Dec. 16, 1958 C. J. HUEBER 2,864,306

HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

Filed July 26, 1954 11 Sheets-Sheet 1

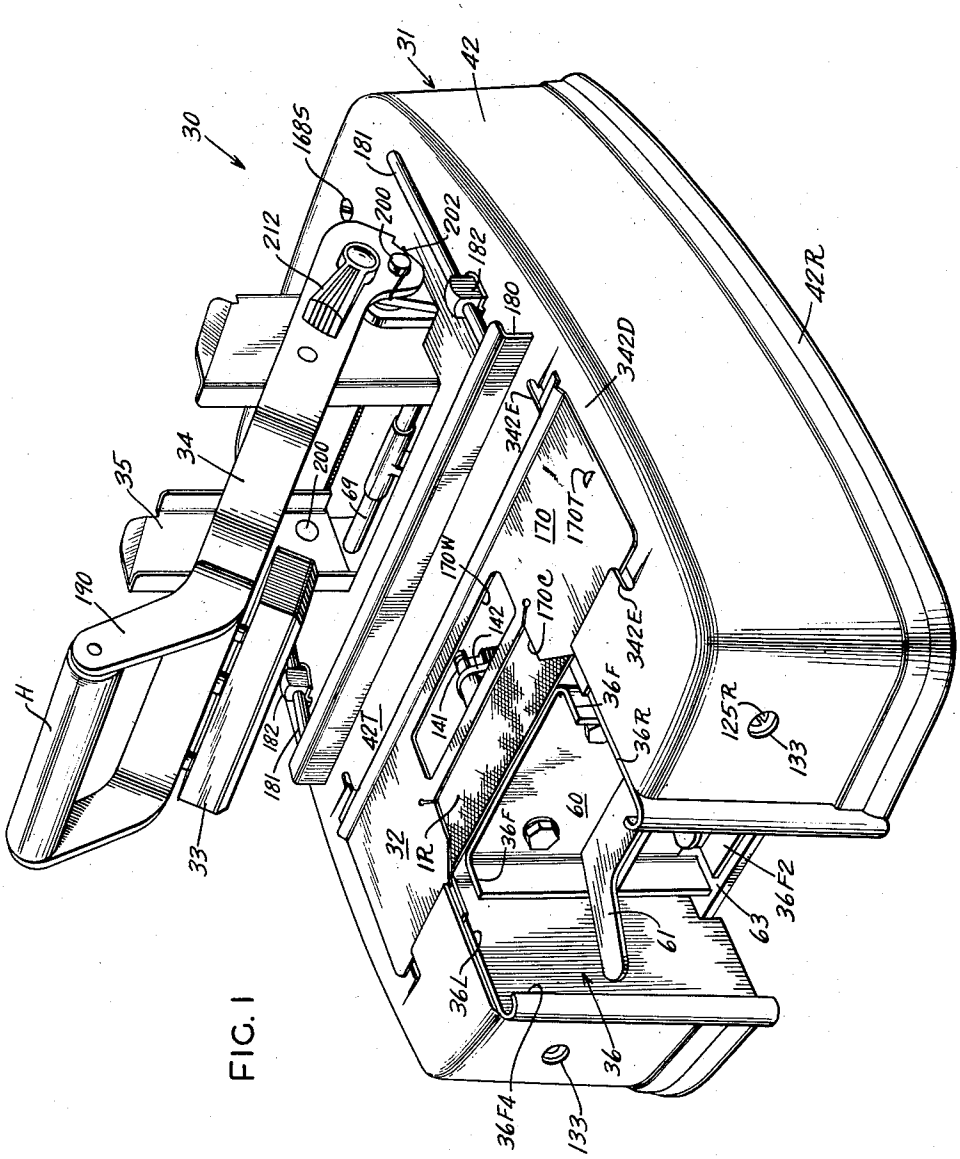


FIG. 1

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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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FIG. 2

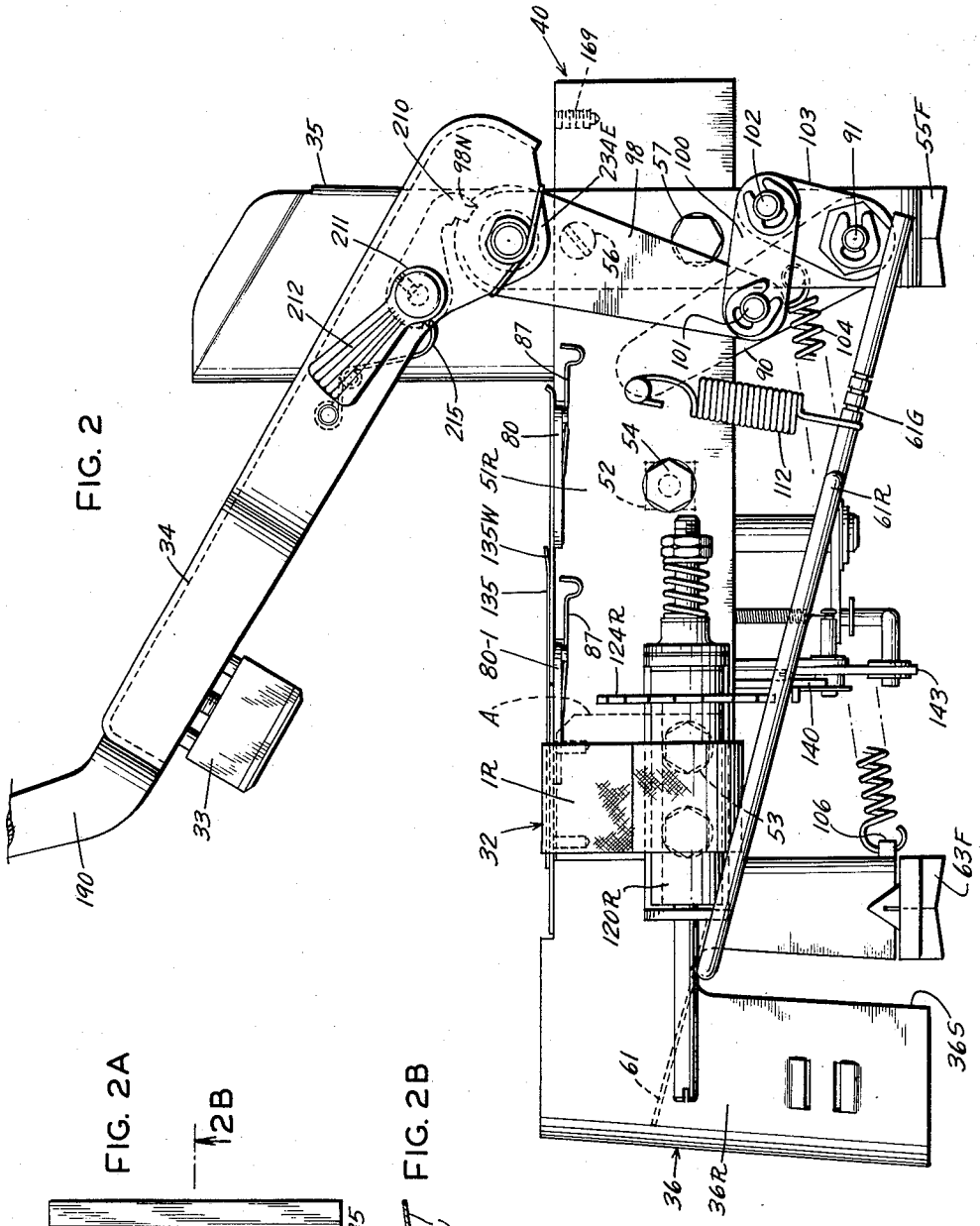


FIG. 2A

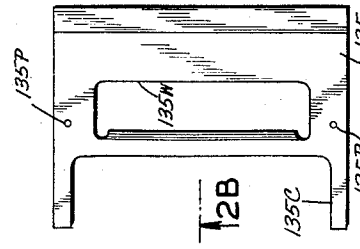
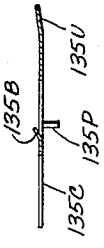


FIG. 2B



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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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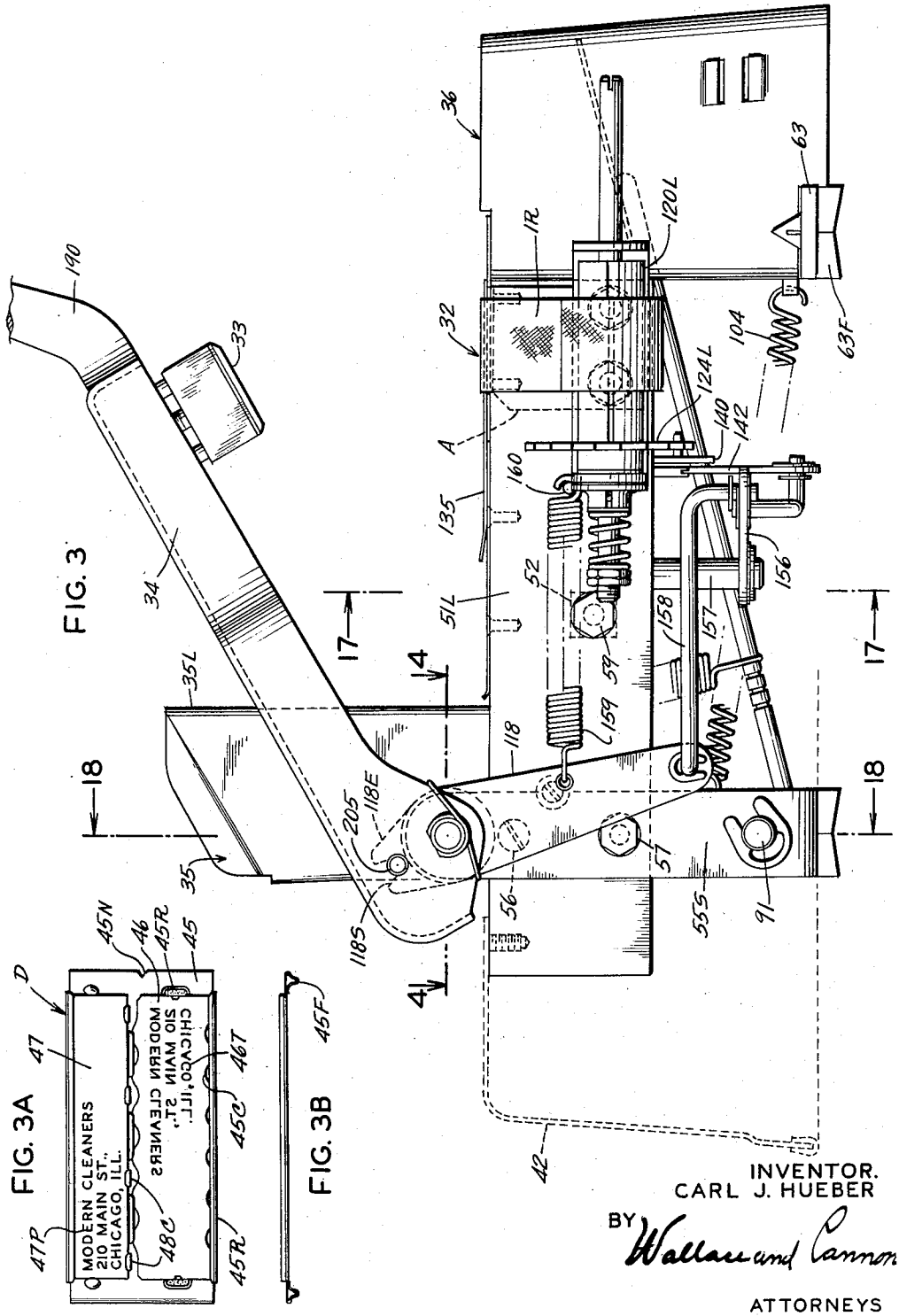


