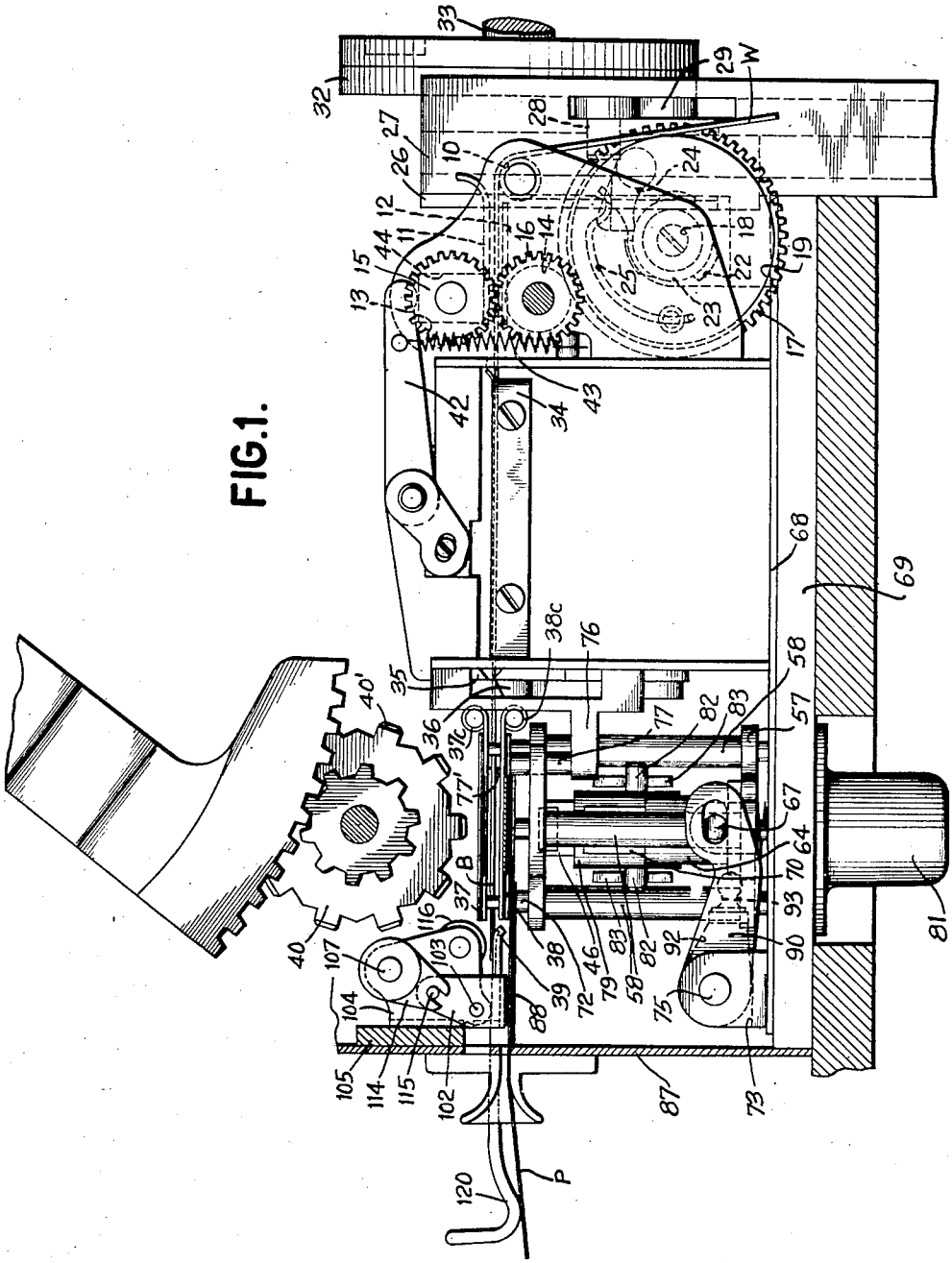
June 30, 1936. F. Q. RAST 2,045,996

PRINTING MEANS

Original Filed Feb. 5, 1935 4 Sheets-Sheet 1

FIG.1.



