

N. E. FUNK.
DIE PRESS.

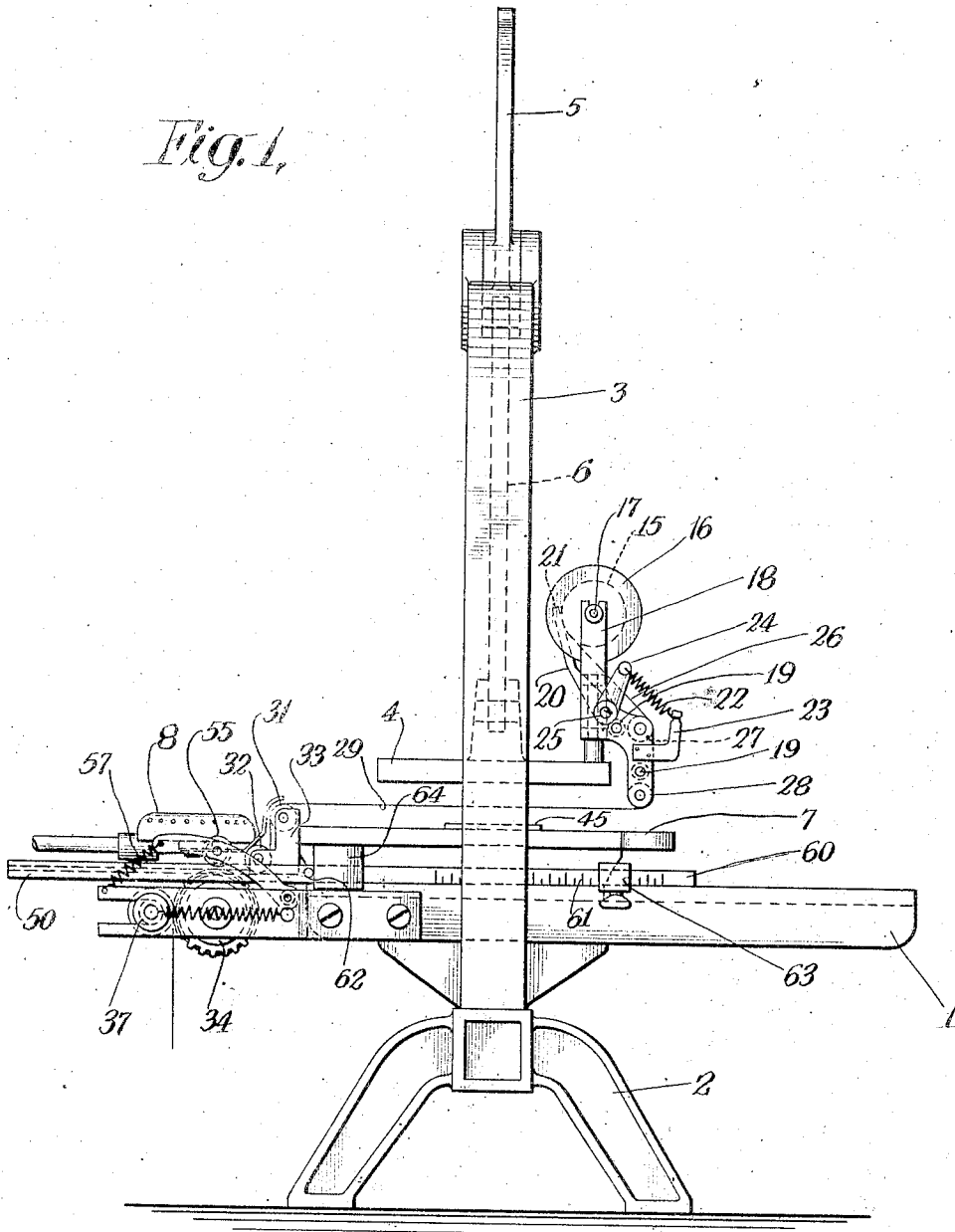
APPLICATION FILED SEPT. 19, 1918.