FIG. 3

FIG. 3A

FIG. 3B

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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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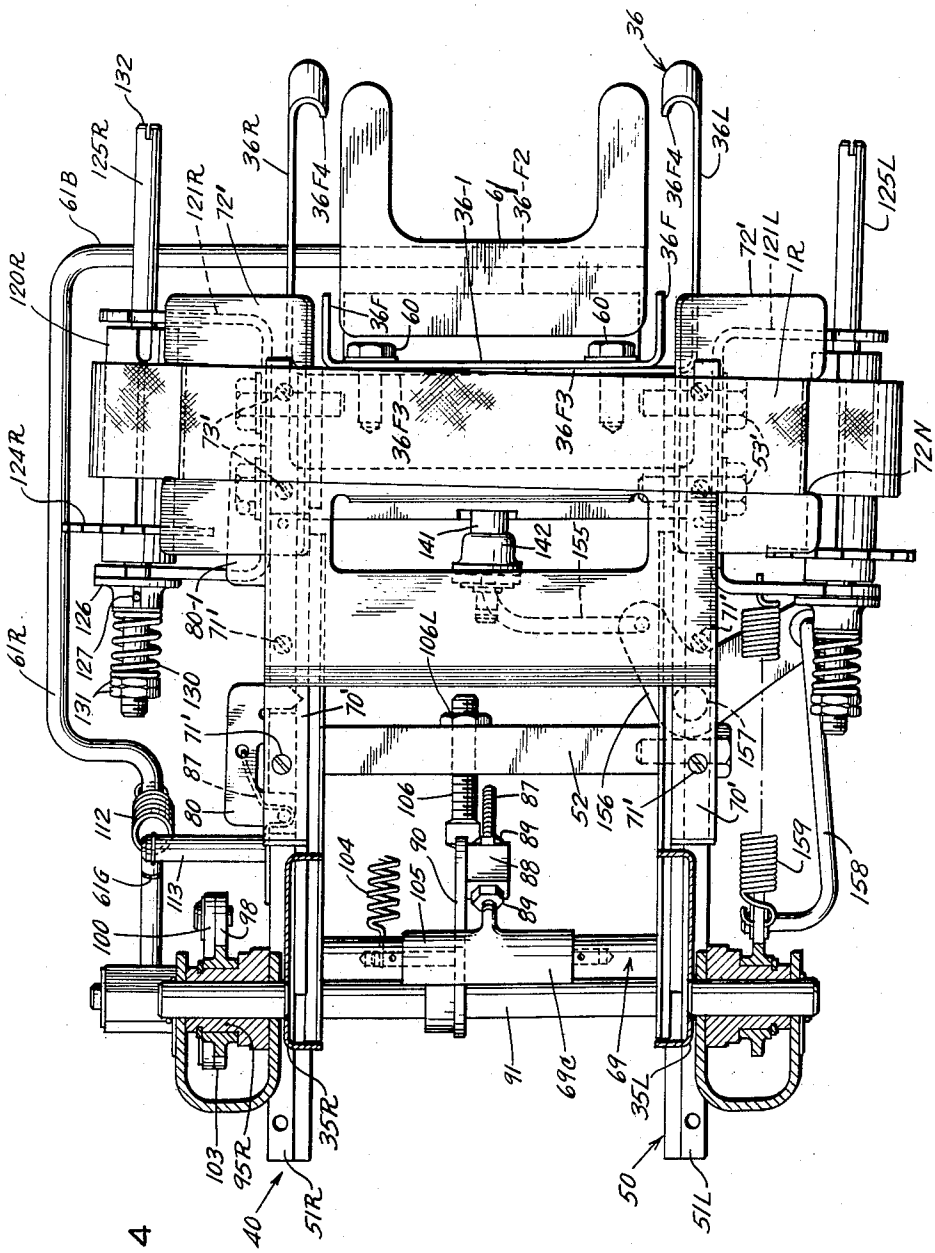


FIG. 4

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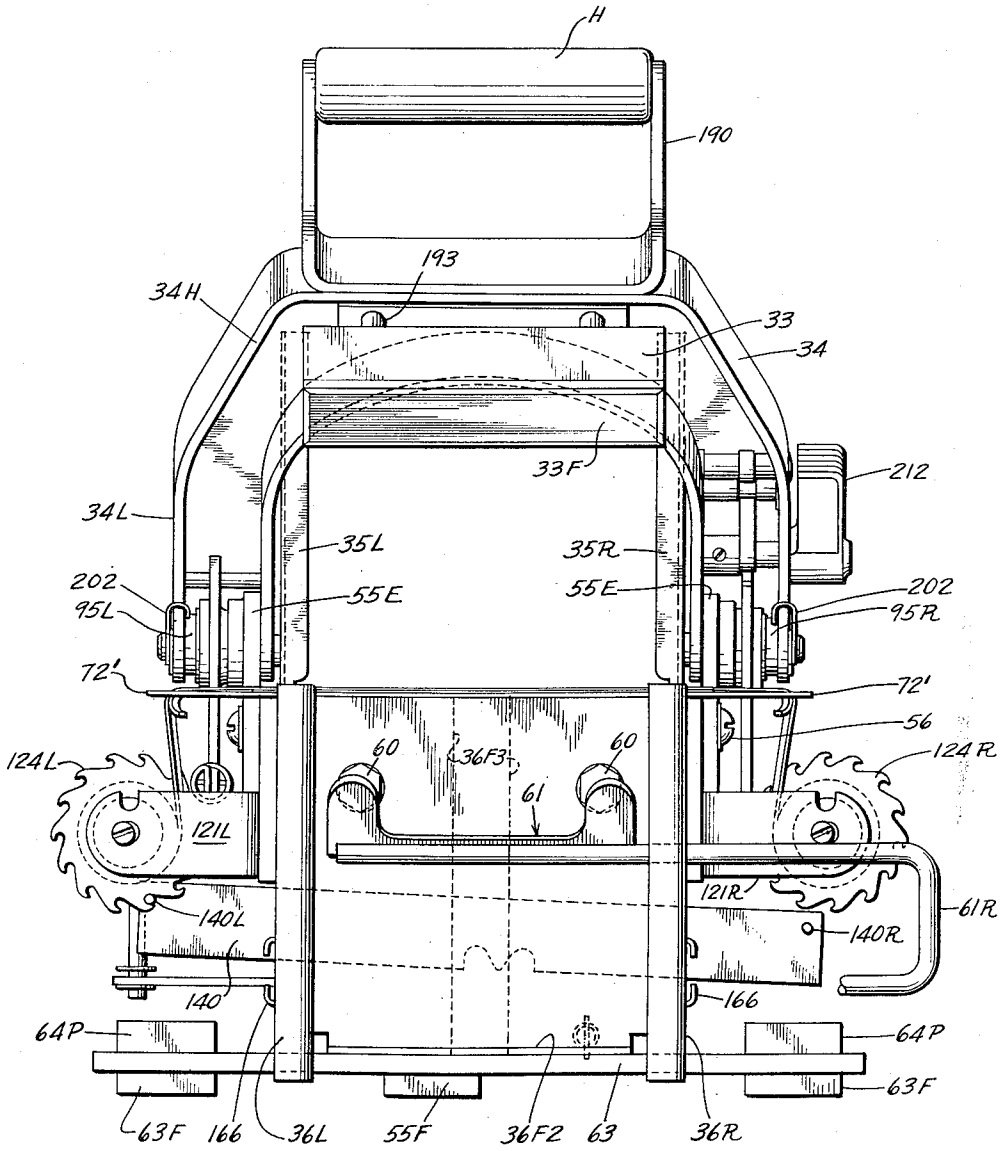
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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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FIG. 5



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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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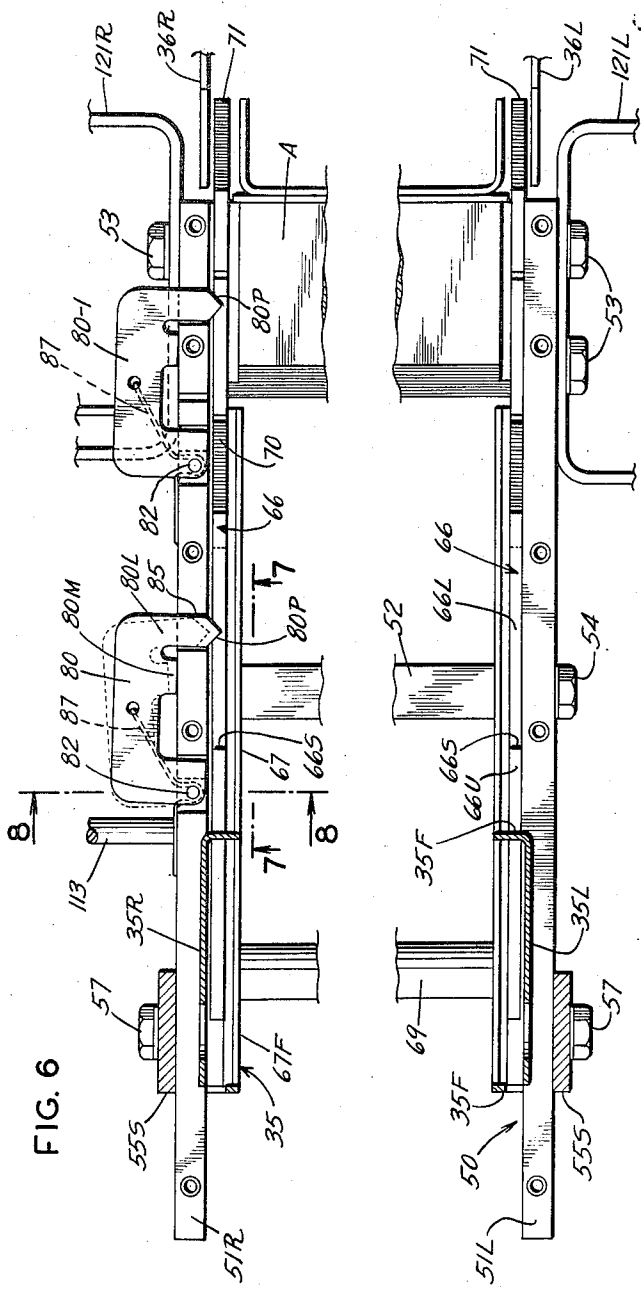


FIG. 6

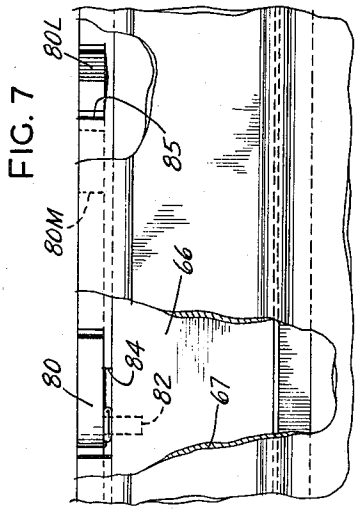


FIG. 7

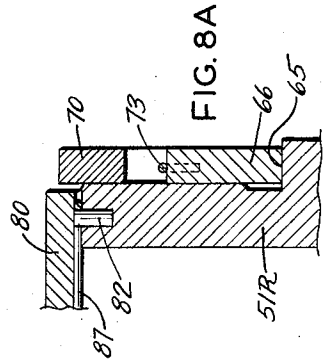


FIG. 8A

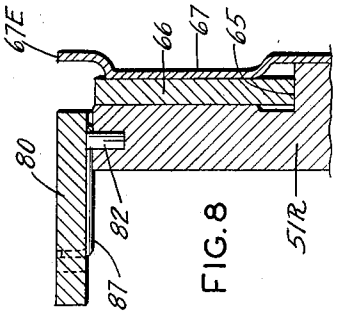


FIG. 8

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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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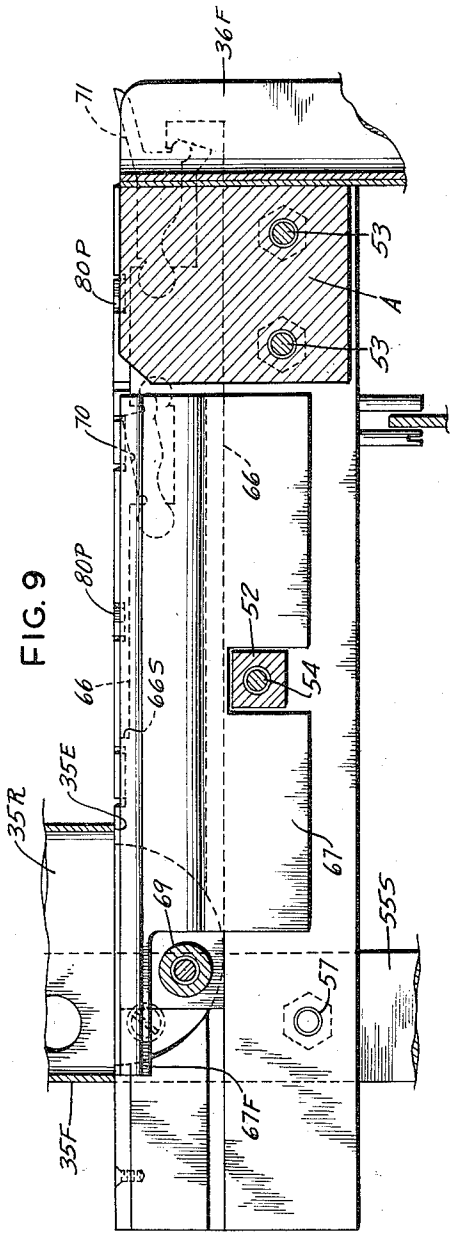