INVENTOR.
Frederick Q. Rast
BY
W. M. Mulon
ATTORNEY

June 30, 1936. F. Q. RAST 2,045,996

PRINTING MEANS

Original Filed Feb. 5, 1935 4 Sheets-Sheet 2

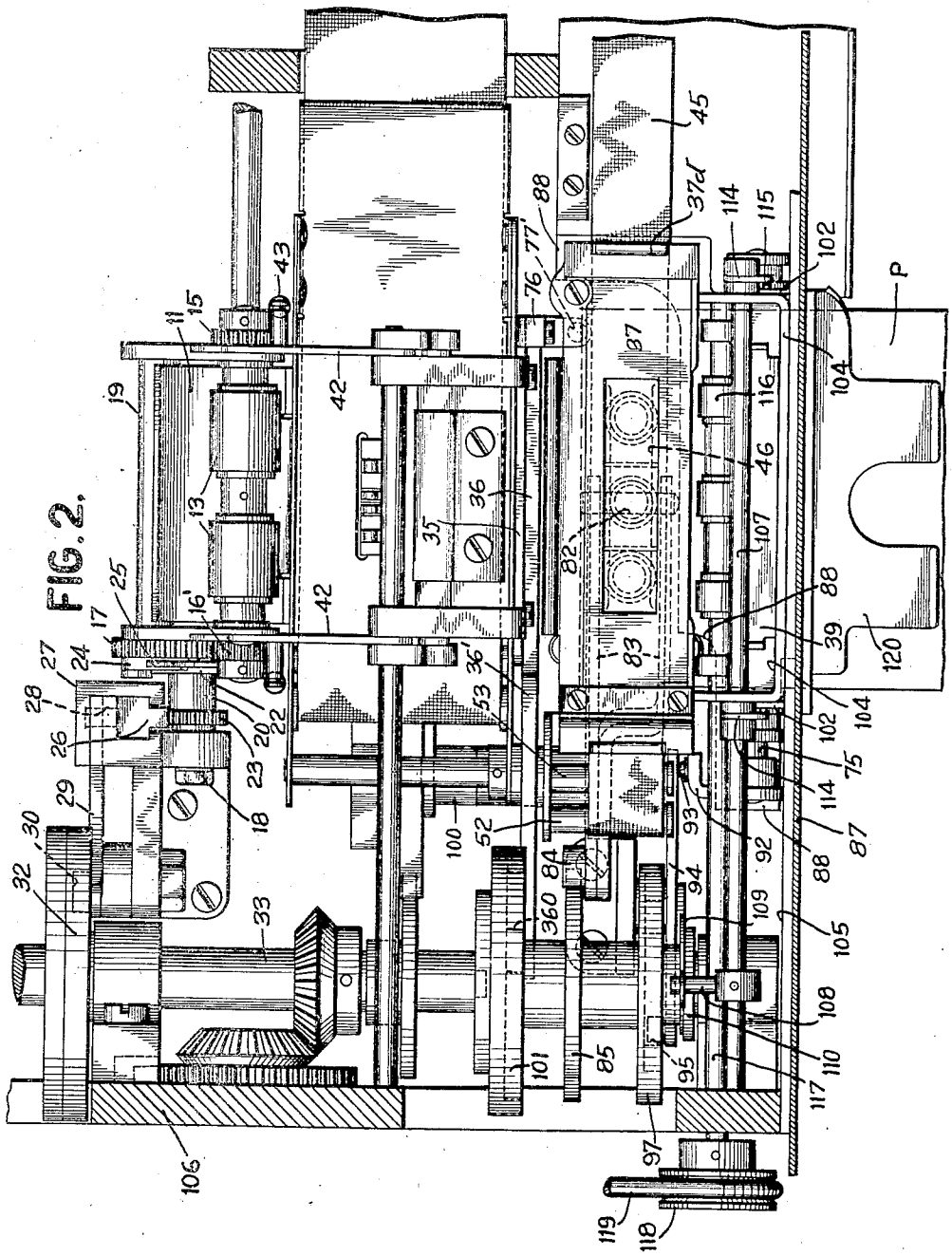


FIG. 2.

INVENTOR.
Frederick Q. Rast
BY
W. M. Watson
ATTORNEY

June 30, 1936. F. Q. RAST 2,045,996

PRINTING MEANS

Original Filed Feb. 5, 1935 4 Sheets-Sheet 3

FIG. 4.

