No. 849,655. PATENTED APR. 9, 1907.

W. A. BILLMAN.

AUTOMATIC CARD FEEDING DEVICE.

APPLICATION FILED JAN. 27, 1906.

3 SHEETS—SHEET 1.

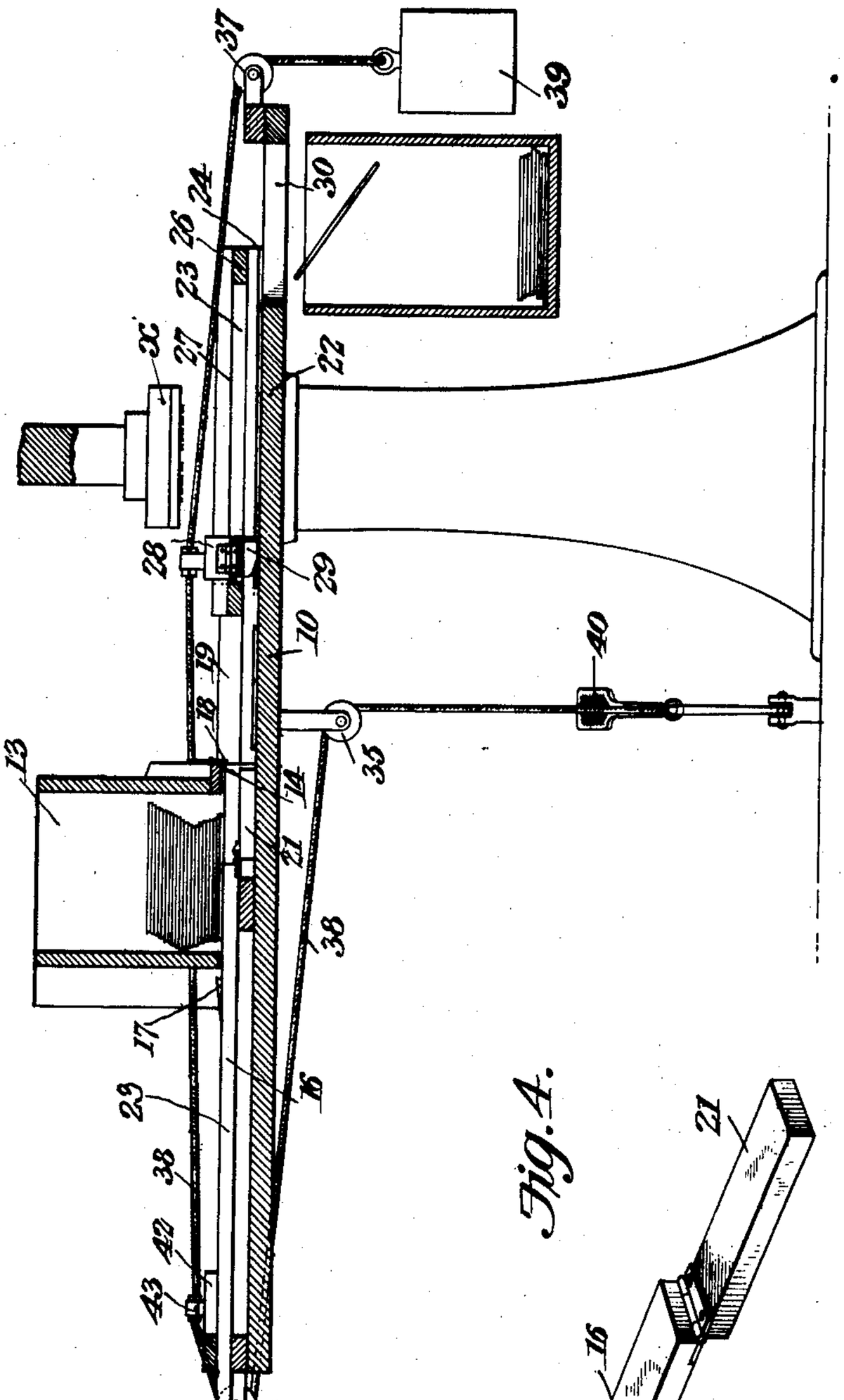

Fig. 1.

Fig. 4.

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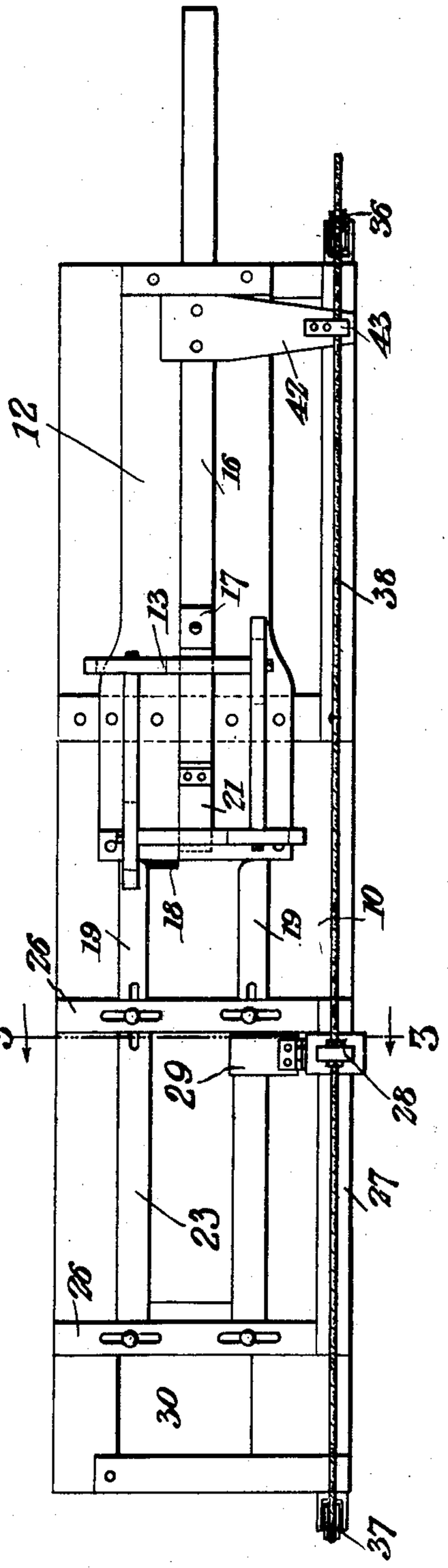

Fig. 2.

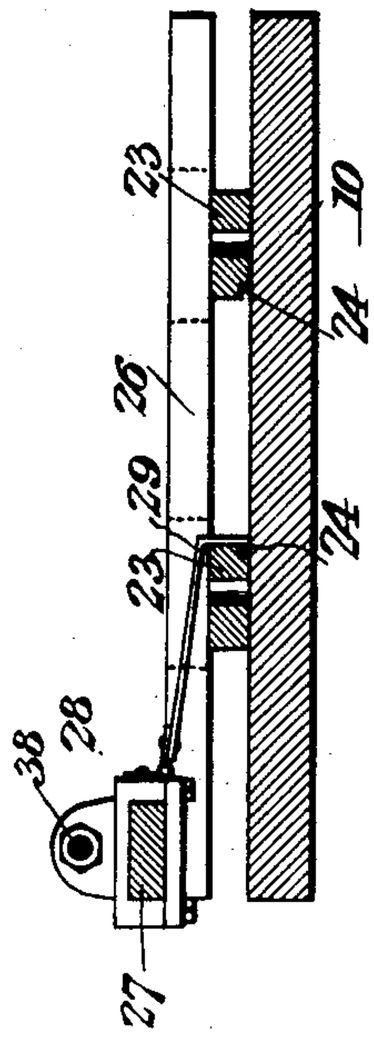

Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 5.

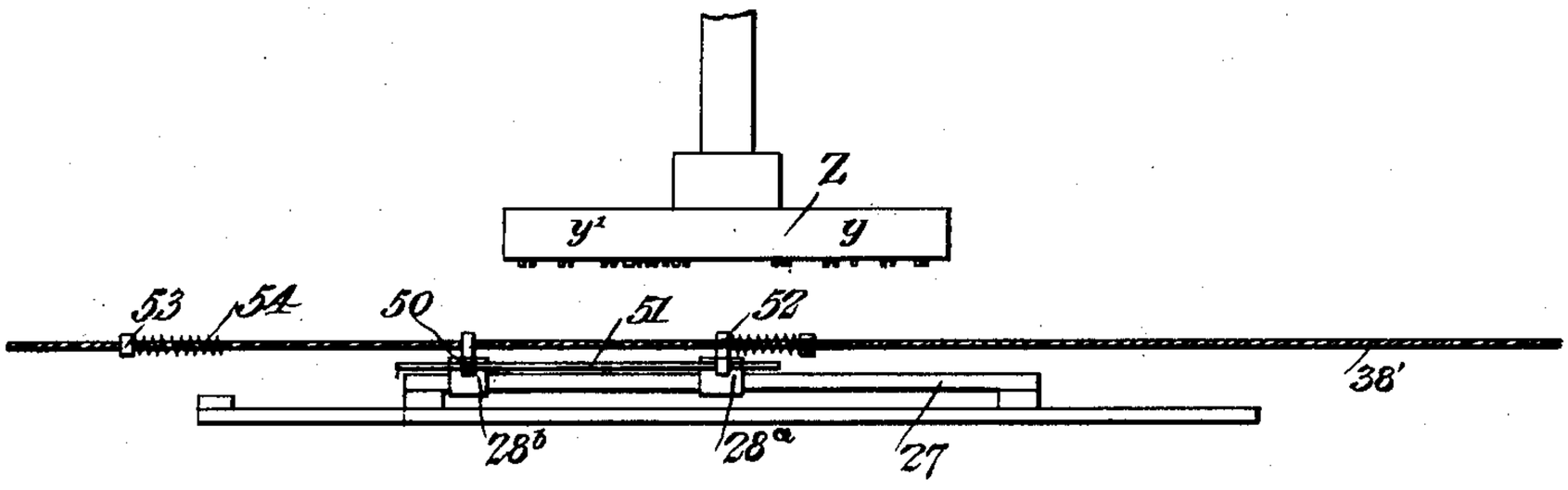
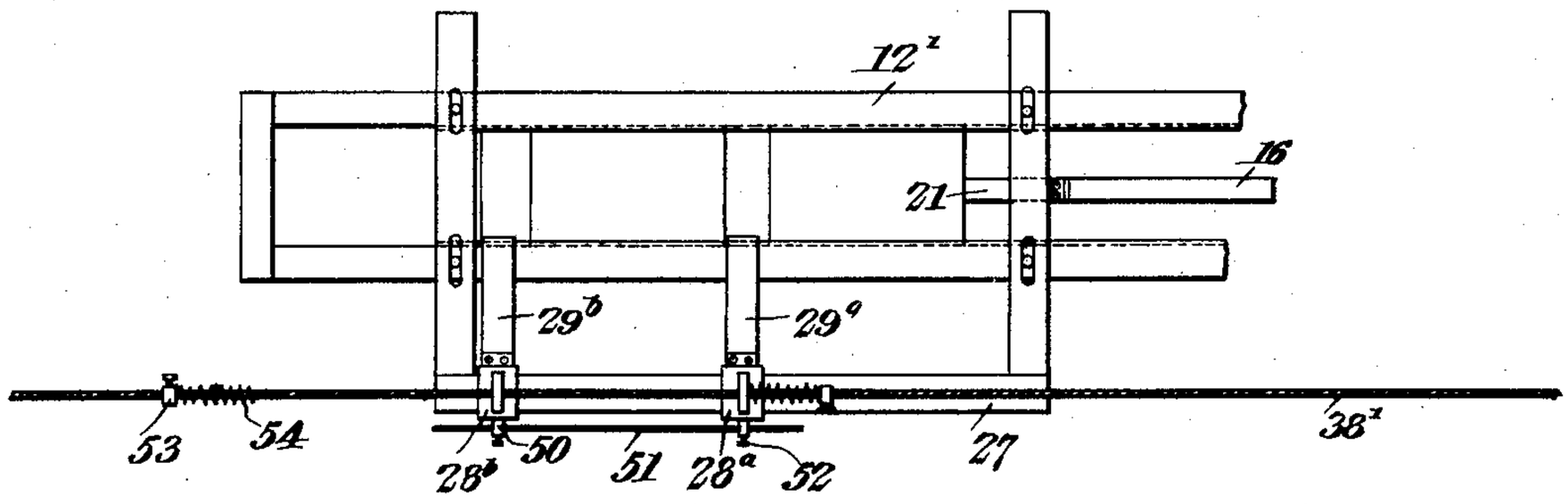


Fig. 6.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC CARD-FEEDING DEVICE.

No. 849,655. Specification of Letters Patent. Patented April 9, 1907.

Application filed January 27, 1906. Serial No. 298,239.

To all whom it may concern:

Be it known that I, WILLIAM ALBERT BILLMAN, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented a new and useful Automatic Card-Feeding Device, of which the following is a specification.

The principal object of the present invention is to provide a mechanism for automatically feeding cards, envelops, slips of paper, or the like to a printing, stamping, embossing, or other form of press and for automatically removing the same after the operation of the press.

A further object of the invention is to provide a mechanism of this type which may be manufactured as a separate article and applied to existing presses or similar mechanisms.

A still further object of the invention is to provide a card-feeding device which may be quickly adjusted to accommodate cards of different length and width.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of a card-feeding device constructed in accordance with the invention. Fig. 2 is a plan view of the same. Fig. 3 is a transverse section of a portion of the device on the line 3 3 of Fig. 2. Fig. 4 is a detail perspective view of the principal feeding device. Fig. 5 is a side elevation illustrating a slight modification of the invention where the cards are to be printed in more than one color. Fig. 6 is a plan view of the same.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the feeding mechanism are supported on a suitable base 10, which may be bolted or otherwise secured to the frame of the printing-press or other mechanism to which the device is to be applied. To this base are secured cross-bars forming a support for a pair of slightly-spaced strips 12, which carry a reservoir or magazine 13, in which the pack of cards, envelops, or paper slips may be placed. At one side of the reservoir is a discharge-slot 14, through which the cards or other articles are successively fed, the lower wall of such slot being in alinement with or forming a continuation of the strips 12, which constitute the bottom of the magazine.

Arranged between and guided by the strips 12 is a feed-bar 16, that is provided at a point some distance from its inner end with a card-engaging plate or lug 17, which projects above the top of the feed-bar a distance slightly less than the thickness of a single card or other article, so that during the feeding movement only a single card will be engaged and discharged. At the discharge side of the magazine is pivoted a finger 18, which hangs over the discharge-slot in such manner as to be engaged and swung outward by the card as the latter is fed through the slot, and said finger will fall to an approximately vertical position after the card has passed thereunder and will form an obstruction, preventing the return of the cards when the feed-bar is retracted.

At the discharge side of the reservoir is arranged a pair of bars 19, having slightly-rounded ends at points adjacent to the sides of the discharge-slot for the purpose of engaging with the sides of the cards and maintaining the same in proper position during the discharging operation.

A card discharged from the magazine through the operation of the feed-bar and the plate 17 will be forced out until its rear end passes beyond the finger 18, whereupon the latter will fall and will prevent the return of the card as the feed-bar is retracted. As the feed-bar passes from under the card the latter will fall onto a feeding-finger 21, that is pivoted to the end of the feed-bar and is arranged to slide freely on the base-plate. The feed-bar 16 and the feeding-finger 21 are both much narrower than the width of the magazine, and as the card has been ejected beyond the discharge-slot of the magazine and has fallen to a position below such discharge-slot the rear edge of such card will engage against the rear wall of the magazine on either side of the guiding-slot through which the feed-bar works, and will thus be held from return movement into the maga-

zine as the feeding-finger 21 slides thereunder.

As the feeding-finger 21 starts on its next forward movement its forward end will engage with the rear edge of the card previously fed and will move the card forward to a position in alinement with the printing, embossing, or other mechanism that is operating on the card, such mechanism being indicated generally at *x* and including a platen 22.

At the opposite sides of the platen 22 are bars 23, arranged in parallel relation and provided with guiding grooves or recesses 24, in which the opposite edges of the cards are received and held during the printing or other operation. The upper walls of said groove or recesses serve to prevent the raising of the cards from the platen as the printing, stamping, or embossing type are elevated. The vertical walls of these grooves engage the opposite edges of the card and frictionally hold the same at the completion of the feeding movement of the finger 21, so that when the finger recedes there will be no danger of the card returning with it.

The two bars 23 are adjustable in order that the distance between them may be altered in accordance with the widths of the cards, and said bars are held by cross-strips 26. The strips 26 carry a bar 27, on which is mounted a slidable block 28, free to move in the direction of the length of the bar. To this block is pivoted a flanged feeding-finger 29, that is arranged to fall by gravity on top of the card, the forward edge of such finger serving to engage with the rear edge of the card and to move the latter from the platen in the direction of a discharge-opening 30, through which the printed or embossed cards may fall to a suitable receptacle. The front edge of the finger is inclined, so that it may ride freely over the cards during the return movement of the block.

While the feed-bar 16 and feed-block 28 may be connected to some moving part of the press and operated thereby, it is preferred, especially where the device is used on a small foot-press, to provide for operation through the medium of a pedal. In carrying out this portion of the invention the base-plate is provided with a series of pulleys 35, 36, and 37, over which is guided a flexible member 38, which may be formed of textile material or metal. To one end of this flexible member is secured a weight or spring 39, and the opposite end is secured to a pedal 40. This flexible member is adjustably secured to the feed-block 28 and is also connected to an arm 42, that projects from the feed-bar 16, a suitable clip 43, carried by the arm, being employed in order to permit quick adjustment of the parts when necessary.

It will be understood that at each depression of the pedal the feed-bar 16 and feed-block 28 are drawn toward the left of Fig. 1 against the force or stress exerted by the counterweight or spring. When pressure on the pedal is relieved, the feed members move toward the right of Fig. 1, and the plate 17 will engage the lowermost card of the reservoir and will force the same out through the discharge-slot, the card passing under the finger 18, so that the latter will prevent any return movement. A second depression of the pedal will again draw the feed members to the left, and the card is then free to fall onto finger 21 and from thence to the surface of the base-plate 10. On the next movement to the right another card will be fed from the reservoir by the plate 17, and the first card will be engaged by the finger 21 and will be forced over the platen 22 in position to be printed or embossed.

At a third operation the feed members will be again drawn to the left, and then when allowed to move to the right a third card will be engaged and forced from the reservoir by the plate 17, while the second card fed will be engaged at the finger 21 and will be forced over the platen 22. The card first fed has now been printed or embossed, and its rear end is engaged by the finger 29, which moves said card from the platen to a discharging position over the opening 30.

It may be desired in some cases to subject the cards to two or more operations during the passage from the reservoir to the final receptacle. For instance, it may be necessary to print the card in two or more colors or to print in one color and emboss at a second stage of the operation. Figs. 5 and 6 illustrate an apparatus by which a step-by-step movement of the card may be secured when it is desired to print in two or more colors.

The cards are fed forward by the finger 21 and the feed-bar 16, previously described. The bar 27 is provided with two blocks 28^a and 28^b, from which project card engaging and feeding fingers 29^a 29^b, respectively. The blocks 28^a and 28^b are provided with lugs 50, having openings for the passage of a rod 51, through which the blocks may be locked by set-screws 52 in order to hold the blocks in proper relative positions and to permit adjustment in accordance with the size of the card.

The operating-cord 38′ is provided with a pair of adjustable collars 53, which may be locked in any position on said cord, and between the collars and the finger-carrying blocks are arranged short cushioning-springs 54, designed for primary engagement with the blocks for the purpose of taking up any shock or jar.

Above the platen is shown a chase *z*, having two sets of type *y y′*, and provision is made for supplying ink of one color to the type *y* and ink of another color to the type *y′*.

The finger 21 feeds the card to a position under the type *y*, so that when the chase de-

scends an impression in one color will be made from the type *y*. The cord 38′ then moves to the right and carries the fingers 29ª and 29ᵇ also to the right, and the finger 29ª engages to the rear of the printed card. On movement of the cord in the same direction at the next reciprocation the printed card is shifted to a position under the type *y′*, while a second card is fed to the first position by the finger 21. When the chase again descends, the card first printed will receive a second impression in a different color from the type *y′*, while the second card will receive a first impression from the type *y*. On the next movement of the cord 38′ to the left, as shown in Fig. 1, the fingers 29ª and 29ᵇ will ride over the printed cards and engage the rear edges thereof, the rear edges of said fingers being curved or inclined for this purpose, after which a further movement to the right, as shown in Fig. 1, will carry the card first printed to discharging position, and the second card will be carried to a position under the type *y′*.

It will of course be understood that the number of type-faces may be increased to a practically unlimited extent and a sufficient number of feeding-fingers used to effect the proper step-by-step motion of the cards and deliver the same under the successive type-faces.

While the device has been shown and described as applied to a printing-press, it will be understood that it may be employed to advantage for the feeding of cards, envelops, slips of paper, or other articles to machinery of any description—such, for instance, as embossing or stamping presses, folding, scoring, or similar mechanism—and in the claims the term "press" must be construed as including any machine or mechanism, while the term "card" is used to designate generally the article operated upon.

I claim—

1. In an apparatus of the class described, a card-reservoir having a slotted bottom and provided with a card-discharge slot at one end, a feed-bar arranged in the bottom slot and of a width less than that of the card-reservoir, a card-engaging member carried by the bar, means beyond the card-discharge slot for preventing the return of a card through said slot, and a card-engaging finger pivoted to the end portion of the bar and arranged at a lower level than said bar, said finger being arranged to support the card during the reverse movement of the bar and to engage with and impart a second feeding movement to said card at the next reciprocation.

2. The combination with a card-reservoir having a slotted bottom, of a pair of pivotally-connected reciprocatory feeding devices arranged at different levels, the upper feeding device serving to impart the first feeding movement and deliver a card from the reservoir, and the lowermost feeding device serving to engage with and impart a second feeding movement to the card.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM ALBERT BILLMAN.

Witnesses:
GEORGE W. MUSSER,
THOMAS KILLEEN.