FIG. 9

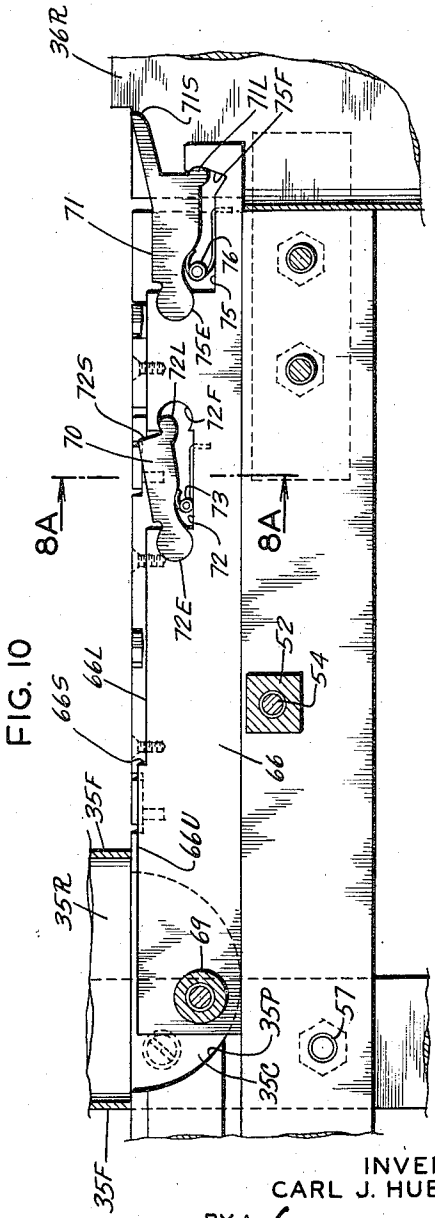


FIG. 10

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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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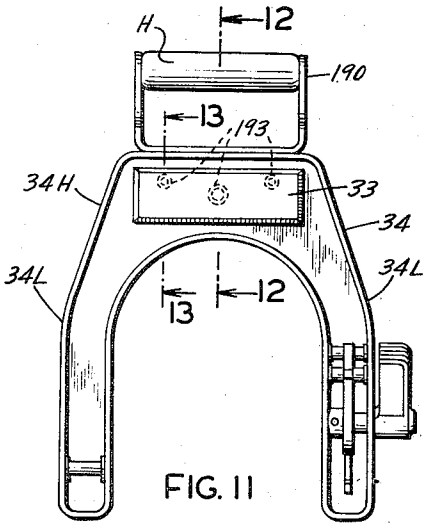


FIG. 11

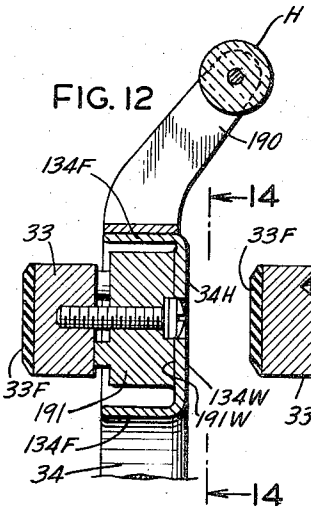


FIG. 12

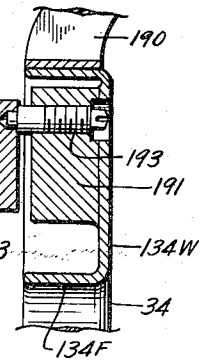


FIG. 13

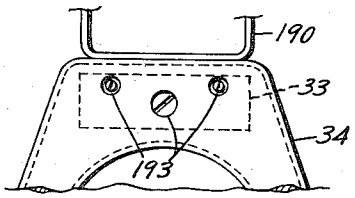


FIG. 14

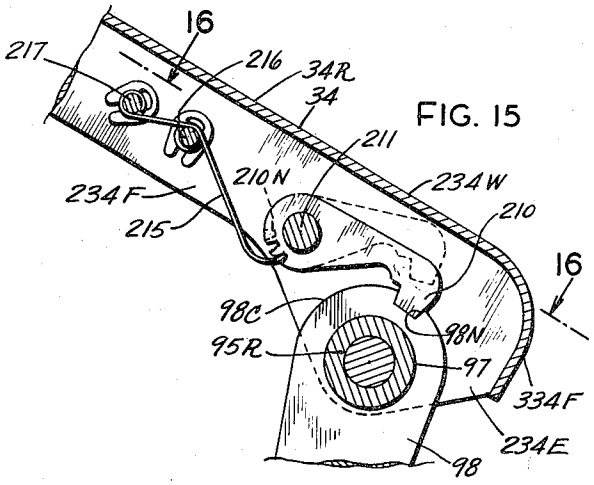


FIG. 15

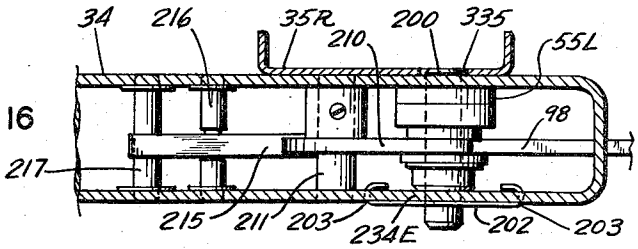


FIG. 16

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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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FIG. 17

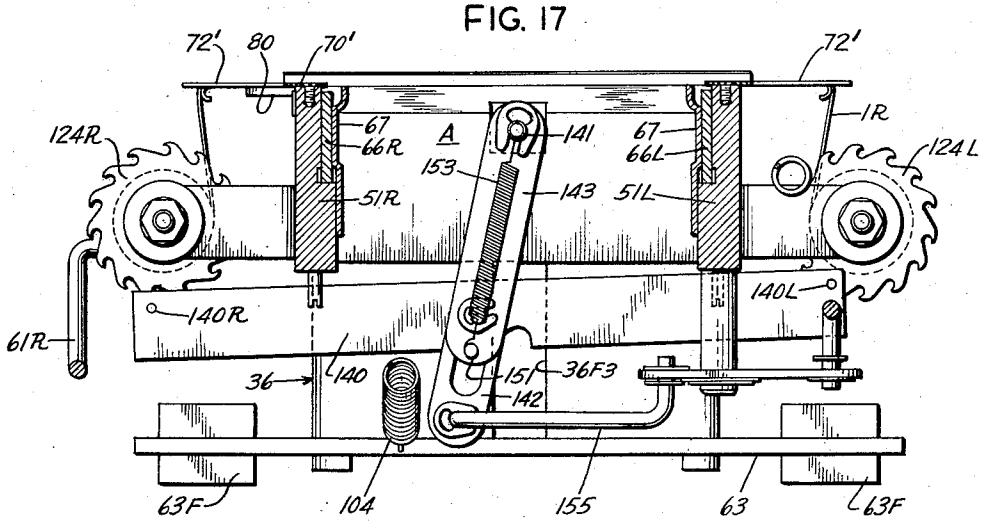
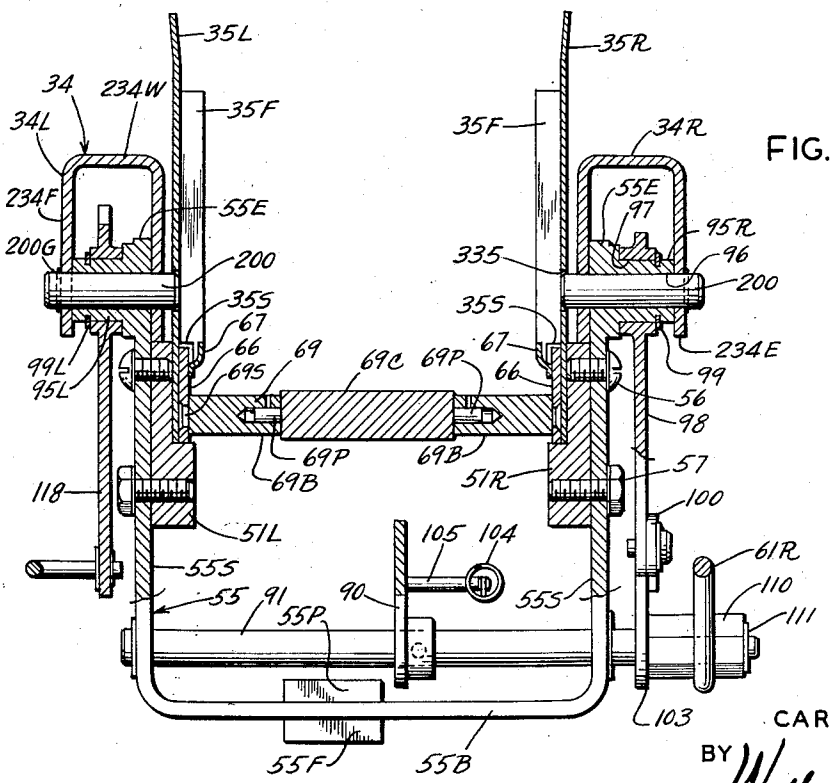


FIG. 18



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Dec. 16, 1958 C. J. HUEBER 2,864,306

HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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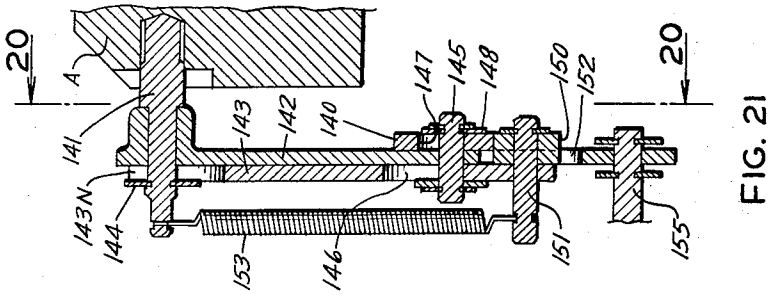


FIG. 21

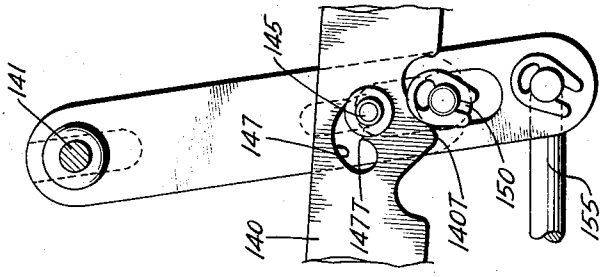


FIG. 20

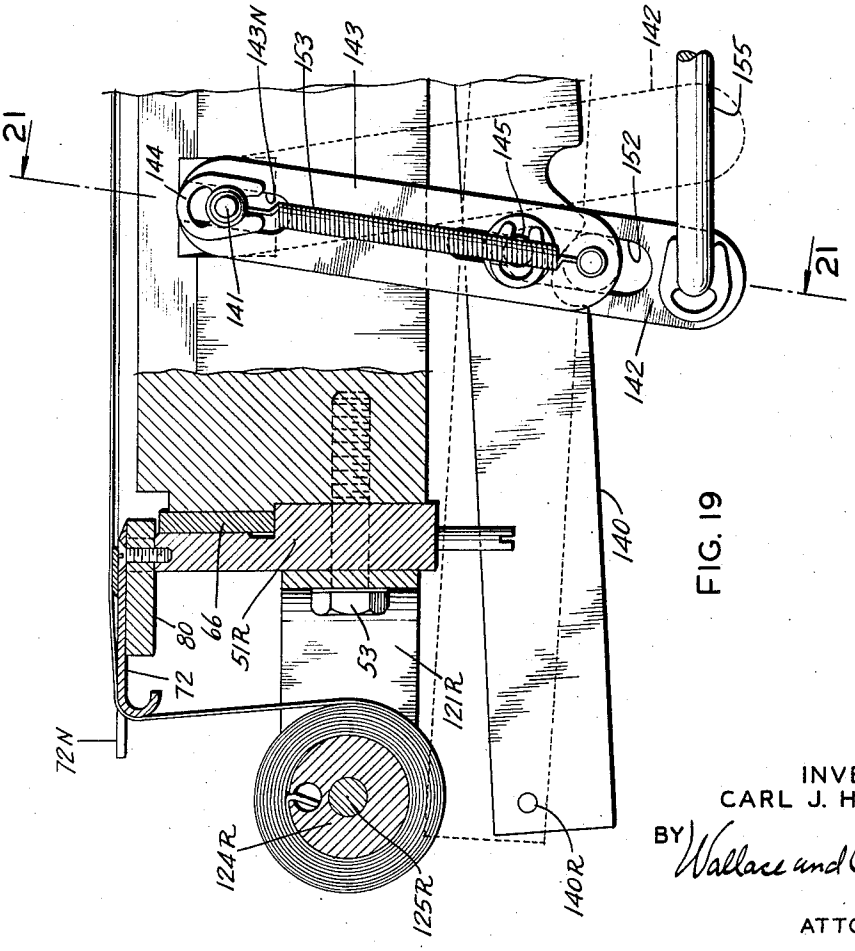


FIG. 19

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HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

