plan view of the delivery device, Fig.

4 is a transverse section of the delivery device and Fig. 5 is a view of the bottom of a portion of the tray showing one of the side-guides.

Referring to these drawings, a stencil-duplicating machine is illustrated diagrammatically in Fig. 1, this being typical of any form of apparatus adapted to operate upon sheets successively. This machine has a base 6, side-frames 7 mounted thereon, a drum 8, a pressure-roller 9 coacting with the drum and a rod 10 extending between the side-frames.

The sheets pass to the right between the drum and pressure-roller and are received by the delivery device which is positioned upon the base 6 and rod 10. The main portion of the delivery device is a tray consisting of a horizontal portion 11 and an upright portion 12 integral with the horizontal portion 11 and extending upwardly from the edge thereof distant from the rod 10. This upright portion or wall 12 is adapted to arrest the movement of the sheets into the tray. A sheet-metal strip 13 is provided having projections 14 at one end as shown in Figs. 1 and 3 for coaction with rod 10. Strip 13 is also provided with two depressed portions 15 of less width than the strip formed by making two parallel lengthwise cuts in strip 13 and depressing the metal between these cuts. The strip so formed is laid upon the upper surface of the bottom of the tray 11 with the depressed portions 15 projecting through a slot 16 in the base 11 of the tray. Flat sheet-metal springs 17 are then positioned over the depressed portions 15 and under the base 11 of the tray. Each of these flat springs 17 is secured at the middle portion thereof to the underlying depressed portion 15 and its ends bear upon the under surface of the base 11 of the tray. By this construction it will be seen that the two parts 11 and 13 of the delivery device may be readily moved relatively so as to increase or decrease the distance of the upright wall 12 from the rod 10, this capacity for adjustment being desirable in order to adapt the delivery device for receiving sheets of different lengths.

The tray above described is provided with side-guides for coaction with the side edges of the sheets and these side-guides are relatively adjustable. For this purpose, the bottom 11 of the tray is provided with two

transverse slots 18 and each of these slots has a plurality of notches in one of the walls thereof as shown at 19. Each side-guide consists of a sheet-metal piece bent to form a base portion 20 and an upright portion 21. The base portion 20 bears upon the upper surface of the base 11 of the tray. To the under side of the base portion 20 is secured a sheet-metal piece 22 of a size to fit within the slot 18 and move therein lengthwise of the slot. Each piece 22 is provided with a projection 23 adapted to enter any one of the notches 19. The piece 22 is preferably of the same thickness as the base 11 of the tray. To the under side of this piece 22 is secured a flat spring 24, it being fastened to the piece 22 intermediate its ends and having its ends bearing upon the under side of the base 11 of the tray. This flat spring 24 is displaced from the projection 23 in the direction of the length of the slot 18.

With the side-guides in the position shown in Fig. 3 it will be seen that they are held from movement toward and away from each other by the projections 23 coacting with the notches 19. Each side-guide is held in the position shown with its base 20 flat against the base 11 of the tray and its projection 23 in the notch 19 by its spring 24. If it be desired to move a side-guide, it is only necessary to grasp the upright portion 21 thereof and move it laterally slightly thus rocking the side-guide as a whole against the tension of its spring 24 until the projection 23 is out of the slot 19. The side-guide may then be moved bodily in the direction of the length of slot 18. On releasing the guide, the spring 24 will cause it to assume its upright position and the projection 23 will again enter a notch 19 so as to again hold the guide from lateral movement.

A gravity-actuated member 25 is provided to coact with the sheets as they are moved into the tray and cause them to move in the desired manner. This member 25 is carried by a support 26 in the form of a bail made of wire. This support 26 is pivotally mounted upon the upright portion 12 of the tray. This wall of the tray has ears 27 thereon upon which members 28 are pivoted and the ends of bail 26 are secured to these members 28. The members 28 have projections 29 thereon which coact with the wall 12 of the tray to arrest turning movement of bail 26 when the latter is in an upright position. When the bail 26 has been turned to the position in which it is shown, its movement is arrested by the wall 12. The member 25 is pivotally mounted upon bail 26 at the right of the bail and is adapted to turn freely on a horizontal axis. The member 25 is preferably formed from a piece of wire whose end is coiled around the

support 26. A sheet-metal piece 30 is secured to the support 26 and provided with a slot through which the wire 25 extends, this wire serving to limit the turning movement of the wire 25 on the bail 26. The wall 12 of the tray is provided with a slot as shown at 31 to receive the free end of the wire 25 in which slot this end of the wire is vertically movable.