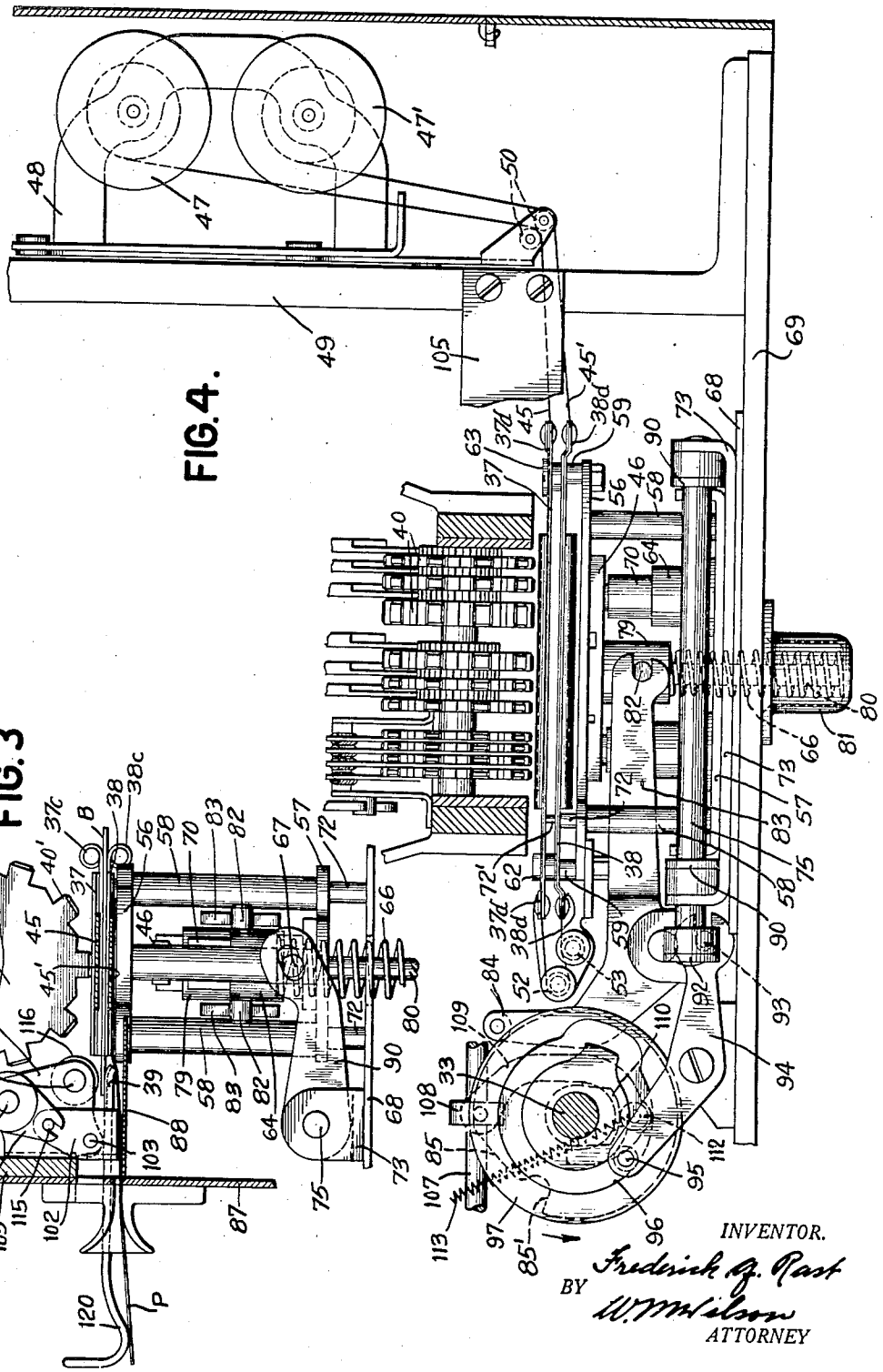


FIG. 3

INVENTOR.
Frederick Q. Rast
BY
W. M. Wilson
ATTORNEY

June 30, 1936. F. Q. RAST 2,045,996

PRINTING MEANS

Original Filed Feb. 5, 1935 4 Sheets-Sheet 4

FIG.5.

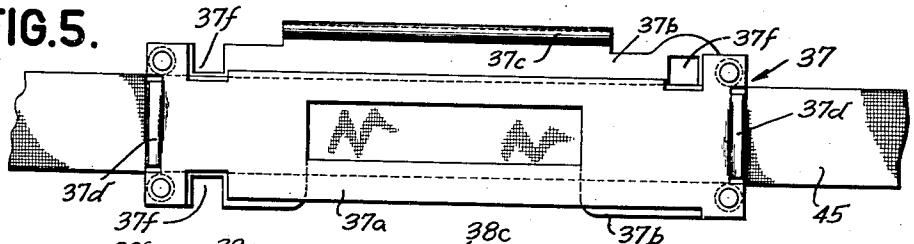


FIG.6.

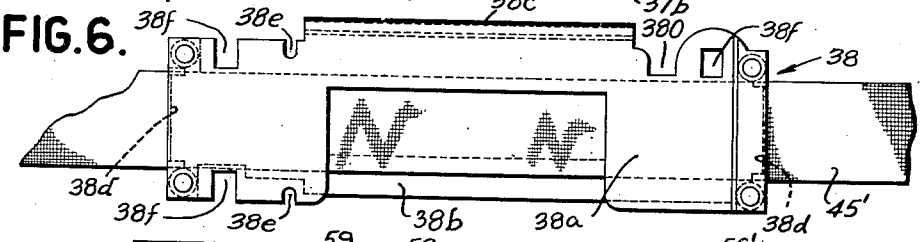


FIG.7.

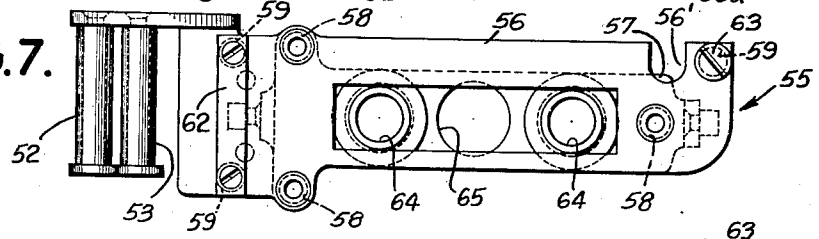


FIG.8.

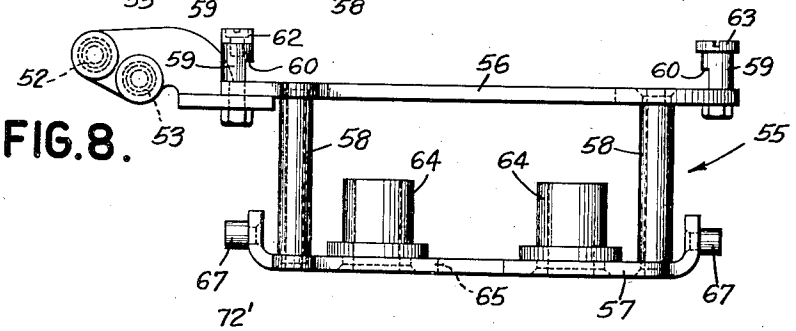
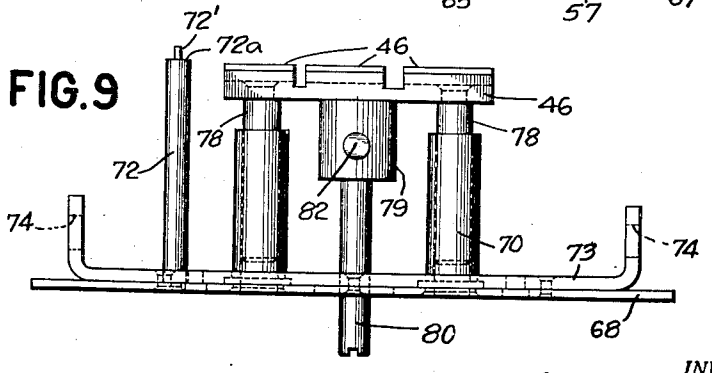