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FIG. 22

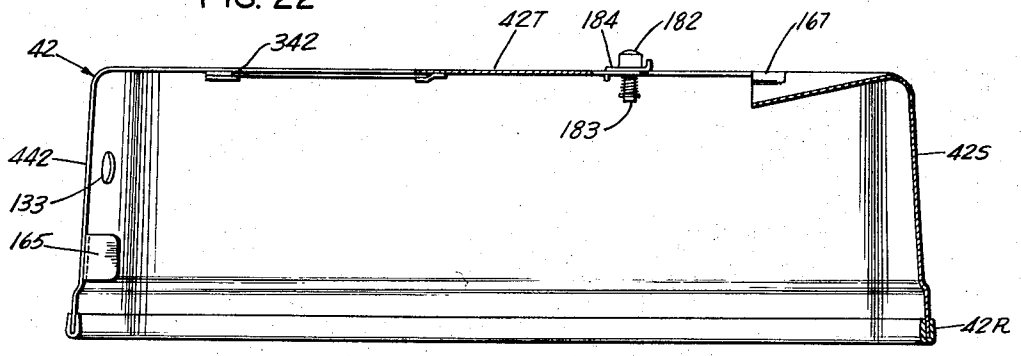


FIG. 23

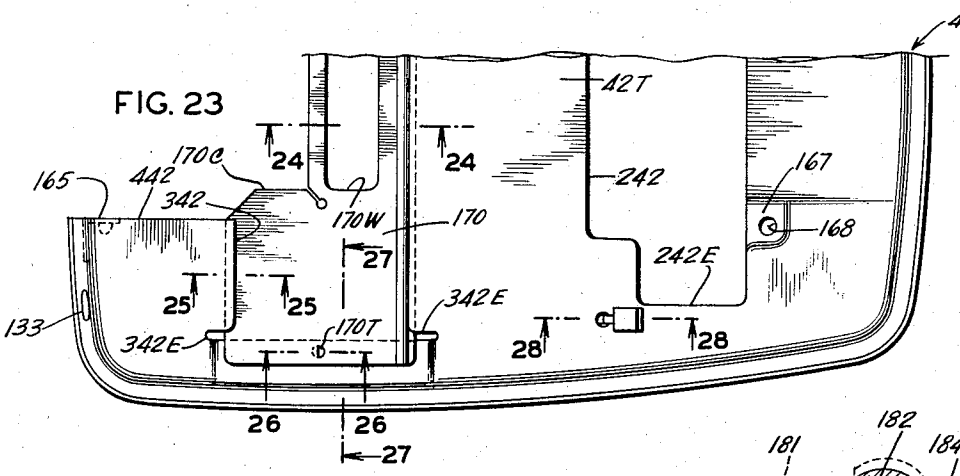


FIG. 24

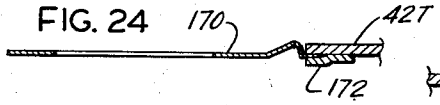


FIG. 25

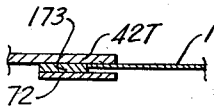


FIG. 26

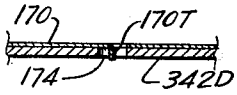


FIG. 28

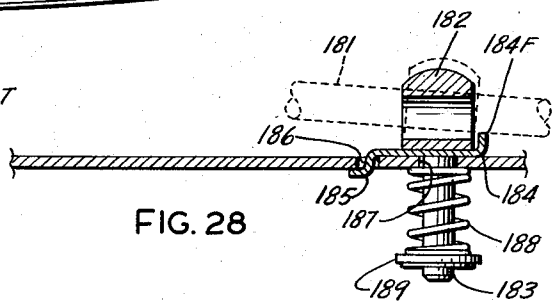
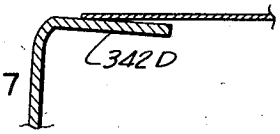


FIG. 27



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United States Patent Office 2,864,306 Patented Dec. 16, 1958

2,864,306

HAND OPERABLE OSCILLATING ADDRESS PRINTING MACHINE

Carl J. Hueber, Euclid, Ohio, assignor to Addressograph-Multigraph Corporation, Wilmington, Del., a corporation of Delaware

Application July 26, 1954, Serial No. 445,771

14 Claims. (Cl. 101—65)

This invention relates to printing machines, and particularly to hand-operated printing machines of the kind where individual printing devices are passed one by one to a printing position where impressions may be made therefrom.

Printing machines of the hand-operated type have heretofore been made and widely used, but these machines have been relatively complicated and expensive insofar as the manufacture and services thereof may be concerned. It is therefore the primary object of the present invention to simplify and improve the structure of machines of the aforesaid character to the end that the manufacture thereof may be economically performed, and the necessary servicing may be accomplished readily and easily. More specifically, it is an object of the present invention to enable hand-operated printing machines of the aforesaid character to be made so as to embody the major operating elements of the machine in a relatively open and accessible main frame and to thereby enable these elements to be readily and easily mounted and adjusted, and to enable the main frame and the major operating elements to be housed in a simple and attractive housing which may be associated with the main frame of the machine after the primary operating elements of the machine have been put in place and adjusted. A related object is to afford such a machine wherein a main frame is housed by a removable cover, to facilitate the association of the cover with the main frame, and to simplify the mounting of a stamper platen and its association with the operative elements of the machine in a way that enables this platen arm to be quickly and easily removed.

Another important object of the present invention is to afford a new and improved frame structure for hand-operated printing machines of the aforesaid character, and more specifically it is an object of the present invention to enable the receiving or collecting hopper that is utilized for collecting the printing devices to serve as a portion of the leg structure for supporting the frame in its position of use.

Another important object of the present invention is to afford a simplified and improved ribbon mechanism for such hand-operated printing machines, and to associate such ribbon mechanism with the stamper platen in a novel and advantageous manner.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show a preferred embodiment of the present invention and the principle thereof and what I now consider to be the best mode in which I have contemplated applying that principle. Other embodiments of the invention embodying the same or equivalent principle may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a front perspective view of a hand-operated printing machine embodying the features of the invention;

Fig. 2 is a side elevational view of the right-hand side of the machine with the cover removed;

Fig. 2A is a plan view of the lower ribbon guard;

Fig. 2B is a sectional view taken along the line 2B—2B of Fig. 2A;

Fig. 3 is a side elevational view of the frame of the machine as viewed from the left;

Fig. 3A is a face view of a printing device that may be utilized in the machine;

Fig. 3B is a lower edge view of the printing device of Fig. 3A;

Fig. 4 is a plan view of the frame structure, this view being taken partially in section along the line 4—4 of Fig. 3;

Fig. 5 is a front elevational view of the frame of the machine with the platen in place thereon;

Fig. 6 is a plan view of the printing device guideway with the inked-ribbon mechanism removed and with the upper protecting plates of the guideway removed;

Fig. 7 is a fragmental elevational view of the inside of the printing device guideway as viewed from the line 7—7 of Fig. 6;

Fig. 8 is a fragmentary vertical section taken along the line 8—8 of Fig. 6;

Fig. 8A is a view similar to Fig. 8 but taken along the line 8A—8A of Fig. 10;

Fig. 9 is an inside view of one of the guide bars of the printing device guideway;

Fig. 10 is a view similar to Fig. 9 but with the inner guard plate and the anvil removed to show the details of the pawl mounting;

Fig. 11 is a bottom plan view of the stamper platen arm;

Fig. 12 is a sectional view taken along the line 12—12 of Fig. 11;

Fig. 13 is a sectional view taken substantially along the line 13—13 of Fig. 11;

Fig. 14 is a fragmentary top plate view as it would appear from the line 14—14 of Fig. 12;

Fig. 15 is a vertical sectional view showing the disengageable drive pawl connection between the stamper platen arm and the printing devices advancing means;

Fig. 16 is a sectional view taken along the line 16—16 of Fig. 15;

Fig. 17 is a vertical sectional view taken substantially along the line 17—17 of Fig. 3;

Fig. 18 is a vertical sectional view taken substantially along the line 18—18 of Fig. 3;

Fig. 19 is a fragmentary vertical sectional view showing further details of the ribbon mechanism;

Fig. 20 is a fragmental portion of Fig. 19 with the parts in a different position;

Fig. 21 is a vertical sectional view taken along the line 21—21 of Fig. 19;

Fig. 22 is a vertical sectional view taken longitudinally or in a front to rear direction through the cover of the machine.

Fig. 23 is a fragmentary plan view of the cover; and

Figs. 24 to 27 are fragmentary sectional views taken along the corresponding numbered section lines in Fig. 23.

General organization

For purposes of disclosure, the invention is herein illustrated as embodied in a hand-operated printing machine 30 having a main base 31 upon which a printing position 32 is afforded near the upper forward portion of the top of the base, a stamper type platen 33 being mounted on the base 31 in a horizontal pivotal axis by means of a platen arm 34, and the platen 33 may be manually moved downwardly through a printing stroke to produce printed

impressions from printing devices D, Fig. 3A, that are fed through the machine from an upstanding supply magazine 35, located near the rear of the machine, to the printing position 32, and then into a collecting hopper or magazine 36 located at the front end of the machine.

Under and in accordance with the present invention, the printing machine 30 is afforded by a main frame structure 40 upon which the magazines 35 and 36 are permanently mounted and upon which the platen arm 34 is removably or detachably mounted, and the frame 40 is enclosed by a separately formed casing or housing 42 that may be put in position about the main frame 40 before the platen arm 34 is put in place on the frame, and the drive connections from the platen arm to the operative mechanisms of the machine are established as an incident to the mounting of the platen arm. As will hereinafter be described in detail, the frame 40 is arranged to carry the primary operative mechanisms of the machine in such a way that when the cover or housing 42 is removed, these mechanisms are located in an exposed and readily accessible relationship so that these main operating mechanisms may be readily put in place and may be readily serviced or adjusted.

The printing devices

While the printing machine of the present invention may be adapted for use of different kinds and sizes of printing devices, the machine as herein shown is particularly adapted for operation upon printing devices D of the kind shown in Figs. 3A and 3B of the drawings. Such printing devices are of a conventional and commercially available kind embodying a frame 45 made from sheet metal in rectangular form, and the metal of the frame is bent under or rearwardly at the ends to afford conventional downwardly projecting spacing flanges 45F, as shown in Fig. 3B. The face of the frame 45 has means including a rolled lower edge 45R, a plurality of retaining clips 45C and releasable retaining devices 45R whereby an embossed printing plate 46 may be releasably secured in position on what might be termed the lower or bottom area of the frame 45. This plate 46 has embossed type characters 46T formed thereon, and it will be recognized that such type characters may be either direct reading or reverse reading type. In this connection, however, it will be noted that where an inked ribbon is afforded over the printing position of the machine, the embossed type are of the usual reverse reading kind and are adapted to cooperate with the inked ribbon and the conventional form of platen 33 to produce printed impressions on the lower face of a sheet that is disposed at printing position. On the upper area or portion of the printing device D, an index card 47 is held in position by a plurality of clips 48C, and this index card is adapted to bear a printed impression 47P from all or a portion of the type characters 46T.

As will be evident in Fig. 3A, one end of the frame 45 has an angular notch 45N formed therein in a conventional relation to cooperate with means in the machine to accurately locate the printing device at printing position.

The main frame 40

The details of the main frame 40 are illustrated in Figs. 2 to 10 and 18 of the drawings, and as therein shown, it will be noted that the frame 40 affords a printing device guideway 50 that is afforded primarily by a pair of horizontal spaced guide rails 51R and 51L, these guide rails being held in the desired spaced relationship by a relatively heavy block-like anvil A that is disposed between the two guide rails 51R and 51L at printing position, and by a relatively heavy cross bar 52 that is disposed between the two side rails a substantial ditsance rearwardly of the anvil A. The side rails 51R and 51L are secured to the opposite ends of the anvil A by a pair of cap screws 53, which serve also to hold other structural elements in assembled relation on the frame, as will hereinafter be described. Similarly, the side rails 51R and 51L are held rigidly against opposite ends of the cross bar 52 by cap screws 54. A rigid assembly is thus afforded for the printing device guideway 50, and this rigid assembly is supported in an elevated position by front and rear leg structures that are connected to portions of such rigid structure. Thus, the front leg structure is in the present instance afforded in part by the collecting magazine 36, as will be described in detail hereinafter, while the rear leg structure is afforded by a U-shaped relatively heavy bar 55, as best shown in Fig. 18 of the drawings. This U-shaped member 55 has a lower cross bar 55B and upwardly extending side members 55S, and these side members are secured to the outer faces of the respective guide bars 51L and 51R by means of a screw 56 and a cap screw 57 in each instance, as best shown in Figs. 2, 3, and 18. Intermediate its ends, the lower or cross member 55B has a resilient supporting foot 55F mounted on its lower face by means of an interlocking projecting portion 55P that extends upwardly through a suitable opening in the member 55B. It will be noted particularly in Figs. 2 and 18 that the upper ends of the side members 55S project upwardly beyond the upper edges of the guide bars 51L and 51R as indicated at 55E in Fig. 18, and these upwardly projecting portions 55E are utilized in mounting the platen arm 34 and other mechanism to be operated by the platen arm, as will be described in detail hereinafter.