With the parts in the position shown in Fig. 1, sheets of paper forwarded into the tray engage the wire 25 and are guided thereby downwardly upon the pile. The mounting of the member 25 permits the same to yield so that its free end moves upwardly as the thickness of the pile increases. Also the end of the member 25 does not contact with the printing upon the sheets at this end coacts with the edge of the sheet distant from the printing machine with the extreme end projection through a slot in the end wall of the delivery tray. When it is desired to remove the pile from the tray, the bail 26 is turned about its pivot to an upright position carrying the member 25 with it so that the bail and member are out of the way when removing the pile of sheets.

From the foregoing description, it will be noted that the delivery device herein illustrated is one of simple construction permitting of manufacture at very low cost and specially adaptable for use with stencil-duplicating machines. It may be readily attached to and detached from the machine and it may be readily adjusted for paper of a different length or different width. When the proper adjustment has been made, the parts will remain in the new position held there by the springs employed.

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

1. A delivery device for a printing or folding machine comprising a sheet-metal strip formed at one end to coact with the machine and provided with integral depressed portions intermediate its ends, a sheet-metal tray whose bottom underlies said strip and is cut to receive said depressed portions of the strip, and spring-metal pieces lying over the depressed portions of said strip and under the bottom of said tray, substantially as set forth.

2. A delivery device for a printing or folding machine comprising a sheet-metal strip formed at one end to coact with the machine and provided with integral depressed portions intermediate its ends and of less width than the strip, a sheet-metal tray whose bottom underlies said strip and is slotted to receive said depressed portions of the strip, and spring-metal pieces each having its middle portion overlying one of

said depressed portions and its ends coacting with the under side of the bottom of the tray, substantially as set forth.

3. A delivery device for a printing or
5 folding machine comprising a tray having a horizontal portion and an upright portion at the end thereof adapted to arrest the movement of sheets into the tray, a support pivoted upon said upright portion to turn
10 about a horizontal axis to an upright position or to a substantially horizontal position projecting over the horizontal portion of the tray, and a member pivotally mounted on the free end of said support to turn about a
15 horizontal axis and adapted to extend downwardly from the support with its end in contact with sheets on the tray, substantially as set forth.

4. A delivery device for a printing or
20 folding machine comprising a tray having a horizontal portion and an upright portion at the end thereof adapted to arrest the movement of sheets into the tray, said upright portion having a vertically disposed
25 slot therein, a support pivoted upon said upright portion to turn about a horizontal axis to an upright position or to a substantially horizontal position projecting over the horizontal portion of the tray, and a member
30 pivotally mounted on the free end of the support to turn about a horizontal axis and adapted to extend inclinedly downward from the support with its free end movable in said slot when said support is in its horizontal position, substantially as set forth.

5. A delivery device for a printing or
35 folding machine comprising a sheet-metal tray having transverse slots therein the walls of which are notched, side-guides each
40 having a base portion adapted to bear upon the surface of the tray and an upright portion projecting therefrom, and a member secured to each side-guide and movable in a slot in the tray and having a projection
45 adapted to enter any notch in said slot, substantially as set forth.

6. A delivery device for a printing or
folding machine comprising a sheet-metal
50 tray having transverse slots therein the walls of which are notched, side-guides each

having a base portion adapted to bear upon the surface of the tray and an upright portion projecting therefrom, a member secured to each side-guide and movable in a slot in the tray and having a projection adapted to
55 enter any notch in said slot, and a flat spring secured to each side-guide and bearing upon the surface of the tray opposite that upon which the side-guide bears, substantially as set forth.

7. A delivery device for a printing or
folding machine comprising a sheet-metal tray having transverse slots therein the walls of which are notched, side-guides each having a base portion adapted to bear upon the
65 surface of the tray and an upright portion projecting therefrom, a member secured to each side-guide and movable in a slot in the tray and having a projection adapted to enter any notch in said slot, and a flat spring
70 secured to each side-guide and bearing upon the surface of the tray opposite that upon which the side-guide bears, said spring being displaced from the projection on said member in the direction of the length of the
75 slot, substantially as set forth.

8. A delivery device for a printing or
folding machine comprising a sheet-metal tray having transverse slots therein the walls of which are notched, side-guides each hav-
80 ing a base portion adapted to bear upon the surface of the tray and an upright portion projecting therefrom, a sheet-metal piece secured to the under side of the base portion of each side-guide, movable in the slot in
85 the side-guide and having a projection to enter any notch in the slot, and a flat spring secured to the under side of the base-portion of each side-guide and having its ends bearing against the under side of the tray, the
90 spring of each side-guide being displaced from the projection thereof in the direction of the length of the slot, substantially as set forth.

This specification signed and witnessed 95
this 15 day of July, 1913.

ALBERT B. DICK.

Witnesses:

W. G. ARNOLD,

W. A. WATERBURY.