FIG.9



INVENTOR.
Frederick Q. Rast
BY
Wm. Wilson
ATTORNEY

Patented June 30, 1936 2,045,996

UNITED STATES PATENT OFFICE

2,045,996

PRINTING MEANS

Frederick Quintus Rast, Binghamton, N. Y., assignor to International Business Machines Corporation, New York, N. Y., a corporation of New York

Original application February 5, 1935, Serial No. 5,026. Divided and this application April 26, 1935, Serial No. 18,320

19 Claims. (Cl. 101—287)

This case is a division of my application Serial No. 5,026 filed February 5, 1935 and relates to the printing means disclosed in said application.

The objects of the invention are to provide novel means for obtaining a sharp imprint on a blank; to provide for obtaining a sharp duplicate imprint on a duplicate blank; to provide such means for holding one or more blanks in printing position as will facilitate insertion of the blanks into printing position prior to the printing operation and will facilitate removal of the blanks after the printing operation; and to press the blanks and their inking ribbons together and against the type before the printing hammer or platen strikes the type. A further object is to provide ejector means for supporting the edge of the blank when in printing position and for ejecting the blank after the printing operation. Another object is to provide novel ribbon guides or shields.

Other objects will appear from the following parts of the specification and from the drawings, in which:

Fig. 1 is a vertical section showing the printing means,

Fig. 2 is a plan section showing the printing means,

Fig. 3 is a view of some of the parts of Fig. 1 showing these parts in an alternative position,

Fig. 4 is a front view of the printing means with some of the parts removed,

Fig. 5 is a detail top view of the upper ribbon shield and guide for the paper blank,

Fig. 6 is a similar view of the lower ribbon shield and paper blank guide,

Fig. 7 is a top view of the carrier for the shields,

Fig. 8 is a front view of the carrier for the shields, and

Fig. 9 is a front view of the platen associated with the elements shown in Figs. 5 to 8.

Referring to Figs. 1 and 2, the blanks B to be printed on are supplied in the form of a ribbon or web W which passes over a guide roller 10 and is led between guide plates 11 and 12 into the grip of feed rolls 13 and 14. The rolls 13 and 14 have meshing pinions 15 and 16 at one end. The opposite end of the roll 14 has a duplicate pinion 16' meshed with a gear 17 at one end of the shaft 18 of a roller 19. The same end of shaft 18 rotatably carries a bushing 20 formed with a three-toothed ratchet disk 22 and a pinion 23. The teeth of ratchet disk 22 are engaged by a pawl 24 carried by the side of gear 17 and urged towards the ratchet disk by a spring 25 also on gear 17.

Pinion 23 of bushing 20 is meshed with a rack 26 guided for vertical sliding action in a frame block 27. The back of rack 26 has a pin 28 connected to one end of a bell crank lever 29 pivoted to the frame and having at its other end a follower roller 30 riding in the cam groove of a box cam 32 fast to a cam shaft 33.

During rotation of cam shaft 33, its cam 32 rocks bell crank lever 29 in a direction to move rack 26 downwardly. As the rack moves down, it rotates pinion 23 and its rigidly connected ratchet disk 22 clockwise (Fig. 1). Disk 22 through pawl 24 rotates shaft 18 and its gear 17 which in turn rotates gear 16' of the lower feed roller 14. Gear 16 of the latter simultaneously rotates gear 15 and the upper feed roller 13. In this manner, once per revolution of shaft 33, the feed rolls 13 and 14 are rotated to advance the web W between them along the top of a plate 34 and past the upper and lower knives 35 and 36.

The paper after passing the knives is fed between upper and lower shields 37 and 38 and onto the downwardly curved lip of an ejector plate 39. The portion of the web between the knives and the ejector plate constitutes the blank B to receive an imprint from type wheels 40.

When cam 32 restores lever 29 and rack 26, pinion 23 and ratchet disk 22 rotate counterclockwise without imparting movement to pawl 24 and the feed rolls operated thereby. To prevent retrograde movement of the feed rolls, a pair of pivoted arms 42 are held by springs 43 against the flats of nuts 44 fixed to the opposite ends of the shaft of the upper feed roll 13.

The construction of the shields 37 and 38 between which the blank B has now been fed is as follows: The upper shield 37 (Fig. 5) is formed of two flat spring metal plates 37*a* and 37*b* riveted together at the corners. The lower plate 37*b* is formed with a round bead 37*c* (Fig. 1) at the right hand side of the shields (Fig. 1) to facilitate the entry of the blank.

The upper plate 37*a* is formed at the opposite ends with upwardly extending guide lips 37*d* for the upper fold 45 of an inking ribbon (Figs. 2 and 3). Further, the upper plate due to its shape and the manner in which it is fastened to the lower plate and being made of spring metal bows toward the lower plate.

Both plates 37*a* and 37*b* are cut out beneath type wheels 40 and above platen 46 to permit passage of the platen through the upper shield.