As hereinabove mentioned, the forward leg structure is afforded in part by the collecting magazine 36, and as will be evident in Figs. 2 to 5 of the drawings, this collecting magazine 36 is afforded by a plurality of sheet metal stampings. Thus, a first or inner stamping 36–1 is of U-shaped horizontal cross section and has a pair of side flanges 36F along its opposite vertical edges, and has a horizontally projecting flange 36F2 along its lower edge. The U-shaped stamping 36–1 has a pair of side stampings 36R and 36L associated therewith so as to form the end walls of the magazine 36, these stampings 36R and 36L having in-turned flanges 36F3 at their inner edges which extend behind the main web of the stamping 36–1 and are welded thereto. At their outer edges, the stampings 36R and 36L have in-turned flanges 36F4 which serve, in effect, to define the forward boundary or side of the collecting magazine, the rear side thereof being afforded by the edges of the flanges 36F. This collector magazine assembly that is afforded by the stampings 36–1, 36R and 36L is secured against the forward face of the anvil A by means of mounting cap screws 60, as shown particularly in Figs. 4 and 5 of the drawings, and the upper end of the collecting magazine 36 is disposed primarily beneath the level of the printing device guideway 50, thus to allow the printing devices to be fed from their printing position on the anvil A in a forward direction so that they may fall into the hopper 36 and onto a yieldable bottom support 61 that is afforded in a vertical movable relationship within the magazine 36 as will hereinafter be described.

Across the bottom of the collecting magazine 36, and directly beneath the flange 36F2, a relatively heavy cross member 63 is disposed and is secured as by welding to the flange 36F2. Near its opposite ends, the cross bar 63 has resilient feet 63F secured on its lower surface by interlocked upward projections 64P that pass through suitable openings in the cross bar 63.

With the structure that is thus described, the main frame that affords the printing device guideway 50 is supported in the desired elevated position above any elevated surface upon which the machine may be rested, and as hereinabove pointed out, the leg structure in each instance serve functions over and above their functions as supporting legs.

The printing device guideway and advancing means

The guide bars 51R and 51L are identical cross section, and are embodied as right and left-hand members primarily by end to end reversal of bars cut from a common

piece of stock, and as will be evident in Figs. 8 to 10 and 18, these guide bars are formed with rabbeted upper inner corners, as indicated at 65 in Fig. 8, and this rabbeted formation affords clearance space and guiding surfaces to receive carrier bars 66 for reciprocation longitudinally along the guide bars. The carrier bars 66 are held in the desired position laterally within the grooves 65 by means of retaining plates 67 that are welded to the inner faces of the guide bars, as shown in Figs. 7, 8 and 9 of the drawings. The retaining plates 67 have their upper edges bent inwardly and then upwardly as at 67E, Fig. 8, so that adequate clearance will be afforded for the spacing flanges 45F of the printing devices D.

The carrier bars 66 are interconnected with each other by a transverse bar structure 69 that is secured as by riveting to the opposite carrier bars 66, and it is through the cross bar 69 that the desired reciprocating movements are imparted to the carrier bars, as will be described. In the course of such reciprocating movements, the printing devices D are withdrawn one by one from the bottom of the supply magazine 35 and are advanced in a step by step manner along the printing device guideway. In this connection, it will be noted, particularly in Figs. 4 and 6 to 10 and 18, that the supply magazine 35 is rigidly associated with the guide bars 51R and 51L and hence with the guideway 50. Thus, the magazine 35 is afforded by a pair of sheet metal stampings 35R and 35L, these stampings having vertical flanges 35F along their front and rear edges and the flanges being extended toward each other as will be evident in Fig. 6 of the drawings so as to define the front and rear edges of the magazine. At their lower ends, the flanges 35F are cut away, as will be described, and the downwardly projecting lower ends of the web portion of the stampings are cut to a rounded or circular form 35C, as will be evident in Figs. 9 and 10. These circular and downwardly projecting portions 35C are extended into complemental milled pockets 35P that are formed in the side faces of the rabbeted portions 65, and the portions 35C are welded in position in these pockets so that the members 35R and 35L project upwardly in a rigid relationship with respect to the other elements of the frame 40.

In respect to the formation of the lower edges of the flanges 35F, attention is directed to the fact that the forward one of these flanges is, in each instance, terminated at a level 35E, Fig. 9, such that during operation of the carrier bars 66, the lowermost printing device D may be advanced forwardly beneath the edges 35E. In respect to the rear flanges 35F, attention is directed to Fig. 18 of the drawings where it will be noted that there is a clearance slot 35S through which the rear end portions of the carrier bars 66 may move, the outermost portions of the rear flange 35F extending downwardly so as to be located immediately behind the rearwardly extending finger portions 67F of the retaining plates 67. This structural relationship is illustrated in Figs. 6 and 9 of the drawings.

Forwardly of the supply magazine 35, and extending to the rear margin of the collecting magazine 36, the respective guide rails 51R and 51L are provided with overhanging retaining plate means which overlie the carrier bars 66 and serve to retain the printing devices D against upward displacement as these printing devices are advanced along the printing device guideway. Thus, on each side of the printing device guideway such flange means are afforded in each instance by retaining plates, the rear retaining plate 70' extending from substantially the forward edge of the supply magazine 35 to a point somewhat rearwardly of the printing station 32, and being secured in position by a pair of screws 71'. Forwardly of the retaining plate 70', the flange or retaining plate means are afforded by relatively large retaining plates 72' that are secured in place by screws 73' and which overlie the carrier bars to the same extent as the retaining plates 70'. The retaining plates 72', however, extend outwardly away from the sides of the printing device guideway for a substantial distance and serve as ribbon guide means, as will be described hereinafter.

Beneath the retaining plates 70' and 72', means are afforded on the upper edges of the carrier bars 66 for engaging the rear edges of the printing devices B so as to impart advancing movement to such printing devices in the course of reciprocation of the carrier bars 66. Such means are afforded at three different but equally spaced locations along the carrier bars 66 so that the carrier bars may impart concurrent advancing movement to three printing devices D in each reciprocation of the carrier bars. Thus, throughout a substantial length of the rear portion of the carrier bars 66, a supporting upper surface 66U is afforded, and when the carrier bars 66 are in their forward or normal position, substantial portions of these surfaces 66U are disposed beneath and within the supply magazine 35, as will be evident in Figs. 9 and 10 of the drawings. Forwardly of the surface 66U, the upper edges of the carrier bars are cut down to a lower level 66L, as shown in Fig. 10, thus to afford forwardly facing shoulders 66S at the forward ends of the surfaces 66U. The shoulders 66S serve as abutment means for engaging the rear edge of the lowermost printing device, it being noted that when the carrier bars are retracted to their rearward position, the shoulders 66S are located somewhat behind the rear edge of the supply magazine 35, and the lowermost printing device D thus drops down onto the surface 66L and into a position for advancing engagement thereof by the shoulder 66S when the carrier bars 66 move forwardly through their advancing stroke.

Forwardly of the shoulder 66S, the carrier bars 66 have two pairs of pawls, the first pair being identified as the pawls 70, and the second pair being identified as the pawls 71. The pawls 70 are each mounted in slots 72 in the respective carrier bars, there being a circular extension 72E in the rear end of the slot 72 which receives a complemental head formed on the rear end of the pawl 70, thus to mount the pawl for pivotal movement throughout a range that is limited by a lug 72L formed on the forward end of the pawl and operating in a forward extension 72F of the slot. A torsion spring 73 mounted in the slot 72 urges the pawl 70 upwardly to the effective position shown in Fig. 10 wherein the forward edge 72S of the pawl affords a shoulder that may engage the rear edge of a printing device.

The pawls 71 are each mounted in a slot 75 formed near the forward ends of the carrier bars, and a similar pivotal mounting 75E is afforded at the rear end of each pawl. At its forward end, each pawl has a lug 71L that moves within an extension 75F of the slot 75 to limit pivotal movement of the pawl 71, and a torsion spring 76 acts on each pawl to urge the same to the upper or effective position shown in Fig. 10. The pawl 71 is, in each instance, provided with a forwardly extending finger that affords a front end surface or shoulder 71S that may engage the rear edge of a printing device D. The same spacing is afforded between the surfaces 66S and 72S and between the surfaces 72S and 71S, and the locations of these forward locations, are arranged to correspond respectively with an intermediate position located between the supply magazine and printing position 32, with such printing position, and with a forward or discharge position that corresponds with the location of the collecting magazine 36.

When the printing devices D are moved into the aforesaid intermediate station or into said printing station, means are effective to prevent overthrow or excessive movement of the printing devices, and such means are located on the right-hand guide rail 51R and in part beneath the retaining plates 70 and 72. Thus, as shown in Figs. 6 to 10, a pair of pawls 80 and 80–1 of similar construction are provided respectively at said intermediate station and at said printing station. Each such pawl has

a pivot pin 82 located at the rearward end of the pawl and extended downwardly into a pivot socket formed in the upper face of the bar 51R. The pawl 80 is generally E-shaped in form, and the pivot pin 82 is afforded on the rear end arms of the E-shaped pawl, this arm extending into a clearance slot 84 formed in the rail 51R. The other end arm of the pawl is identified as 80L and extends through a clearance slot 85 in the rail 51R so that a pointed end 80P of this arm may be located over the adjacent carrier bar 66 and may project into a locating notch 45N of a printing device. The pawl 80 is urged toward the effective position shown in Fig. 6. The sloping surfaces afforded by the point 80P enable an advancing printing device D, to cam the pawl 80 to an ineffective position, but when the carrier bars 66 approach the final portion of their forward or advancing movement, the notch 45N of the printing device D will be brought into position substantially opposite the point 80P, and the action of the torsion spring will cause the point 80P to exert a locating action on the printing device D and will act also to prevent undesired overthrow or forward movement of the printing device.

The carrier bar actuating means

As hereinabove pointed out, the reciprocating movements are imparted to the carrier bars 66 by means including the cross bar 69, and this cross bar, as shown particularly in Figs. 4 and 18 of the drawings, is of a special form. Thus, the bar structure 69 is made up of two end blocks or sections 69B that are fixed to the opposite carrier bars in alignment and near the rear ends of such carrier bars by means of riveted connections 69S. Intermediate the two bars 69B, a central section 69C is disposed for rocking or rotative movement about the axis of the two blocks 69B, and this is attained by affording projecting pivot pins 69P on opposite ends of the center block 69, and these pins extend into aligned sockets afforded in the adjacent ends of the blocks 69B. The center section 69C has a screw threaded arm 87 extended radially and in a forward direction from the center portion thereof, as will be evident in Fig. 4 of the drawings, and this arm 87 has a block 88 adjustable there along by means including nuts 89 disposed on opposite sides of the block 88 and threaded onto the arm 87. This block 88 constitutes a swivel block that is pivoted on a horizontal axis adjacent the upper end of an arm 90 that is carried by and fixed to a horizontal rock shaft 91 that extends between and is rotatably mounted in the upstanding members 55S of the rear leg structure, and by imparting rocking movement to the shaft 91, the carrier bars 66 may be moved through their reciprocating stroke. This is accomplished by means that are mounted in part upon the upward extension 55E of the right and rear leg structure 55S. Thus, as shown in Figs. 2, 4 and 18, the right-hand extension 55E has an outwardly projecting sleeve bearing 95R fixed thereto as by welding so as to afford an internal bearing surface or bore 96 and an external bearing surface 97, the internal bearing surface 96 being extended through the extension 55E, as will be evident in Fig. 18. The external bearing surface 97 has a lever 98 mounted for free rocking movement thereon, and this lever is held in the desired endwise position on the surface 97 by means of a C-washer 99. The end of the lever 98 that is thus mounted on the bearing surface 97 constitutes the upper end of the lever 98, and this lever extends downwardly, as shown in Fig. 2 of the drawings, to a point somewhat above the axis of the shaft 91. At its lower end, the lever 98 has the forward end of a transmitting link 100 pivoted thereto by means such as a pivot pin 101, while the rear end of this link 100 is pivoted by a pin 102 to the upper end of an arm 103 which at its lower end is fixed near the end of the rock shaft 91. Hence, rocking movement of the lever 98 acts through the link and lever system to operate the lever 90 and impart reciprocating movement to the carrier bars 66. The lever system is, however, normally urged to the relationship shown in Fig. 2 of the drawings by a coiled spring 104, the rear end of which is connected to a laterally projecting pin 105 that is fixed to the arm 90, and the forward end of the spring 104 being anchored as at 106 in a loop that is struck from the metal of one of the flanges 36F3 of the collecting magazine 36.