1,333,168.

Patented Mar. 9, 1920.

4 SHEETS—SHEET 1.

Fig. 1.



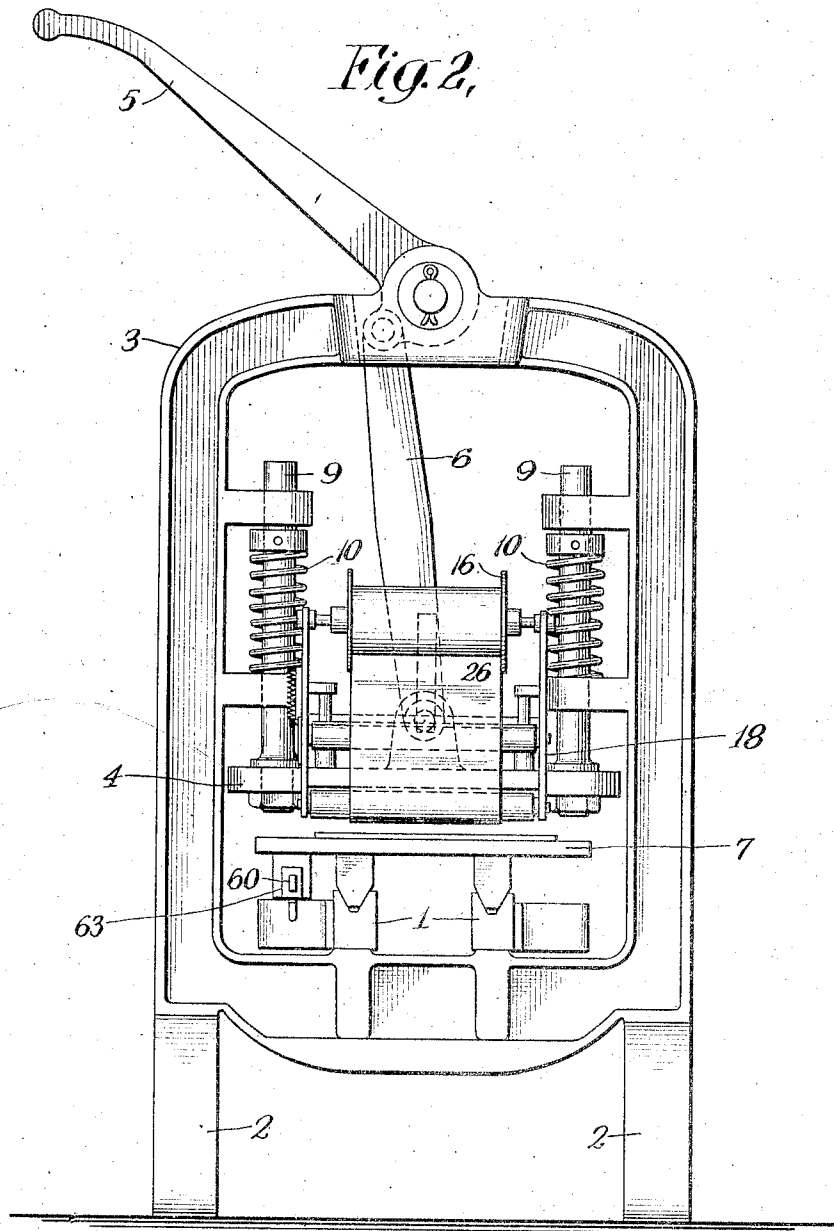
Inventor
Nelson E. Funk
By *Henry J. Lücke* Attorney

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4 SHEETS—SHEET 2.



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Henry J. Lucke

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4 SHEETS—SHEET 3.

Fig. 3.