The lower shield 38 (Fig. 6) is similar to the upper shield with the parts inverted. Thus, the

upper plate 38a of the lower shield is similar to the lower plate 37b of the upper shield and is formed with a bead 38c while the lower plate 38b of the lower shield is similar to the upper plate 37a of the upper shield and is formed with downwardly bent lips 38d for the lower fold 45' of the inking ribbon.

As shown in Fig. 4, a pair of vertically alined ribbon spools 47 and 47' are carried by a bracket 48 extending from frame standard 49. The upper fold 45 of the ribbon is led off the upper spool 47 between guide rollers 50, below upper lip 37d between plates 37a and 37b of the upper shield 37, and over guide roller 52 where the lower fold 45' of the ribbon begins. The lower fold 45' passes over roller 53, above lower lip 38d, between plates 38a and 38b of the lower shield, and around the lower guide roller 50 to the lower spool 47'.

The inking ribbon is thus divided into two folds 45 and 45'. Lips 37d and 38d facilitate the entry and egress of the ribbon folds and the portions of the plates 37a and 38b flanking the guide lips act as side guides for the ribbon. To initially insert the ribbon fold between the companion plates of a shield, the operator flexes them apart to provide an easy passage for the ribbon. The companion plates when released by the operator, flex towards each other to thereafter maintain the ribbon straight and taut where it passes through the shield.

Any suitable means may be used to feed the inking ribbon after each printing operation, such means forming no part of the present invention.

Ribbon guiding rollers 52 and 53 are supported at one of their ends by a vertically movable assembly 55 shown in detail in Figs. 7 and 8. This assembly comprises upper and lower plates 56 and 57 secured to each other in vertically spaced relation by three bushings 58, two at the left end (Fig. 7) and one at the right end. The upper plate 56 is flat and adapted to support a sheet of paper below lower shield 38 and is cut out centrally to permit platen 46 to pass through.

Secured to upper plate 56 are three upwardly extending restoring studs 59, two at the left end and one at the right end of the plate, each provided with a restoring shoulder 60. The pair of studs at the left end of plate 56 support a bridge piece 62 while the right hand stud has an overhanging screw head 63.

Lower plate 57 of assembly 55 carries a pair of upwardly extending sleeves 64. Between these sleeves, the plate has a circular hole 65 through which spring 66 for operating platen 46 passes. The opposite ends of plate 57 are turned up and carry horizontally disposed pins 67.

Movable assembly 55 is slidably mounted on a fixed assembly shown in detail in Fig. 9. The fixed assembly comprises a base plate 68 secured to the base 69 of the machine.

Rigidly carried by plate 68 are a pair of upright bushings 70 and a pair of long pins 72 with reduced ends 72' providing shoulders 72a. The pins 72 are both at the left end of the fixed assembly. To the top of plate 68 is riveted a horizontal bar 73 with upturned ends having bearing holes 74 for a shaft 75.

The sleeves 64 of movable assembly 55 surround and slide along bushings 70 of the fixed assembly. The pair of bushings 58 at the left end of the movable assembly also surround and slide along the pair of similarly located pins 72 of the fixed assembly. By the coaction between these parts, the movable assembly is vertically slidably mounted on the fixed assembly.

Pins 72 are longer than bushings 58 of the movable assembly and when base plate 57 of the latter assembly rests on base plate 68 of the fixed assembly, the upper ends of the pins project above bushings 58 and above upper plate 56 of the movable assembly. The shoulders 72a of the pins support the lower shield 38, at the left end, at a distance above upper plate 56 of the movable assembly while reduced ends 72' of the pins pass through slots 38e of the lower shield and support the upper shield at the left end, at a distance from the lower shield. This is the initial condition of the parts as shown in Figs. 1 and 4.

The tension of the spaced inking ribbon folds 45 and 45' tends to maintain the right hand ends of the shields (Fig. 4) in the same spaced relationship as the left ends. To assist in holding the right hand ends in this spaced relationship, fixed guide bracket 76 of the knives 35 and 36 carries an upstanding pin 77 (see Figs. 1 and 2) having a reduced upper end 77' forming a shoulder at the base of the reduced end. The pin 77 projects through slot 56' of upper plate 56 of the movable assembly (see Fig. 7) and its shoulder initially supports lower shield 38 above plate 56. The reduced end 77' of the pin passes through slot 38D of the lower shield (see Fig. 6) and its upper end supports upper shield 37 above the lower shield.

The lower reduced portions of the three studs 59 of movable assembly 55 pass through the three similarly positioned openings 38f of the lower shield and prevent movement of the latter shield within its own plane. The larger upper portions of studs 59 below the bar 62 and head 63 pass through the three openings 37f of the upper shield and prevent movement of the latter shield in its own plane.

Normally, shoulders 60 of studs 59 engage the top of the lower shield while bar 62 and head 63 associated with the studs engage the top of the upper shield, as may be understood from Fig. 4.

After mounting movable assembly 55 on bushings 70 of the fixed assembly, platen 46 may be placed in position. The platen has two depending pins 78 slidably nested in bushings 70 and a centrally depending boss 79 which carries downwardly extending pin 80 for guiding coil spring 66. The pin and spring pass through hole 65 of plate 57 of the movable assembly 55 and through similar holes in the plate 68 of the fixed assembly and frame base 69 and are housed at the lower ends in a cup 81 carried by the bottom of base 69.

Fixed to and passing through boss 79 of the platen is a pin 82 the opposite ends of which project past the sides of the boss and coact with the slotted ends of a bell crank lever 83 the opposite end of which has a follower 84 engaging cam 85 on cam shaft 33.

Initially, as previously explained, the upper and lower shields are vertically spaced apart and the lower shield is also spaced above plate 56 of the movable assembly. While the shields are thus spaced apart, the previously described feeding means functions to cause feed rolls 13 and 14 to feed the blank B into position between the shields, as shown in Fig. 1. The stamp blank then lies above the lower shield and its free end rests on the lip of ejector plate 39.

When it is desired to provide a duplicate record of the data to be printed on blank B by type wheels 40, a sheet P (Figs. 1, 2, and 3) is inserted

through a slot in the front plate 87 of the machine and guided by a fixed supporting plate 88 into position above plate 56 of movable assembly 55 and below shield 38. The lower inking ribbon fold 45' coacts with the duplicate sheet P to cause the type wheels to print on the sheet during the printing operation.

In order to provide for a sharp impression on blank B and sheet P, as a preliminary to the printing operation, elements 56, 38, and 37 are first compressed together and the compressed assembly then bodily pressed against the type wheels 40. This is done as follows:

Shaft 75 journaled in bearing holes 74 of the upturned ends of bar 73 of the fixed assembly rigidly carries a pair of arms 90, one at each end (see Figs. 1, 3, and 4). These arms are slotted at the outer ends to receive pins 67 projecting from the upturned ends of base plate 57 of movable assembly 55. Shaft 75 also has an operating crank arm 92 (see Figs. 1 and 2) with a pin 93 at the outer end received in the slotted end of a bell crank lever 94 having a follower roller 95 riding in the box cam groove 96 of a box cam 97 on cam shaft 33.

After cam 32 has functioned to cause a blank B to be fed into printing position between the spaced shields 37 and 38, cam 97 rocks lever 94 counterclockwise (Fig. 4) to in turn through crank arm 92 rock shaft 75 counterclockwise (Figs. 1 and 3). Arms 90 thereupon through their engagement with pins 67 raise movable assembly 55. As the latter rises, studs 59 fixed to top plate 56 also rise and restoring elements 60, 62, and 63 depart from the upper and lower shields 37 and 38. As the rise of the movable assembly continues, the following happen in order; top plate 56 engages duplicate sheet P and brings it against the bottom of the lower shield and against the lower ink ribbon fold 45'. Plate 56 then lifts the lower shield and moves it bodily upward towards the upper shield. The lower shield as it moves upwardly compresses blank B against the upper shield and the upper ink ribbon fold 45. As shield 38 is raised further by plate 56, it lifts the upper shield 37 bodily towards the type wheels 40 and to such an extent as to bring the upper ribbon 45 into contact with the type lugs 40' in printing position. The positions of the parts at this time is indicated in Fig. 3. The upward movement of the compressed ink ribbon and paper guides may be continued further to such an extent as to cause the type lugs 40' in printing position to depress the inking ribbons and blanks B and P between their end supports.

After the cam 97 has functioned to press the inking ribbons, record blanks, and type lugs 40' closely together, the abrupt drop 85' of cam 85 reaches follower 84 of lever 83 and releases the lever for counterclockwise rocking (Fig. 4) by spring 86. The spring impels lever 83 counterclockwise and acts on boss 79 to abruptly impel platen 46 against the compressed assembly of inking ribbons, record blanks, and type 40'.

A sharp imprint is thus taken from type 40' through ribbon 45 on blank B and through ribbon 45' on blank P.

Following this printing operation, cam 85 restores lever 83 to positively lower platen 46. Cam 97 then rocks lever 94 clockwise (Fig. 4) to in turn rock shaft 75 and arms 90 clockwise (Fig. 3), thereby causing descent of movable assembly 55. As the latter descends, the upper shield also descends and to prevent the upper shield sticking in position, restoring elements 62 and 63 positively engage the upper shield to cause its descent with the movable assembly. The upper shield moves down until it abuts the upper ends of fixed pins 72 and 77 and is arrested in the normal position (Figs. 1 and 4). The lower shield also descends with the movable assembly and to prevent its sticking in raised position, shoulders 60 of studs 59 positively engage the lower shield to force it downwardly. The lower shield descends until arrested in normal position by engagement with shoulders 72a and the shoulder formed on pin 77 at the base of its reduced end 77'. The movable assembly continues its descent until it reaches the initial position, shown in Figs. 1 and 4.

The duplicate blank P may then be removed by the operator. Blank B is first cut off by knives 35 and 36 and then ejected from the machine. Knife 35 is fixed while knife blade 36 is movable and formed at the right hand end of a bell crank lever 36' pivoted on a shaft 100 and the rear end of which has a follower 360 coacting with box cam 101 (see Fig. 2). After the printing operation, cam 101 rocks lever 36' to cause upward movement of knife blade 36 which by coaction with fixed knife blade 35 cuts off blank B from the web W.

Ejector plate 39 which supports the forward end of blank B during the printing operation is rigidly supported by a bail 102 pivoted at 103 to a bracket 104 secured to a bar 105 fastened to the frame bar 106. Journaled in bracket 104 and in frame bar 106 is a shaft 107, carrying at its left, a crank arm 108 pinned to a vertically disposed plate yoke 109 straddling a cam 110 on cam shaft 33. Yoke 109 has a follower pin 112 coacting with cam 110 and a spring 113 connecting pin 112 to frame plate 106 normally urges yoke 109 upwardly.

Shaft 107 has a pair of crank arms 114 at each side of bracket 104 pivoted at their ends to pins 115 extending from the sides of bail 102. Ejector plate 39 lies below rubber-covered rollers 116 carried by a shaft 117 journaled in bracket 104 and frame plate 106. The left end of shaft 117 projects past plate 106 and is provided with a pulley wheel 118 having a belt connection 119 to a constantly rotating shaft (not shown). Thus, ejector rollers 116 are in constant rotation. Normally, ejector plate 39 is in lower position, spaced apart from ejector rollers 116.

After blank B has received the type impression and after it has been severed from web W by knives 35 and 36, cam 110 depresses yoke 109 to rock shaft 107 clockwise (Fig. 1). Crank arms 114 of shaft 107 thereupon rock bail 102 counterclockwise about its pivot 103 to move ejector plate 39 upwardly towards constantly rotating ejector rollers 116. This movement of plate 39 brings the forward end of blank B against rollers 116 causing the latter to grip the blank and eject it out of the machine through a slot in front plate 87 and deliver it to the trough 120 fixed to the outer side of the front plate.

After ejection of blank B, cam 110 permits spring 113 to raise yoke 109 and rock shaft 107 counterclockwise (Fig. 1) which through arms 114 rocks bail 102 counterclockwise to move ejector plate 39 downwardly and away from ejector rollers 116.

The parts are now in initial position ready for the next series of operations.

Briefly summarized, the operations are as follows: To provide for a duplicate imprint, a du-

plicate blank P is inserted through a slot in the front vertical frame plate 87 to rest on a horizontal plate 38 in a position above top plate 56 of movable assembly 55 and below lower ribbon-carrying shield 36. The ribbon shields 37 and 38 are now spaced apart and the lower shield is remote from top plate 56. Cam 32 on cam shaft 33 acts first to depress rack 26 meshed with a pinion 23 which rotates with a ratchet disk 22. The rotation of ratchet disk 22 is imparted through a dog 24 to a gear 17 on shaft 18 of a guide roll 19 for the supply web W of the blanks B on which the original imprints are to be made. Gear 17 meshes with gear 16' on a lower feed roller 14 and rotation of the latter, through gears 16 and 15 rotates upper roller 13. The rollers 13 and 14 feed blank W along the surface of a guide plate 34 and between knives 35 and 36 into position between the upper and lower shields 37 and 38 now spaced apart. After this, cam 95 acts to rock lever 94 counterclockwise (Fig. 4) to raise movable assembly 55. As the latter rises, its top plate 56 compresses duplicate blank P against lower shield 38, then lifts the latter to compress blank B against the upper shield, then further lifts the shields to press the inking ribbons and blanks against the type 40' of type wheels 40.

After this, cam 95 releases lever 83 permitting spring 66 to elevate platen 46 which moves through the alined openings in plate 56 and the upper and lower shields and strikes the compressed assembly of inking ribbon folds 45 and 45', blanks B and P, and type 40' to cause a sharp imprint to be made on blanks B and P. Platen 46 then drops, shields 37 and 38 and plate 56 then separate, and the operator removes blank P.

Following these operations, cam 101 raises knife 36 to coact with knife 35 for separating blank B from web W. Cam 110 then acts to raise ejector plate 39 to bring the leading end of blank B against constantly rotating eject rollers 116 which deliver blank B to trough 120 outside front plate 87.

It is understood that either one of blanks B or P may be omitted if desired. It is also understood that variations and departures of the form of invention disclosed and which operate according to the principles of the invention are included in the scope of the invention and are intended to be covered by the following claims.

I claim:

1. In a machine for recording on a blank; in combination, a recording device and a blank guide facing each other in a relatively spaced position, means for bringing the device and guide closer to each other than in the aforesaid position, other means for effecting recording by the device upon the blank located between the guide and device by pressing the blank and device against each other after the device and guide have been brought closer to each other, and means for causing the first and second-mentioned means to operate in fixed sequence, in the order stated.

2. In a machine for recording on a blank; the combination of a recording device and a blank carrier facing each other in an initial, relatively spaced position, means for bringing the device and carrier closer together than in the initial position, other means for effecting recording by the device upon the blank between the device and carrier by pressing the blank and device against each other after the latter two elements have been brought closer together, and means for automatically operating the first and second-mentioned means in the order stated.

3. In combination; a recording device, a blank support and guide facing said device, means for moving the blank support towards the device to bring the blank between the support and device closer to the latter, other means for causing the device to record on the blank after the latter has been brought closer to the device, restoring means operable after the recording operation to positively move the support away from the device, and means for causing said first, second, and third-mentioned means to operate in sequence in the order stated.

4. In a machine for recording on a blank, in combination, a recording device, a pair of substantially parallel blank guides facing the device and spaced apart to facilitate insertion of a blank between them, means for bringing the guides closer together after the blank has been inserted, and other means thereafter operable to cause the device to record on the blank.

5. In combination; a type member and a blank guide facing each other in an initial position, means for moving the guide rectilinearly towards the type member to bring the blank between the guide and type member closer to the type member than in the initial position, and a platen moved relatively to the blank guide and towards the type member to press the blank against the type member after the blank has been brought closer to the type member to effect printing by the member upon the blank.

6. In combination, a type member and a blank carrier facing each other in an initial position with an inking ribbon between the blank on the carrier and the type member, means for bringing the blank carrier, ribbon, and type member closer together than in the initial position, and a platen movable relatively to the blank carrier and towards the type member after the carrier, ribbon, and member have been brought closer together for causing the type member to effect printing upon the blank.