The extent to which the spring 104 may thus move the lever 90 and the associated carrier bars 66 is determined by engagement of the lever 90 with an adjustable stop screw 106 that is threaded through the stationary cross bar 52. The stop screw 106 may be held in adjusted position by means of a lock nut 106L, Fig. 4. The adjustment of the swivel block 86 may, of course be utilized to insure that the carrier bars 66 will be moved rearwardly in a sufficient amount when the platen arm 34 is moved through its downward or printing stroke, and after this adjustment is made, the forward limit of travel of the carrier bars may be properly adjusted through the use of the adjustable stop screw 106.

The rock shaft 91 also serves as a part of the means for mounting the yielding bottom 61 of the collecting magazine 36. Thus, as shown in Figs. 2 and 18, the end of the shaft 91 projects beyond the lever 103, and a hexagonal member 110 has the rear end of a mounting rod 61R secured thereto as by welding, and this rod 61R extends forwardly to a point opposite the collecting magazine 36 where it is bent at right angles as at 61B so as to extend through a vertical clearance slot 36S formed in the flange 36R, as shown in Fig. 2. Within the magazine 36, the arm 61B extends beneath the member 61 and is secured thereto as by welding. The arm 61R with the bottom member 61 that is carried thereby is urged upwardly toward the position shown in Fig. 2 by a coil spring 112 that is anchored at its upper end on a laterally projecting pin 113 that projects outwardly from the rail 51R. The lower end of the spring 112 has a loop formed therein that embraces the rod 61R, and this loop may be engaged with any one of several spaced annular grooves 61G that are formed along the rod 61R, thus to enable the upward force of the spring 112 on the arm 61R to be varied.

The platen arm 34, after it is mounted in position on the mounting lugs 55E, is operatively associated, as will hereinafter be described, with the lever 98 so that operation of the platen arm through its downward printing stroke serves to cause actuation of the carrier bars 66.

The platen arm 34 also serves to operate other mechanisms which are mounted on the frame 40 of the machine, such additional mechanisms in the present instance being the ribbon feed mechanism whereby inked ribbon IR is fed in a step-by-step manner across the printing station 32 so as to be located over the printing devices D that are moved into position on the anvil A. The operative connection with the ribbon mechanism is attained by a separable connection that is located at the other or left-hand mounting lug 55E. Thus, as shown in particular in Figs. 4 and 18, the other or left-hand mounting lug 55E has a bearing sleeve 93L, a lever 118 is mounted so as to project downwardly from the mounting sleeve, and the lever is held in position by a C-washer 99L. This rocking lever 118 is arranged for separable connection with the platen arm 34, as will be described hereinafter, and it is by rocking movement of the lever 118 that the ribbon mechanism is actuated. The manner in which this actuation takes place will be described after the specific structure of the ribbon feed mechanism has been described.

The ribbon feed and reversing mechanism

The inked ribbon IR is adapted to be drawn back and forth across the printing station by means of a pair of similar ribbon spools 120R and 120L that are mounted on opposite sides of the printing device guideway in U-

shaped mounting brackets 121R and 121L. These U-shaped mounting brackets have the web portions thereof secured against the outer faces of the respective guide bars 51R and 51L by means of the cap screws 53 which serve, as hereinbefore described, to secure the guide bars to the opposite ends of the anvil A. The ribbon spools are disposed below the level of the guide plates 72, as shown particularly in Figs. 2, 3 and 17, and the guide plates 72 have their outer edges notched at 72N, as shown in Fig. 4, and the material cut from these plates and from the notch 72N is curled downwardly as shown in Fig. 17 to afford a rounded guiding edge over which the ribbon may pass from the spools on to the top of the guide plates 72.

The ribbon spools have ratchet wheels 124L and 124R associated respectively therewith, these ratchet wheels being arranged so that their teeth face in opposite directions so that the ribbon spools may be actuated selectively in opposite directions so as to thereby reverse the feeding movements that are imparted to the ribbon IR, as will be described.

The spools 120R and 120L are carried on mounting shafts 125R and 125L and these mounting shafts extend through suitable bearings in the arms of the brackets 121L, it being noted that the axes of the shafts are disposed at a slight angle to the longitudinal axis of the printing device guideway so as to feed the inked ribbon IR at a slight angle across the printing position. The rear end of each shaft 125R has a friction disk 126 mounted thereon and guided for longitudinal movement by a pin 127, thus to cause the disk 126 to rotate with the related shaft and ribbon spool. An expansive coil spring 130 surrounds the adjacent end portion of the shaft and acts between the disk 126 and a pair of adjusting nuts 131 to urge the friction disk 126 against the adjacent arm of the mounting bracket. This affords a limited drag upon the related spools. The other end of each shaft extends forwardly for a considerable distance and has a screw driver slot 132 formed therein so as to facilitate operation of the spools from the exterior of the housing 42, and the housing 42 has openings 133 formed therein to permit access to these ends of the spool shafts, as shown in Fig. 1 of the drawings.

In its movement across the printing position, it will be noted that the ribbon IR is located on top of a lower ribbon guard 135 that is shown in detail in Figs. 2A and 2B. This lower ribbon guard 135 has a pair of downwardly projecting mounting pins 135P thereon that enter appropriately positioned sockets in the guide plates 72, and the rear edge of the plate 135 is bent slightly upwardly as at 135U so as to insure that an advancing printing device D in the guideway will be moved beneath the lower ribbon guard 135. It will be noted that at the other or forward edge, this ribbon guard is cut away as at 135C in the printing area, and between this cut out portion and the rear portion, a window 135W is formed so that an operator may view the index card 47 of a printing device that is located at printing position. The forward edge of the window 135W is bent slightly upwardly as at 135B so as to make sure that the printing devices do not catch on this edge.

The ribbon spools are arranged to be selectively actuated in a step-by-step indexing or ribbon advancing movement by means of a common pawl bar 140 which, as shown in Figs. 2, 3, 5, 17 and 19 to 21 is located in a transverse position in a plane just slightly rearwardly of the location of the two ratchet wheels 124R and 124L. The pawl bar 140 is thus located somewhat rearwardly of the plane of the rear face of the anvil A, and means for supporting and actuating the pawl bar 140 are carried on the anvil A on its rear side. Thus, as shown in detail in Figs. 19 and 21, a pivot stud 141 extends rearwardly from the anvil A at substantially the midpoint between the two sides of the printing device guideway, and on this mounting stud, a depending operating lever 142 is mounted. The operating lever 142 has a slide bar 143 mounted on its rear face for purposes that will hereinafter appear, and the slide bar has a longitudinal notch 143N near its upper end so that this notch may embrace the mounting stud 141 and be guided thereby in sliding movement of the bar 143 along the lever 142. A C-washer 144 holds the slide bar 143 in position against the upper end of the lever 142. Downwardly a substantial distance from the mounting stud 141, the lever 142 has a mounting pin 145 extended therethrough, and this pin extends through a longitudinal slot 146 in the slide bar 143 so that it cooperates with the pin 145 in guiding the slide bar 143 longitudinally of the lever 142.

On the other or forward face of the lever 142, the pawl bar 140 is mounted and supported primarily by the pin 145 which extends through a somewhat kidney shaped aperture 147 in the bar 140. A C-washer 148 is mounted on the pin 145 and holds the pawl bar in position on the pin 145, while permitting shifting movement of the pawl bar on the pin under certain circumstances as will be described. As will be evident particularly in Fig. 20 of the drawings, the kidney shaped opening 147 has its bottom surface formed to afford what may be termed an upwardly projecting tooth 147T, and this tooth is located substantially midway between the ends of the pawl bar 140. So long as the pawl bar 140 is held upwardly and in substantially the relationship shown in Fig. 21, the pawl bar 140 will be located with the tooth 147T on either one side or the other side of the pin 145, and this is important, as will be hereinafter described, in governing direction of actuation of the inked ribbon IR.

The pawl bar 140 is urged in an upward direction by means that are mounted on the slide bar 143, and such means comprise a roller 150 mounted on the end of a mounting shaft 151, this shaft 151 being extended through the lower end of the slide bar 143 so as to be moved up and down with the slide bar. The relationship is such that the roller 150 is disposed in a guide slot 152 formed in the lever 142, and the roller 150 is of such a width that it underlies the lower edge of the pawl bar 140. The slide bar 143 is urged yieldingly in an upward direction by a coil spring 153 that acts between the ends of the pivot stud 141 and the pin 151, and thus the roller 150 yieldingly urges the pawl bar 140 upwardly. The yielding forces that are thus applied are arranged to cooperate with the location of the tooth 147T to, in effect, rock the pawl bar 140 to the position shown in dotted lines in Fig. 19 or to the position shown in solid lines. Thus, the lower edge of the pawl bar 140 has its central portion cut away to form what amounts to a downwardly projecting tooth 140T that is located directly beneath the tooth 147T. Hence when the parts are in the position shown in Fig. 20, the roller 150 acts on one sloping side surface of the tooth 140T to rock the pawl bar 140 clockwise as viewed in Fig. 20, or counter-clockwise as viewed in Fig. 19. This will cause a drive pin 140L, Fig. 17, to be located in a position for driving cooperation with the left-hand ratchet 124L. This will serve when the lever 142 is rocked back and forth to wind the ribbon IR on the spool 124L.

When the ribbon has been completely wound on the spool 120L, the spool will resist further winding movement, and under such circumstances, the roller 150 will be cammed downwardly by the tooth 140T, it being noted at the same time that the angular surface of the tooth 147T is acting upon the pin 145. Thus, an effective separation of the roller 150 and the pin 145 is brought about, and the central portion of the pawl bar 140 moves downwardly to such an extent that the pin 145 may move over the tooth 147 at the same time that the roller 150 moves over the high point of the tooth 140T. This reverses the relationship of the lever 142 to the pawl bar 140 so as to rock the same to its other position that is shown in dotted outline in Fig. 19 of the drawings. This

action locates the other drive pin 140R in its upper or effective position and causes reversal of the ribbon feeding movement of the mechanism.

The lever 142 is operated through its rocking movements by means including a link 155 that extends to the left from the lower end of the lever 142, as shown in Figs. 2, 3, 17 and 19. The other end of this link 155 is connected to one arm of a bell crank 156 that is pivoted at its midpoint on a lower end of a downwardly projecting stud 157 that is carried on the guide rail 51L. The other arm of the bell crank 156 projects to the left beyond the guide rail 51L, and is connected by means of a link 158 to the lower end of the lever 118. A coil spring 159 acts between the lever 118 and a pin 160 that extends from the outer side of the guide bar 51L, and thus the lever 118 and the related parts are urged to the normal position shown in Fig. 3 of the drawings.

The housing 42

The housing 42 is best shown in Figs. 1, 3 and 22 to 27, and this housing is formed as a stamping from sheet metal to afford a top wall 42T and depending side walls 42S. The lower edge of the side wall has a U-shaped protective rim 42R positioned and secured thereon, as by adhesive, this rim being formed from a resilient material such as an extruded plastic.

The top wall 42T has a cutout portion 242 formed therein through which the supply magazine 35 may project, and the cutout 242 has extensions 242E at the ends thereof to afford clearance for the upwardly projecting mounting lugs 55E.

Forwardly of the cutout portion 242T, another cutout 242 is formed so as to extend almost entirely across the forward portion of the top wall 42T at the locating of the printing position 32, and forwardly of the cutout 342, a somewhat narrower forward cutout 442 is formed that extends to the front of the housing 42 and down the forward side wall or skirt 42S, thus to afford clearance for the collecting magazine 36, as will be evident in Fig. 1 of the drawings.

In mounting the housing in position on the base 40, it must be kept in mind that the platen arm 34 is not in position over the frame, and the cutout 242 is moved downwardly over the supply magazine 35. The cutout 242 is somewhat larger in a front to rear direction than the magazine 35, so that the housing 42 may be shifted somewhat forwardly during the assembly operation, and this is done to enable a simple anchoring means to be employed between the front portion of the housing 42 and the frame 40. Thus, as will be evident in Figs. 22 and 23 of the drawings, an angular lug or bracket 165 is secured on the inner face of the front sidewall or skirt 42S on each side of the cutout 442, and this lug 165 in each instance has a rearwardly projecting arm that is complemental to a socket 166 that is formed in each of the side members 36R and 36L of the forward or collecting magazine 36. The sockets 166 are formed by lugs that are struck outwardly from the material of the flanges or side members 36L and 36R, and by moving the ears of the lugs 165 rearwardly into the sockets 166, the forward end of the housing 42 is located in the proper relationship to the frame 40.