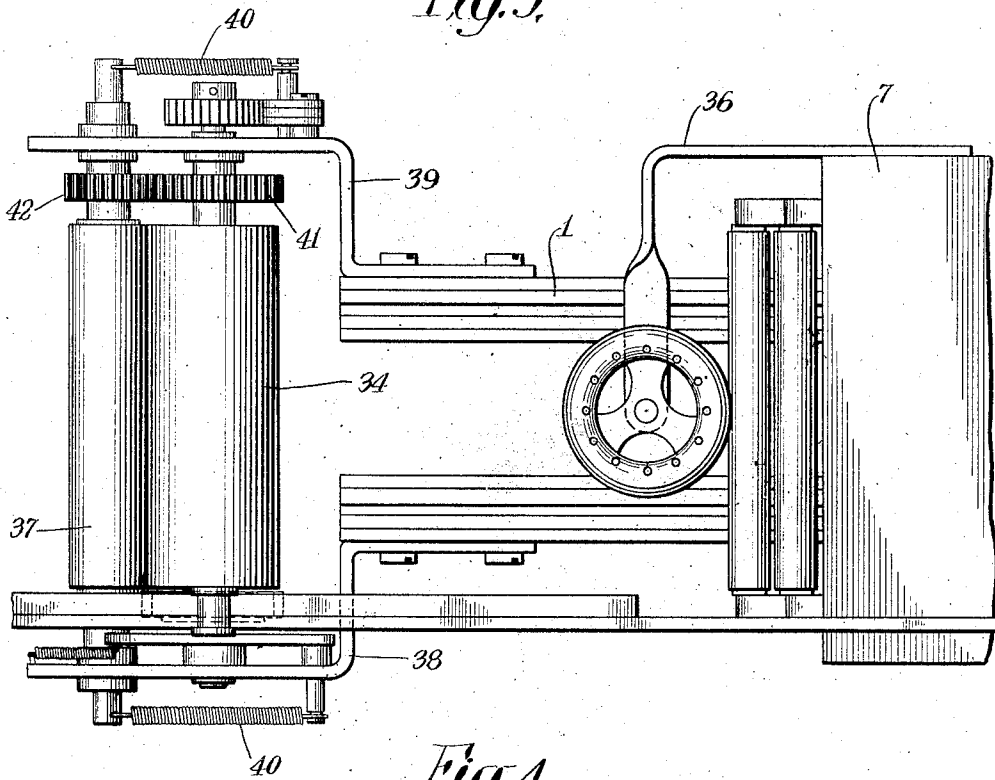


Fig. 4.

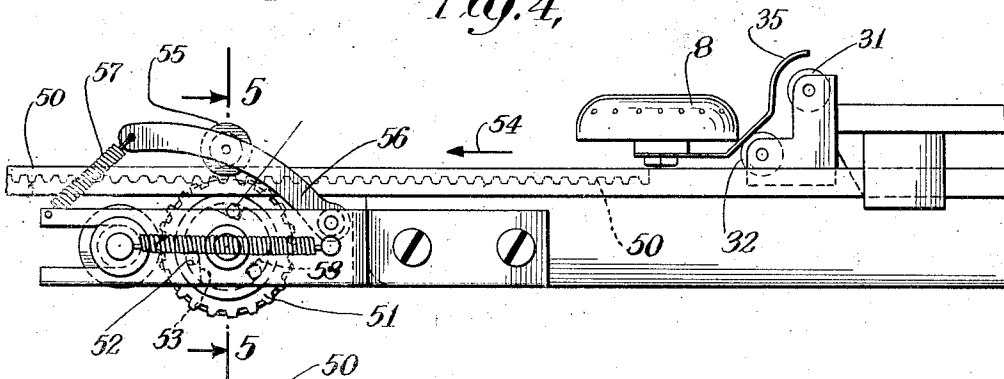
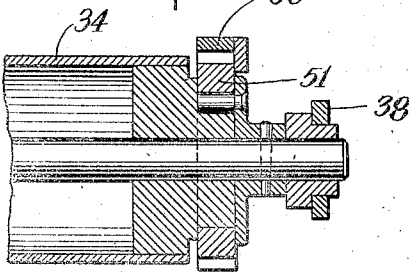


Fig. 5.

Inventor
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By *his Attorney*
Henry J. Lucke

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4 SHEETS—SHEET 4.

Fig. 6.

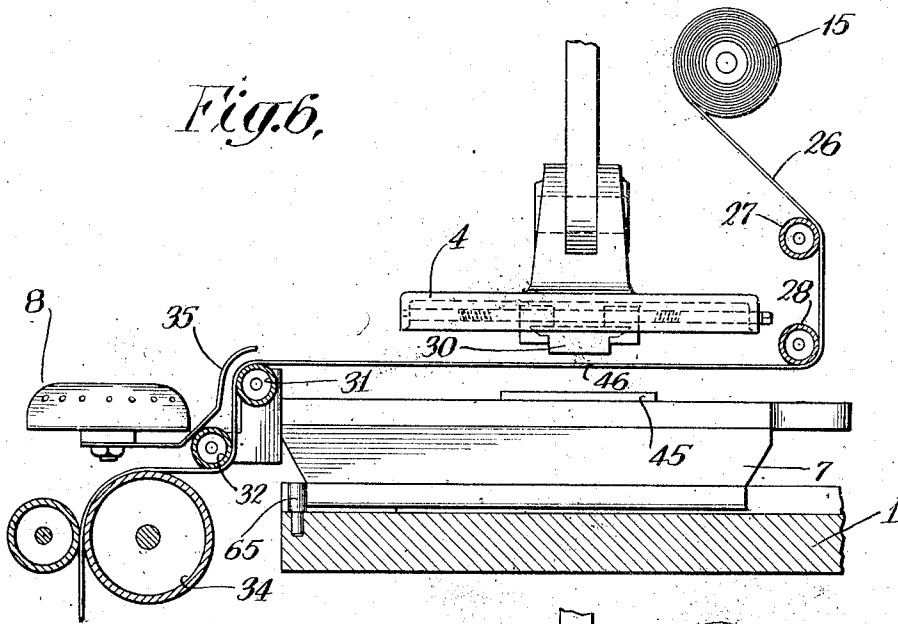
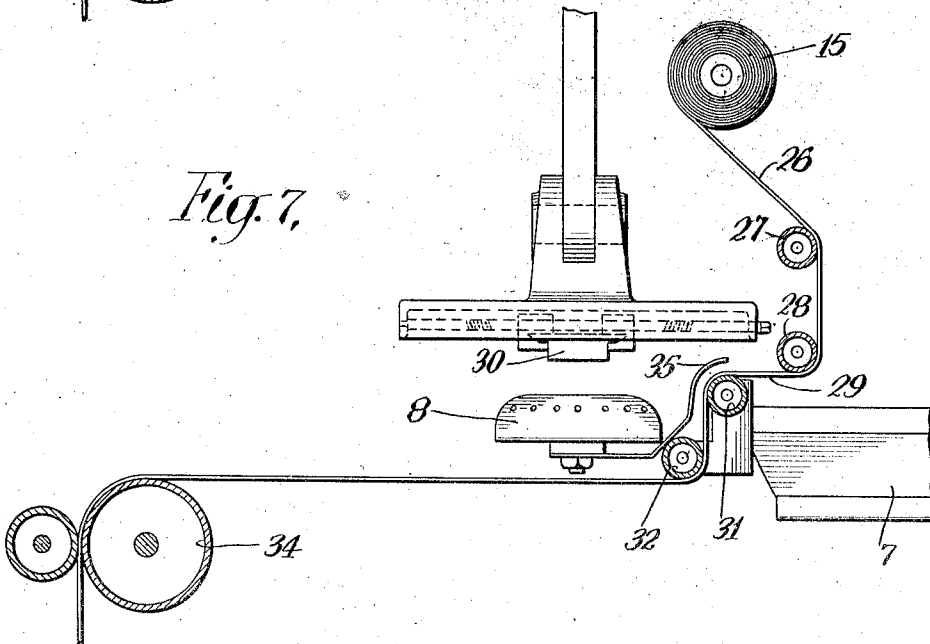


Fig. 7.



Inventor
Nelson E. Funk
By *His Attorney*
Henry J. Lucke

UNITED STATES PATENT OFFICE.

NELSON E. FUNK, OF MONTCLAIR, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO PEERLESS ROLL LEAF CO. INC., A CORPORATION OF NEW YORK.

DIE-PRESS.

1,333,168.

Specification of Letters Patent.

Patented Mar. 9, 1920.

Application filed September 19, 1918. Serial No. 254,719.

To all whom it may concern:

Be it known that I, NELSON E. FUNK, a citizen of the United States of America, residing at Montclair, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Die-Presses, of which the following is a specification.

This invention relates to die presses and particularly to die presses provided with means for automatically feeding metallic deposit material to the die and for automatically detaching the used deposit material from the die.

The metallic deposit material may be in the form of a strip of paper bearing on one face the deposit metal adhering thereto by means of a fusible adhesive; the preferred form of deposit material is metallic powder agglutinated as a mass by means of a fusible agglutinant and adhering to a strip of paper, or equivalent, by means of such fusible agglutinant.

In the preferred forms of the invention, means are provided for mounting a roll of the strip of paper bearing the metallic deposit, means for feeding such strip to the die and in proper relation to the book, sheet or the like to be ornamented or embellished, and means for detaching the used portion of the strip after the impression has been effected. In the more preferred forms of the invention, means are also provided for positively controlling and varying the extent of feed of the strip relative to the die.

The particular form of the invention set forth in detail hereinafter, is referred to in connection with a hot stamping or tip printing press, for use with deposit material applied by means of a fusible adhesive; however, as will appear, the invention is also applicable to other forms of printing presses or machines and to other forms of deposit material.

Further features and objects of the invention are more fully set forth in the following description and the accompanying drawings, in which—

Figure 1 shows in side elevation a hand operated tip printing press provided with one form of my invention;

Fig. 2 is a front elevation of the same;

Fig. 3 is a top plan view of the rear portion of Fig. 1, on an enlarged scale;

Fig. 4 is a side elevation of Fig. 3;

Fig. 5 is a detail sectional view taken on line 5—5 of Fig. 4;

Fig. 6 is a side elevation of the arrangement shown in Fig. 1, but in diagrammatic form, showing the deposit material strip in operative relation to the main elements of the press at the stage of making the impression; and

Fig. 7 is a similar diagrammatic side elevation, but showing the deposit material strip in its fully detached position relative to the die.

Referring to the drawings, the particular type of printing press shown is a hand operated tip printing press, comprising the bed 1, supported by the feet 2, having the frame 3 for the die holder 4, operated by the hand lever 5 controlling the pressure link 6. The platen 7 is slidably mounted on the bed 1 and is provided with the burner 8, for pre-heating the die when held in the die holder 4. The die holder 4 may be guided by means of the slide rods 9, 9 and is normally biased toward its upper position by means of the expansion springs 10, 10.

The roll 15 of paper strip bearing the metallized mass or equivalent deposit material is mounted within the spool 16, rotatably mounted on the shaft 17 journaled in the opposite bearing brackets 18. Such brackets 18, 18 are held together by means of the tie rods 19 and suitably carried by the frame 3 or other fixed support.

The brake or friction means 20 is provided comprising the finger 21 adapted to resiliently ride on the back face of the strip of paper and thus frictionally preclude undue unwinding of the roll 15; said finger 21 is tensioned by the retractile spring 22 having its one end connected to the arm 23 and its opposite end to the arm 24, integrally connected with the finger 23 and pivotally mounted on the stud 25, journaled in the bracket 18, 18.

The unwound portion 26 of the paper strip is passed over the upper idler 27, journaled in the brackets 18 and over the lower idler 28, positioned vertically below the die holder 4 so that when the die is inserted in the die holder, the strip portion 29, see Fig. 1, freely touches or is slightly below the die. In Fig. 6, the die 30 is shown positioned within the die

holder 4 and the portion 29 of the paper strip held adjacent, and more or less parallel, to the impression face of the die 30.

Toward the rear end of the platen 7 is provided means for taking up the used portion of the paper strip, and in the particular embodiment shown in the drawings, I have indicated the upper idler 31 and lower idler 32 mounted in the pair of brackets 33, 33, suitably carried by the platen 7. Preferably, the used portion of the paper strip is wound on the take up roller 34, suitably carried by the bed 1 or other fixed support.

A portion 29 of the metallic strip is protected from the heat and flame of the burner 8 by means of the shield 35. The burner 8 is shown (see Fig. 3) supported from the platen 7 by means of the bracket 36.

For insuring the absence of slack of the unwound portion 29 of the paper strip, I employ the pressure roller 37, journaled with the take-up roller 34, in the opposite brackets 38, 39, supported on the bed 1, said pressure roller 37 being tensioned toward the take-up roller 34 by means of the oppositely disposed springs 40, 40, and rotated jointly with the take-up roller 34 by the gearing 41, 42.

Accordingly, upon the paper strip being mounted and the unwound portion arranged as aforesaid, the operator positions the book 45, or sheet or the like on the platen 7, and upon moving the platen 7 to its operative position as indicated in Figs. 1 and 6, the lever 5 is depressed, causing the die holder 4 and the die 30, inserted therein, to be forced downwardly, whereupon a portion 46 of the paper strip 29 of the length of the effective face portion of the die 30 will be brought in operative relation to the die 30 and the article 45. After the impression has been made, the platen 7 is moved to its forward position on the bed 1 during which movement the used portion 46 will be detached or "stripped" from the die 30 and ultimately the rearward idle rollers 31, 32, see Fig. 7, causes the paper strip to be removed entirely from the die 30, to enable the flame of the burner 8 to preheat the die 30 preparatory for the next impression.

It will be noted that between the stage of making the impression as indicated in Fig. 6 to the stage of entire removal of the paper strip from the die 30, the portion of the paper strip disposed between the roller 34 and the forward idle rollers 27, 28, is not fed in the direction of its length, but moved downwardly to fully strip the used portion of the paper strip from the die and to dispose the paper strip in a position out of possible damage from the heating means.

In order to more effectually utilize the advantages of the invention, I have provided means for automatically operating the take-up roller 34 a determined distance for

taking up the used portion of the paper strip, thereby automatically controlling the feeding of the paper strip and thereby fully utilizing the metallic deposit on the paper strip.

To attain such object, I have provided the rack 50 (see Figs. 1, 3 and 4) fixed to and rearwardly of the platen 7, the teeth of which rack 50 mesh with the teeth of the gear 51 (see Figs. 3, 4 and 5) controlling in ratchet relation the take-up roller 34, such ratchet means comprising the multiple rollers 52, 52, 52, respectively disposed in the triangular recesses 53, whereupon movement of the rack 50 in the direction of the arrow 54, see Fig. 4, causes the gear 51 to be rotated, and forces the respective ratchet rollers 52 toward the constricted portion of the recesses 53, thereby rotating the take-up roller 34 and causing the paper strip to be definitely fed in relation to the die 30. Means are provided for positively effecting contact between the teeth of the rack 50 and the teeth of the gear 51 as by means of the pressure roller 55 mounted on the link 56 and resiliently forced downwardly by means of the spring 57.

Means are further provided for positively controlling the extent of feed of the paper strip, such as the graduated element 60 bearing the linear scale markings 61 and shown as an extension of the body portion of the rack 50 and provided with the fixed rearward stop 62 and the adjustable forward stop 63. The platen 7 is provided with the sleeve 64 fixed thereto and loosely extending about the element 60. The rearward stop 65 is positioned on the bed 1 so that when the platen 7 encounters the same, the article 45 is in operative position for receiving the impression. Upon adjustment of the variable stop 63 as desired from zero (extreme right hand scale marking) the effective stroke of the element 60, or rack 50, and thereby the extent of rotation of the take-up roller 34 are positively controlled.

Whereas I have described my invention by reference to specific forms thereof, and in relation to a particular type of printing machine, it will be understood that many changes and modifications may be made without departing from the invention as defined by the appended claims.

I claim—

1. The combination with an impression device, comprising a movable element and means for moving said element, of means for mounting deposit material, means for feeding deposit material to said movable element in advance of the operation of said movable means and means for detaching the deposit material from said movable element after operation of said movable means, said detaching means comprising a plurality of

spaced elements arranged relatively to said movable element for exerting pressure at a greater angle on a certain portion of the deposit material relative to another portion of the deposit material.

2. The combination with an impression device comprising two relatively movable elements and means for effecting relative movement of the same, of means for mounting deposit material, means for feeding a portion of the deposit material to said elements in advance of the movement of said movement effecting means and means for detaching the used portion of the deposit material from said elements subsequent to the operation of said movement effecting means, said detaching means comprising a plurality of spaced elements arranged relative to one of said movable elements to exert pressure at a greater angle in a direction away from said one movable element on a certain portion of said used portion of the deposit material relative to another portion of said used portion.

3. The combination of a press comprising an impression element and a movable carrier, of means for mounting a roll of a strip of deposit material, means for feeding said strip to said impression element and means operative upon movement of said movable carrier for detaching the used portion of said strip from said impression element, said detaching means comprising a roller disposed on one side of said impression element, and mounting means for said roller, said mounting means being fixed relative to said impression element and a second roller and mounting means for said second roller arranged movably relative to said impression element.

4. The combination with a press comprising an impression element and a movable carrier, of means for mounting a roll of a strip of deposit material, a roller arranged to receive said strip, mounting means for said roller, said mounting means being fixed relative to said impression element, a second roller constructed to receive said strip and mounting means for said second roller, said last named mounting means being fixed relative to said carrier.

5. The combination of a die press comprising a die carrier and a movable platen, means for mounting a roll of deposit bearing strip, and means for feeding the strip

to said die carrier upon a predetermined movement of said platen and for moving the strip from said die carrier upon the reverse movement of said platen, said means comprising a member for guiding the strip and carried by said platen and a second member for guiding the strip and carried by said carrier.

6. The combination of a die press comprising a die holder, a movable platen and heating means, of means for mounting a roll of strip bearing deposit material agglutinated with a fusible agglutinant, of means for feeding said strip to said die carrier upon the rearward movement of said platen and for moving the used portion of said strip from said die carrier upon the forward movement of said platen, said last-named means comprising guiding means for the strip disposed between said platen and said heating means and a shield arranged between said heating means and said guiding means.

7. The combination with a die press comprising a die carrier and a movable platen, of means for feeding a deposit bearing strip to the die carrier upon a certain movement of the platen and means for controlling the extent of feed of the strip, said controlling means comprising a take-up roller, a gear controlling the movement of said take-up roller, a rack controlled by said platen and meshing with said gear, and means for adjusting the position of said rack relative to said platen.

8. The combination with a die press comprising a die carrier and a movable platen, of means for feeding a deposit bearing strip to the die carrier upon a certain movement of the platen and means for controlling the extent of feed of the strip, said controlling means comprising a take-up roller, a gear controlling the movement of said take-up roller, a rack controlled by said platen and meshing with said gear, a scale graduated element secured to said rack, a sleeve receiving said scale graduated element and a set screw for securing said scale graduated element in adjusted position relative to said sleeve.

In testimony whereof I have signed this specification this 7th day of September, 1918.

NELSON E. FUNK.