7. In a machine for recording on a blank; the combination of a type member, means for holding an ink ribbon opposite the type member, a support for the blank located behind the ribbon and spaced therefrom to facilitate insertion of a blank between the support and ribbon, means for automatically bringing the support and ribbon closer together after the blank has been inserted; and a platen movable relatively to the blank support and towards the type member for thereafter causing the type member to print on the blank through said ribbon.

8. In combination, a recording device, a pair of parallelly arranged blank guides in confronting relation to said recording device to guide a pair of blanks into positions for simultaneously receiving a record from said device, means for bringing the guides and device closer together, and other means for effecting a recording operation by said device upon both blanks after the guides and device have been brought closer together.

9. In combination, a recording device, a pair of parallelly arranged blank guides confronting the device, means for moving the relatively remote guide towards the device to first engage the relatively proximate guide and then also move it towards the device to thereby bring the guides closer to each other and to the device, and means

for causing the device to simultaneously record upon the blanks between the guides and the device after the guides and device have been brought closer together.

10. In combination; a printing device, a pair of parallelly arranged blank guides confronting the device, inking ribbons, one between the device and adjacent guide and one between the blank guides, said blank guides and device being initially relatively spaced apart, one from another to facilitate insertion of the blanks between the guides and between the device and adjacent guide, means for compressing the guides, blanks, ribbons, and device relatively to each other after the blanks have been inserted, and means for thereafter causing the device to print on the blanks.

11. In combination; a printing device, a blank support confronting the device to support an original blank to receive an original imprint, a second blank support behind the first support to support a duplicate blank to receive a duplicate imprint, said supports being initially spaced apart to facilitate insertion of the duplicate blank, means for bringing the supports closer together than in their initial position as a preliminary to the printing operation, and other means subsequently operable to cause the device to effect simultaneous printing on the original and duplicate blanks.

12. In combination; a printing device, a first blank carrier below said device for carrying a blank opposite the device to receive an original imprint, a second blank carrier below the first carrier for carrying a blank opposite the device to receive a duplicate imprint, inking ribbons between the carriers and between the first carrier and device, means for raising both carriers towards the device to bring the carriers, blanks, and ribbons closer together and closer to the device, said carriers having alined cut-out portions, and a hammer movable through the cut-out portions to strike the blanks, ribbons, and device after they have been brought closer together to thereby effect printing on the blanks.

13. In combination; a printing device, a blank support, a ribbon shield and carrier between the support and device and having an opening across which the ribbon extends, said ribbon shield comprising a pair of plates between which the ribbon is threaded, one of said plates being of spring metal and tending to bend towards the other plate to grip the ribbon at opposite sides of said opening to thereby hold the ribbon taut across the opening, and means for causing the device to print on the blank through the portion of the ribbon extending across said opening.

14. In combination; a printing device, a combination ribbon shield and blank carrier for holding a blank opposite said device and having an opening across which the ribbon extends in back of the blank, a second ribbon shield between said combination carrier and the device, a second carrier in back of the combination carrier to carry a blank to receive a duplicate imprint, and means for causing the device to simultaneously effect printing through the inking ribbons, on both blanks.

15. In combination, a recording device, a blank carrier below the device, a stationary support for the carrier for holding the latter in a normal, spaced position with respect to the device, means for moving the carrier upwardly away from the stationary support and towards the recording device, other means for thereafter moving the device and blank against each other to effect recording by the device upon the blank on said carrier, and means for automatically operating the first and second-mentioned means in the stated sequence.

16. In combination; a recording device, a pair of parallelly arranged blank carriers, stationary supporting means for supporting the carriers in normally spaced position with respect to each other and to the device, means for moving the carrier more remote from the device towards the device to first bring the carriers into engagement and then move the carriers bodily together towards the device, and means for thereafter causing the device to record upon the blanks on said carriers.

17. In combination; a type device, a first ribbon guide below the device, a second ribbon guide below the first ribbon guide and arranged to also carry a blank, a blank-carrying table below the second ribbon guide, stationary vertically extending elements having shoulders for supporting the second ribbon guide and reduced terminal portions on top of which the first ribbon guide is supported, means for moving the aforesaid table vertically upward toward said device, said table during such movement first engaging the second guide and blank carrier, then lifting the latter off the supporting shoulders to engage the second guide with the first guide and cause the latter to be lifted off said terminal portions, and thereafter moving the two guides together towards the device, whereby the blanks and ribbons are pressed together and brought closer to the device, and means for thereafter causing the device to print through the ribbons on said blanks.

18. In combination; a recording device, a blank carrier below the device, means for feeding a blank onto the carrier, an ejector member on which the leading end of the blank on the carrier rests, means for causing the device to print on the blank, and means for thereafter cooperating with the ejector member to grip the leading end of the blank and eject it from recording position.

19. In combination; a printing device, parallelly arranged blank carriers for holding original and duplicate blanks opposite the device to respectively receive original and duplicate imprints from the device, a pair of ribbon spools at the same side of the device and carriers, a first ribbon guide between the original blank carrier and the device, a second ribbon guide between the duplicate blank carrier and the original blank, means for doubling the ribbon on itself and reversing its direction, the ribbon being led in one direction from one said spool across and past the first ribbon guide into cooperation with the doubling means, across and past the second ribbon guide in the opposite direction to the last-mentioned direction, and to the other said ribbon spool, and means for causing the device to print on the blanks through the ribbon folds.

FREDERICK Q. RAST.