At the rear end of the housing 42, slightly depressed panels 167 are afforded in the top wall over the respective guide rails 51L and 51R, and openings 168 are formed in the panels, as shown in Figs. 22 and 23. When the lugs 165 have been engaged with the sockets 166, the rear end of the housing is lowered into position, and is secured in place by passing fastening screws 168S downwardly through the openings 168 and into threaded sockets 169 formed in the side bars 51R and 51S. The housing 42 is thus held in rigid relationship on the frame 40.

The housing 40, over the printing position 32, is provided with a removable or replaceable upper ribbon guard 170 that is slipped endwise into position in the cutout 342 so as to overlie the inked ribbon IR. The upper ribbon guard 170 is formed from a thin spring steel and has an upper cutout or window 170W which is located over the window 135W of the lower ribbon guard 135. Forwardly of the window 170W, a cutout portion 170C corresponds with the form of the cutout 135C of the lower ribbon guard.

The ribbon guard 170 is put in position by slipping the same endwise into a guideway which, at the rear edge of the cutout 342 is afforded by a lower guide plate 172 that is secured by welding to the lower face of the top 42T. At its forward edge, the ribbon guard 170 is located directly over the guide plates 72, as shown in Fig. 25, and the rear edge of the space in which the ribbon guard 170 is located is defined by a stop plate 173 that is secured in position beneath the top wall 42T. It will be noted that the cutout 442 has a slightly depressed end margin, as indicated at 342D in Fig. 27 of the drawings, and opposite this depressed portion, longitudinal extensions 342E is afforded so that the ribbon guard 170 may be moved endwise into the guideways hereinabove described. When the ribbon guard has been moved into the proper endwise position, a down-turned rounded tooth 170T, Figs. 23 and 26, moves into a slot 174 formed in the depressed portion 342D, and this serves to adequately fix the upper ribbon guard 170 in position.

The housing 42 serves to carry a paper gauge 180 that has rearwardly projecting mounting rods 181 at its opposite ends. These mounting rods 181 extend through mounting lugs 182 that are carried on downwardly projecting stems 183, as shown in Figs. 22 and 28. The mounting stems 183 extend downwardly in a slidable relation through mounting brackets 184, and each mounting bracket has a hooked shaped tooth 185 at its forward end. This tooth extends through a securing opening 186 formed in the top wall 42T, and the stem 183 extends downwardly through an opening 187 formed in the top wall 42T. An expansive coil spring 188 surrounds the stem 183 beneath the top 42T, and a C-washer 189 on the stem 183 causes the spring 188 to exert a downward yielding pressure on the head 182. This yielding pressure engages the rearwardly projecting end portion of the rod 181 with an upturned flange 184F so that a frictional force is provided against the rod 181 which tends to hold the same in the position of adjustment to which it has been moved by an operator. This enables the paper gauge 180 to be readily and easily adjusted to the desired relationship with respect to the printing position 32.

Platen and its mounting

The platen arm 34, as herein shown, is formed as a stamping from sheet metal, and the form of the platen arm is best shown in Figs. 1 to 3 and 11 to 16. Thus, the platen arm 34 is generally U-shaped in its plan-form, as will be evident in Fig. 11, and this provides a pair of arms 34R and 34L that extend rearwardly from a head portion 34H. The head portion 34H as well as the arms 34R and 34L of the platen structure are U-shaped in cross section. The cross sectional form of the arms 34R and 34L can best be appreciated by an examination of Figs. 11, 16 and 18, while the cross sectional form of the head portion 34H is best shown in Figs. 11, 12 and 13.

Thus, with respect to the head portion 34H, a web 134W has flanges 134F extended therefrom, and one of these flanges 134F, that is the forward one thereof, has a handle structure secured thereto so that the platen arm may be readily and easily operated. This handle structure is afforded by a U-shaped bracket 190 that has the web portion thereof secured as by welding to the forward flange 134F, and between the forwardly extending ends of the U-shaped bracket 180, a handle H of circular cross section is secured.

Within the hollow head 34H, a mounting block 191 is secured as by welding at 191W to the web 134W, and a

plurality of mounting and adjusting screws **193** are extended through the mounting block **191** for securing the platen **33** in a properly adjusted or leveled relationship with respect to the platen A. As will be evident in Figs. 12 and 13, the platen **33** is provided with a resilient facing **33F** in the usual manner so that this resilient facing may cause proper cooperation of the sheet with the inked ribbon IR and the embossed type of the printing device D that is located at printing position.

The arms **34R** and **34L** of the platen mounting structure have webs **234W** and flanges **234F** and a rear end flange **334R** serves to close the rear end of each arm. Near the rear end of each arm, the flanges **234F** are extended downwardly, as shown particularly in Fig. 15 of the drawings, to afford mounting ears **234E** that are located opposite the ends of the mounting bearings **95L** and **95R**, as shown in Fig. 18 of the drawings. In securing the desired mounting of the platen arm **34** on the lugs **55E**, mounting pins **200** are extended through the ears **234E** and the inner bearing surfaces **96** of the bearing structures. It will be noted that the webs of the supply magazine **35** have openings **335** formed therein in alignment with the bearing surfaces **96**, but of slightly larger diameter, so that the pins **200** may be driven in either direction in the mounting and dismounting operations. When the pins have been put in place, a releasable securing means are effective to hold the same in the proper endwise position. As herein shown, such securing means take form of single coil torsion springs that are best shown in Figs. 2, 3 and 16. Thus, a torsion spring **202** is afforded so that the central coil thereof may surround the outer end of a pin **200** with a flattened portion of the coil engaged in a groove **200G** in the pin **200**, and the coil of the spring **202** is thus interlocked in an endwise relationship with respect to the pin **200**. The arms of the spring **202** have hooks **203** formed thereon, as shown in Fig. 16, and these hooks **203** are arranged to engage the edges of the mounting lug **234E**, as shown in Figs. 2 and 16, and the spring action of the arms of the spring **202** serve to maintain such engagement.

In the course of the mounting of the arms **34R** and **34L** in position on the mounting lugs **55E**, drive-transmitting connections are established between the platen arm structures and the various operating mechanisms of the base that are to be actuated thereby. Thus, with respect to the ribbon mechanism, the arm **118** has an upward extension **118E**, as shown in Fig. 3 of the drawings, and an upwardly opening slot **118S** formed in this extension is engaged by a transverse pin **205** that is extended between the opposite flanges **234F** of the left-hand arm **34L**.

With respect to the printing device advancing means, a somewhat different form of connection is afforded to the end that this connection may readily be broken when it is desired to make more than one impression from a printing device that happens to be at printing position. Thus, as will be evident in Figs. 1, 2, 15 and 16, the upper end of the lever **98** is formed with a concentric surface **98C**, and a notch **98N** is formed therein. This notch **98N** is adapted to be engaged by a drive pawl **210** that is pivoted within the arm **34R** on a transverse shaft **211** that extends across the arm **34R**. At its outer end, the shaft **211** has an operating handle **212** fixed thereto so that the driving or connecting pawl **210** may be shifted from the engaged position shown in Figs. 2 and 15 to the disengaged position shown in dotted outline in Fig. 15. A latch mechanism is afforded for retaining the pawl **210** in either one of these positions, and as herein shown, this latch mechanism is afforded by a spring **215** made from a wide spring strip and centrally mounted on a central cross shaft **216** and with one arm anchored on a second cross shaft **217**. The other arm of the spring **215** is arranged to engage the hub portion of the lever **210** and to move yieldingly into one or the other of a pair of notches **210N** that are formed in this hub. Thus, the connecting lever **210** may be shifted to one or the other of its two positions as desired, and it will remain or be held in the position to which it has been shifted. This enables duplicate operation to be attained at will.

As to skip operation, it is noted that the carrier bars and their operating means are adjusted so that a full platen stroke produces an excess return movement of the carrier bars, and hence when a skip operation is to be effected, the downward stroke of the platen arm **34** is terminated after the shoulders **66S** have passed rearwardly of the magazine **35**, thus to enable a feeding operation to take place without the production of a printed impression.

Alternative platen arrangement

Where it is desired to use printing devices having direct reading type thereon, the ribbon mechanism may be eliminated and a different platen structure may be substituted for the platen **33** so as to afford a source for the ink needed in producing an impression on the upper surface of a sheet. Thus, the platen facing **33F** and a portion of the platen block **33** may be removed and an ink-containing platen material may be substituted therefor. This platen material may be of the kind disclosed in Takats Patent No. 2,189,756, patented February 13, 1940, or of the kind disclosed in Gilbert Patent No. 2,620,730, patented December 9, 1952. The porous and yet relatively rigid material disclosed in the aforesaid patents will assure that the lower face of the ink-impregnated platen will at all times carry ink in the restricted amount necessary to produce the desired direct reading impression on the upper face of a sheet.

Summary

From the foregoing description, it will be evident that the present invention enables hand printing machines to be manufactured in a simple and economical manner, and the arrangement disclosed herein enables such machines to be readily adjusted and repaired.

The printing machine of the present invention, by affording the primary operative elements of the machine on a simple and relatively open frame simplifies the assembly and adjustment of these elements, and yet under the present invention the main frame may readily be housed or enclosed and the manually operated platen arm may be put in place in a simple way which establishes the desired driving connections to the operative elements of the machine merely as an incident to the mounting of the platen arm in its position on the frame.

It will also be evident that the present invention affords a simplified ribbon mechanism which may be readily and easily associated with the printing station of a printing machine.

Thus, while I have illustrated and described the preferred embodiment of my invention, it is to be understood that this is capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. In a hand-operated printing machine of the character described through which a series of printing devices are advanced one by one into and through a printing position, a rigid frame affording a printing device guideway and having an anvil in a forward portion of such guideway defining a printing position, ribbon feed means for a ribbon at said printing position, means on said guideway adjacent the rear end thereof defining a supply magazine for printing devices, means on said frame at the front end of said guideway defining a collecting magazine into which printing devices may be discharged, printing device advancing means mounted in said guideway, rigid mounting members extending upwardly above and on opposite sides of said guideway rearwardly of said anvil, a one-piece cover removably mounted on said frame and having an opening at said printing position and openings through which said supply magazine and

said mounting members project, a platen operating arm having a pair of rearwardly extending arm members of hollow inverted U-shaped cross section detachably pivoted on and embracing the upper ends of said mounting members, actuating means for said ribbon feed means, both of actuating means for said advancing means, said actuating means including separable drive connections respectively disposed on the upper ends of said mounting members and having end portions disposed within the hollows of the adjacent portions of said arm members, and said adjacent portions of said arm members each having drive connections within the hollows thereof for driving said actuating means from said platen operating arm when said platen operating arm is actuated.

2. In a hand-operated printing machine of the character described through which printing devices are advanced seriatim into and through a printing position, a rigid frame comprised primarily of a pair of spaced apart guide plates affording a printing device guideway, an anvil in a forward portion of such guideway defining a printing position, said anvil having opposed ends thereof detachably secured to the opposed inner faces of said guide plates, sheet metal stampings located inwardly of the inner faces of said guide plates adjacent the rear ends thereof defining a supply magazine for printing devices, means on said frame at the front end of said guideway defining a collecting magazine into which printing devices may be discharged, reciprocable printing device advancing means mounted in said guideway, ribbon feed means for feeding an inked ribbon across said guideway, a substantially U-shaped one-piece rear frame member detachably secured to outer faces of said guide plates with the medial portion thereof affording rear leg structure for said machine and having spaced apart rigid mounting members extending upwardly above and on opposite sides of said guideway rearwardly of said anvil, the upper ends of said mounting members being provided with bearing lugs, a cover for said frame having an opening at said printing position and openings through which said supply magazine and said mounting members project, a stamper platen operating arm having a pair of rearwardly extending arm members having downwardly opening recesses at the rear ends thereof embracing said bearing lugs and said arm members at the rear ends thereof being detachably pivoted on pins supported by the bearing lugs of said mounting members, actuating means for said advancing means and said ribbon means, said actuating means including respective and separable drive levers journaled respectively on the bearing lugs of said mounting members, and drive connections respectively mounted within said recesses of said arm members and drivingly connected to said respective drive levers for driving said drive levers from said stamper platen operating arm.

3. In a hand-operated printing machine of the character described through which printing devices are advanced one by one into and through a printing position, a rigid frame comprised primarily of a pair of spaced apart guide plates affording a printing device guideway, an anvil in a forward portion of such guideway defining a printing position, said anvil having opposed ends connected to the inner faces of said spaced guide plates, means on said guide plates adjacent the rear ends thereof defining an upstanding supply magazine for printing devices, means secured to said anvil at the front end of said guideway and at least in part defining an open-top downwardly extended collecting magazine into which printing devices may be discharged, printing device advancing means mounted in said guideway, front leg means for said frame formed in part by parts of said collecting magazine, separable rear leg means for said frame removably secured to rear end portions of said guide plates and terminating in rigid mounting members extending upwardly above and on opposite sides of said guideway rearwardly of said anvil, a one-piece cover for said frame having an opening at said printing position and openings through which said supply magazine and said mounting members project, a stamper platen detachably pivoted on said mounting members, and actuating means for said advancing means including separable drive connections disposed respectively on one of said mounting members and the adjacent portions of the stamper platen for driving said actuating means from said stamper platen.

4. In a hand-operated printing machine for making impressions from individual printing devices that are passed through the machine, a frame comprising a pair of guide plates having front and rear ends, an anvil and a cross bar connecting said plates in rigidly spaced parallel relation, said anvil being located between the forward ends of said guide plates, legs secured to and extending downwardly from said guide plates adjacent said rear ends thereof and having upper ends extending above said guide plates, means mounted on and extending upwardly from said guide plates adjacent said rear ends thereof and affording a magazine in which a supply of printing devices may be stacked, a means fixed to said anvil and defining a collecting magazine forwardly of said front ends of said guide plates, means connected to a part of said collecting magazine providing front legs for said frame, carrier bars mounted on said guide plates for reciprocating movement to advance printing devices one by one from said supply magazine to a printing station at said anvil and then to said collecting magazine, means for reciprocating said carrier bars including a lever pivoted on a horizontal axis on said upper end of one of said rear legs, ribbon mechanism associated with said frame and having ribbon operating mechanism including an operating lever pivoted on the axis of said first mentioned lever and on the upper end of the other of said rear legs, a housing including a table top and a depending skirt resting on said frame with said supply magazine and the upper ends of said rear legs extending upwardly therethrough, a stamper platen including a U-shaped supporting arm structure pivoted releasably on said axis and having separable connections with the respective levers for rocking such levers when said stamper platen is operated.

5. In a hand-operated printing machine for making impressions from individual printing devices that are passed through the machine, a frame comprising a pair of guide plates having front and rear ends, an anvil and a cross bar connecting said plates in rigidly spaced parallel relation, said anvil being located between the forward ends of said guide plates, legs secured to and extending downwardly from said guide plates adjacent said rear ends thereof and having upper mounting ends projecting above said guide plates to afford mounting lugs, means mounted on and extending upwardly from said guide plates adjacent said rear ends thereof and affording a magazine in which a supply of printing devices may be stacked, means fixed to said anvil and defining a collecting magazine forwardly of said front ends of said guide plates, means connected to a part of said collecting magazine providing front legs for said frame, carrier bars mounted on said guide plates for reciprocating movement to advance printing devices one by one from said supply magazine to a printing station at said anvil and then to said collecting magazine, means for reciprocating said carrier bars including a lever pivoted on a horizontal axis on one of said mounting lugs, ribbon mechanism associated with said frame and having ribbon operating mechanism including an operating lever pivoted on the axis of said first mentioned lever and on the other of said mounting lugs, a housing including a table top and a depending skirt resting on said frame with said supply magazine and said lugs extending upwardly therethrough, a stamper platen including a U-shaped supporting arm structure pivoted releasably on said axis and having separable connections with the respective levers for rocking such lever.

6. In a hand-operated printing machine for making

impressions from individual printing devices that are passed through the machine, a frame comprising a pair of guide plates having front and rear ends, an anvil and a cross bar connecting said plates in rigidly spaced parallel relation, said anvil being located between the forward ends of said guide plates, legs secured to and extending downwardly from said guide plates adjacent said rear ends thereof and having upper mounting ends projecting above said guide plates to afford mounting lugs, means mounted on and extending upwardly from said guide plates adjacent said rear ends thereof and affording a magazine in which a supply of printing devices may be stacked, means fixed to said anvil and defining a collecting magazine forwardly of said front ends of said guide plates, means connected to a part of said collecting magazine providing front legs for said frame, carrier bars mounted on said guide plates for reciprocating movement to advance printing devices one by one from said supply magazine to a printing station at said anvil and then to said collecting magazine, means for reciprocating said carrier bars including a lever pivoted on a horizontal axis on one of said mounting lugs, a housing including a table top and a depending skirt resting on said frame with said supply magazine and said lugs extending upwardly therethrough, a stamper platen including a U-shaped supporting arm structure pivoted releasably on said axis and having separable connections with said lever for rocking the same.

7. In a printing machine of the character described, a frame having a printing device guideway extending along the top thereof from front to rear and having an upstanding supply magazine near the rear end thereof, a collecting magazine on said frame forwardly of said guideway and located beneath the level of said guideway, an anvil in said guideway defining a printing position, advancing means in said guideway for advancing printing devices therealong, operating means for said advancing means including a lever extended above said guideway and pivoted on a horizontal axis located rearwardly of said printing position and above and transversely of said guideway, a positive drive surface on said lever enabling a positive drive force to be applied to said lever, platen means including a platen arm removably mounted on said frame for pivotal movement about said axis, a releasable drive pawl carried by said arm and normally urged into positive engagement with said drive surface and thereby directly coupling said arm to said lever above the level of said guideway, and means enabling said drive pawl to be released and disengaged from said drive surface.

8. In a printing machine of the character described, a frame having a printing device guideway extending along the top thereof from front to rear and having an upstanding supply magazine near the rear end thereof, a collecting magazine on said frame forwardly of said guideway and located beneath the level of said guideway, a supply magazine rearwardly of said collecting magazine and projected above said guideway, an anvil in said guideway defining a printing position, advancing means in said guideway for advancing printing devices therealong from said supply magazine first to said printing position and then to said collecting magazine, operating means for said advancing means including a lever extended above said guideway and pivoted on a horizontal axis located rearwardly of said printing position and above and transversely of said guideway, platen means including a platen arm removably mounted on said frame for pivotal movement about said axis, means detachably coupling said arm to said lever above the level of said guideway, and a one-piece cover of sheet material for said frame including a top wall and depending marginal side walls, said top wall of said cover having an opening therein through which said supply magazine projects and another opening therein forwardly of the first-named opening exposing said collecting magazine, socket means opening forwardly and formed on said collecting magazine, lugs on forward portions of said side walls adapted to move horizontally into said socket means to secure the front portion of said cover in position on said frame, and fasteners extended through portions of said top wall into said frame.

9. In a printing machine of the character described, a frame having a printing device guideway extending along the top thereof from front to rear and having an upstanding supply magazine near the rear end thereof, a collecting magazine on said frame forwardly of said guideway and located beneath the level of said guideway, an anvil in said guideway defining a printing position, advancing means in said guideway for advancing printing devices therealong, a pair of mounting lugs on said frame on opposite sides of and projecting upwardly above said guideway rearwardly of said printing positions, operating means for said advancing means including a lever extended above said guideway and pivoted on one of said lugs on a horizontal axis located above said guideway, platen means comprising a head having spaced rearwardly projecting arms having clearance spaces formed therein so as to open downwardly near the rear ends of said arms, said arms being disposed with said lugs disposed within said clearance spaces, pivot pins connecting said arms to said lugs for pivotal movement about said axis, and means within one of said spaces detachably coupling one of said arms to said lever above the level of said guideway.

10. In a hand-operated printing machine, a frame having a printing device guideway extending along the top thereof from front to rear and having an upstanding supply magazine near the rear end thereof, a collecting magazine on said frame forwardly of said guideway and located beneath the level of said guideway, an anvil in said guideway defining a printing position, advancing means in said guideway for advancing printing devices therealong, mounting lugs located on opposite sides of and extending above said guideway, operating means for said advancing means including a rocking member mounted on one of said lugs on a horizontal axis above and transversely of said guideway, platen means including spaced rearwardly projecting arms, said arms having the rear ends thereof formed of inverted U-shaped cross section to afford internal clearance recesses, said arms being disposed so that said lugs extend into such recesses, pins extended removably through said arms and said lugs to mount said platen for pivotal movement about said axis, and means located in one of said recesses for detachably coupling said arm to said rocking member above the level of said guideway.

11. In a hand-operated printing machine, a frame having a printing device guideway extending along the top thereof from front to rear and having an upstanding supply magazine near the rear end thereof, a collecting magazine on said frame forwardly of said guideway and located beneath the level of said guideway, an anvil in said guideway defining a printing position, advancing means in said guideway for advancing printing devices therealong, mounting lugs located on opposite sides of and extending above said guideway, operating means for said advancing means including a rocking member mounted on one of said lugs on a horizontal axis above and transversely of said guideway, platen means including spaced rearwardly projecting arms, said arms having the rear ends thereof formed of inverted U-shaped cross section to afford internal clearance recesses, said arms being disposed so that said lugs extend into such recesses, pins extended removably through said arms and said lugs to mount said platen for pivotal movement about said axis, means located in one of said recesses for detachably coupling said arm to said lever above the level of said guideway, and spring members acting between said arms and said pins to releasably hold said pins in position.

12. In a printing machine of the character described, a frame having a printing device guideway extending along the top thereof from front to rear and having an upstanding supply magazine near the rear end thereof, a collecting magazine on said frame forwardly of said guideway and located beneath the level of said guideway, an anvil in said guideway defining a printing position, advancing means in said guideway for advancing printing devices therealong, mounting lugs located on opposite sides of and extending above said guideway, operating means for said advancing means including a lever extended above said guideway and pivoted on one of said lugs on a horizontal axis above and transversely of said guideway, a platen means including spaced rearwardly projecting arms, said arms having the rear ends thereof formed of inverted U-shaped cross section to afford internal clearance recesses, said arms being disposed so that said lugs extend into such recesses, pins extended removably through said arms and said lugs to mount said platen for pivotal movement about said axis, means located in one of said recesses for detachably coupling said arm to said lever above the level of said guideway, and means for releasably holding said pins in position.

13. In a hand-operated printing machine for making impressions from individual printing devices that are passed through the machine, a frame comprising a pair of guide plates having front and rear ends, an anvil and a cross bar connecting said plates in rigidly spaced parallel relation, said anvil being located between the forward ends of said guide plates, rear legs secured to and extending downwardly from said guide plates adjacent said rear ends thereof and having upper ends extending above said guide plates, means mounted on and extending upwardly from said guide plates adjacent said rear ends thereof and affording a magazine in which a supply of printing devices may be stacked, a means fixed to said anvil and defining a collecting magazine forwardly of said front ends of said guide plates, means connected to a part of said collecting magazine providing front legs for said frame, carrier bars mounted on said guide plates for reciprocating movement to advance printing devices one by one from said supply magazine to a printing station at said anvil and then to said collecting magazine, means for reciprocating said carrier bars including a rock shaft mounted horizontally between said legs adjacent the lower ends thereof, a transmitting lever connecting said rock shaft to said carrier bars, a drive lever pivoted on a horizontal axis on said upper end of one of said rear legs and operatively connected to said rock shaft for rocking the same, a housing including a table top and a depending skirt resting on said frame with said supply magazine and the upper ends of said rear legs extending upwardly therethrough, a stamper platen including a U-shaped supporting arm structure pivoted releasably on said axis and having a separable connection with said drive lever for rocking such lever when said stamper platen is operated.

14. In a printing machine of the character described, a frame having a printing device guideway extending along the top thereof from front to rear and having an upstanding supply magazine near the rear end thereof, a collecting magazine on said frame forwardly of said guideway and located beneath the level of said guideway, an anvil in said guideway defining a printing position, advancing means in said guideway for advancing printing devices therealong, operating means for said advancing means including a lever extended above said guideway and pivoted on a horizontal axis located rearwardly of said printing position and transversely of and above said guideway, platen means including a platen arm removably mounted on said frame for pivotal movement about said axis, a driving pawl mounted in a recess in said arm and having a portion engaging a notch in said lever above the level of said guideway, an operating handle mounted on said platen arm and associated with said pawl for releasing said pawl relative to said notch, and a spring detent for holding said pawl in either its coupled or uncoupled relation.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,864,306 December 16, 1958

Carl J. Hueber

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 15, lines 5 and 6, strike out "actuating means for said ribbon feed means, both of"; line 6, after "advancing means," insert -- actuating means for said ribbon feed means, both of --; line 44, after "lugs" insert a comma; line 47, after "ribbon" insert -- feed --; column 18, lines 14 and 15, for "printig" read -- printing --; line 17, for "positions" read -- position --.

Signed and sealed this 16th day of June 1959.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents