Dec. 24, 1968 J. V. KUBOVY 3,417,691

ROLLER PLATEN PRESSURE ADJUSTING MEANS IN HAND-OPERATED PRINTING MACHINE

Filed Nov. 24, 1965 4 Sheets-Sheet 1

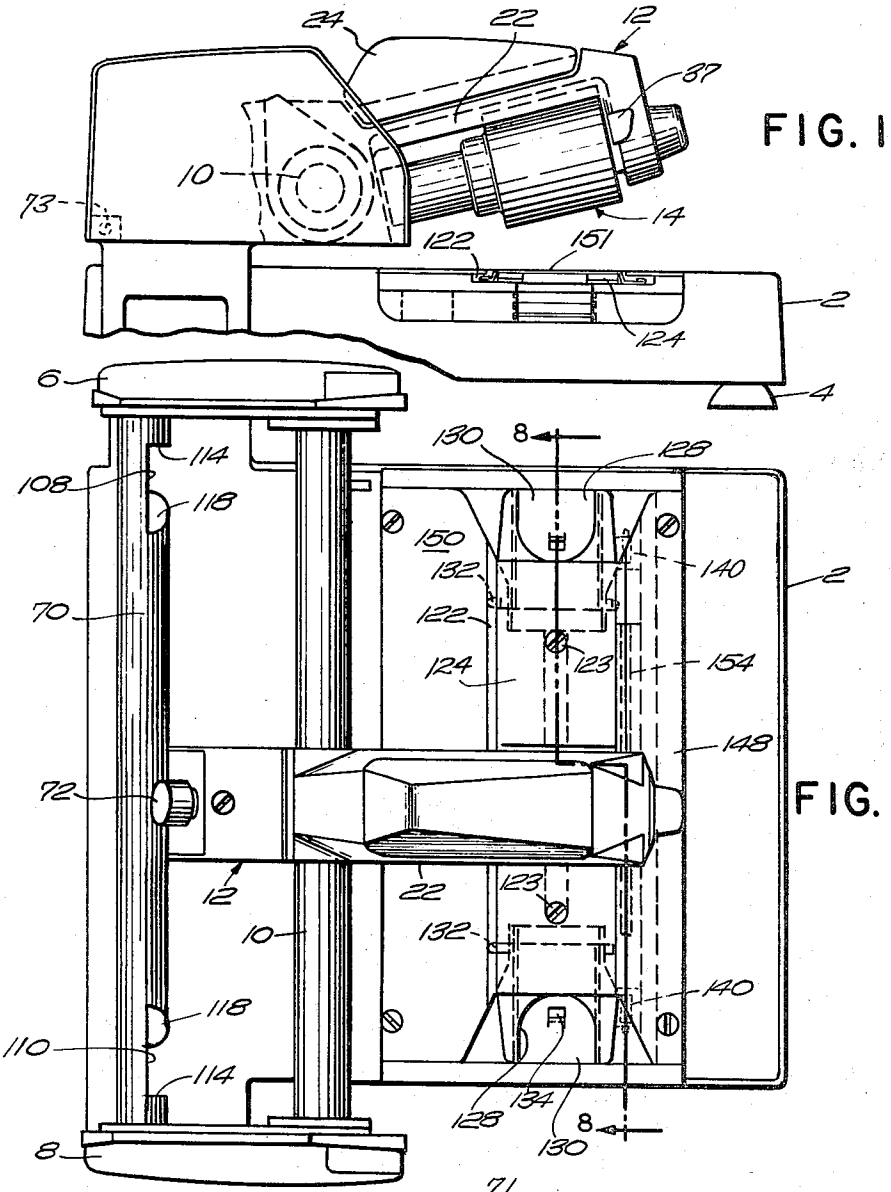


FIG. 1

FIG. 2

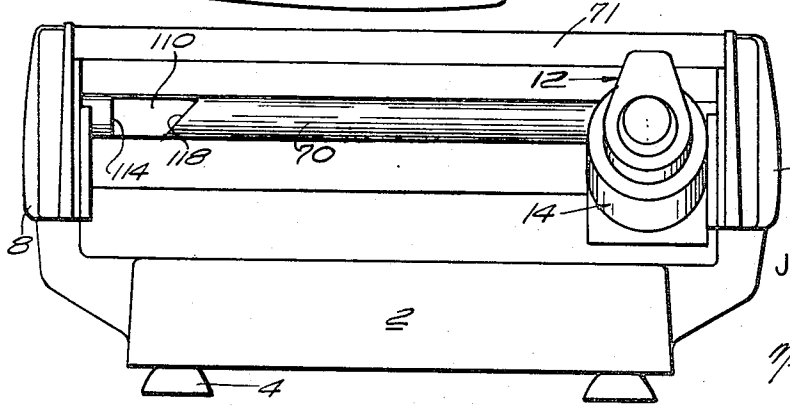


FIG. 3

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ROLLER PLATEN PRESSURE ADJUSTING MEANS IN HAND-OPERATED PRINTING MACHINE

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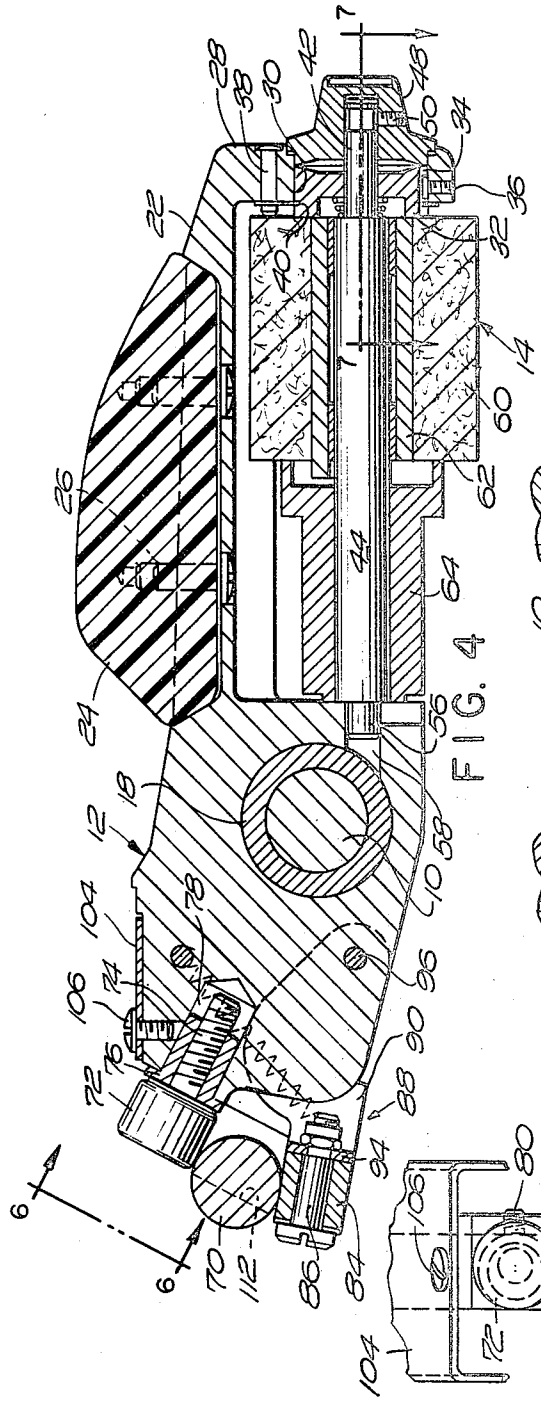


FIG. 4

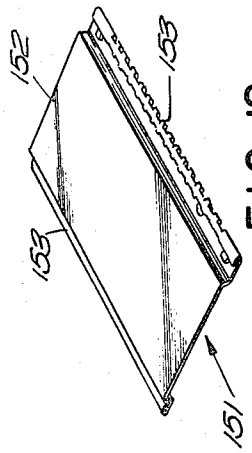


FIG. 12

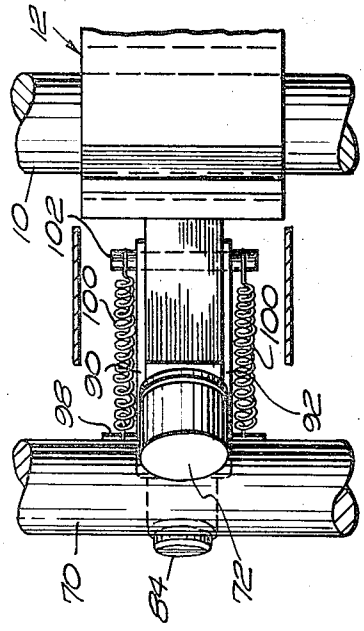


FIG. 5

FIG. 6

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ROLLER PLATEN PRESSURE ADJUSTING MEANS IN HAND-OPERATED PRINTING MACHINE
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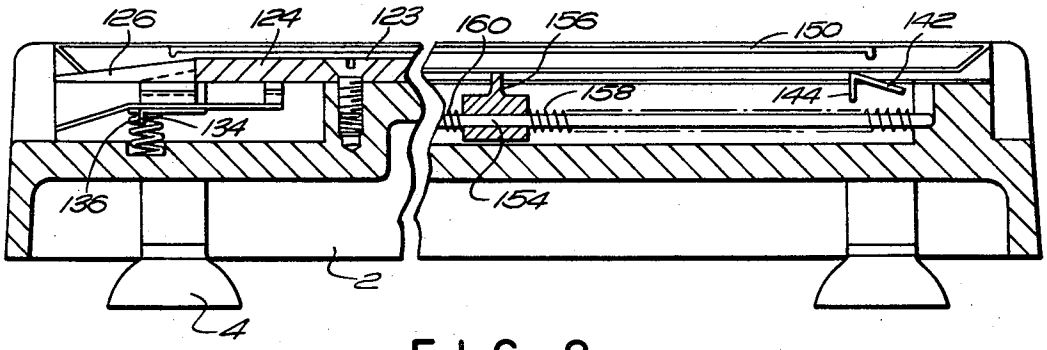


FIG. 8

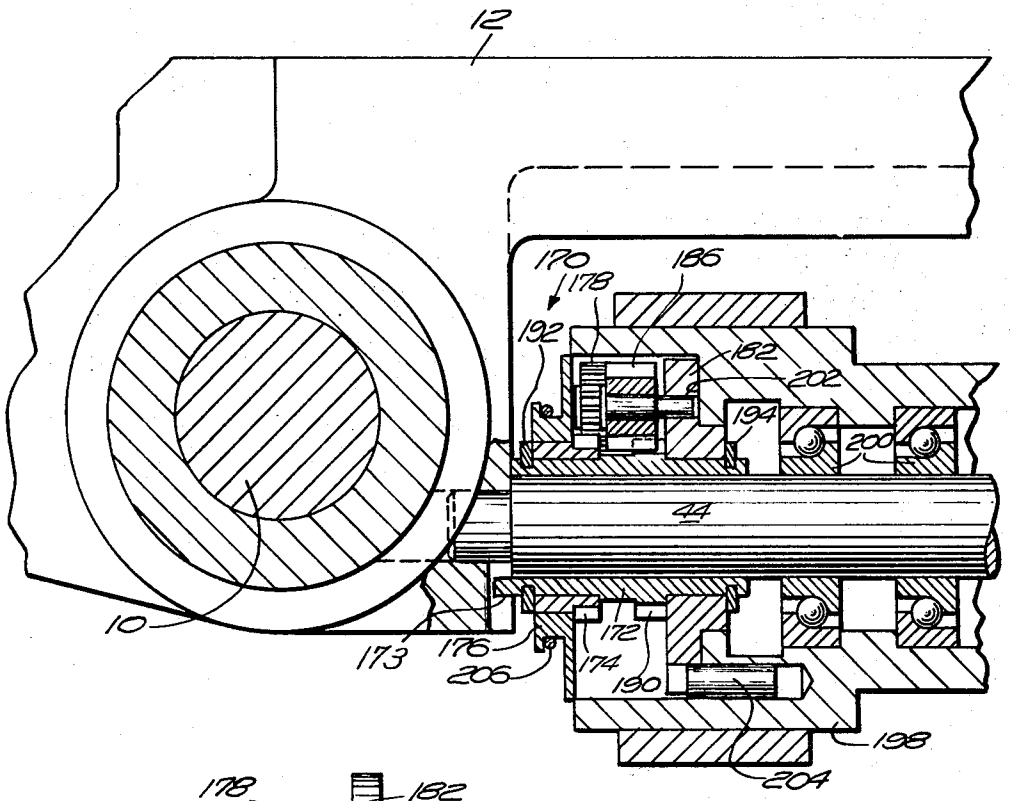


FIG. 9

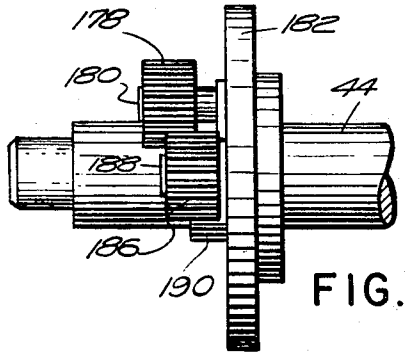


FIG. 10

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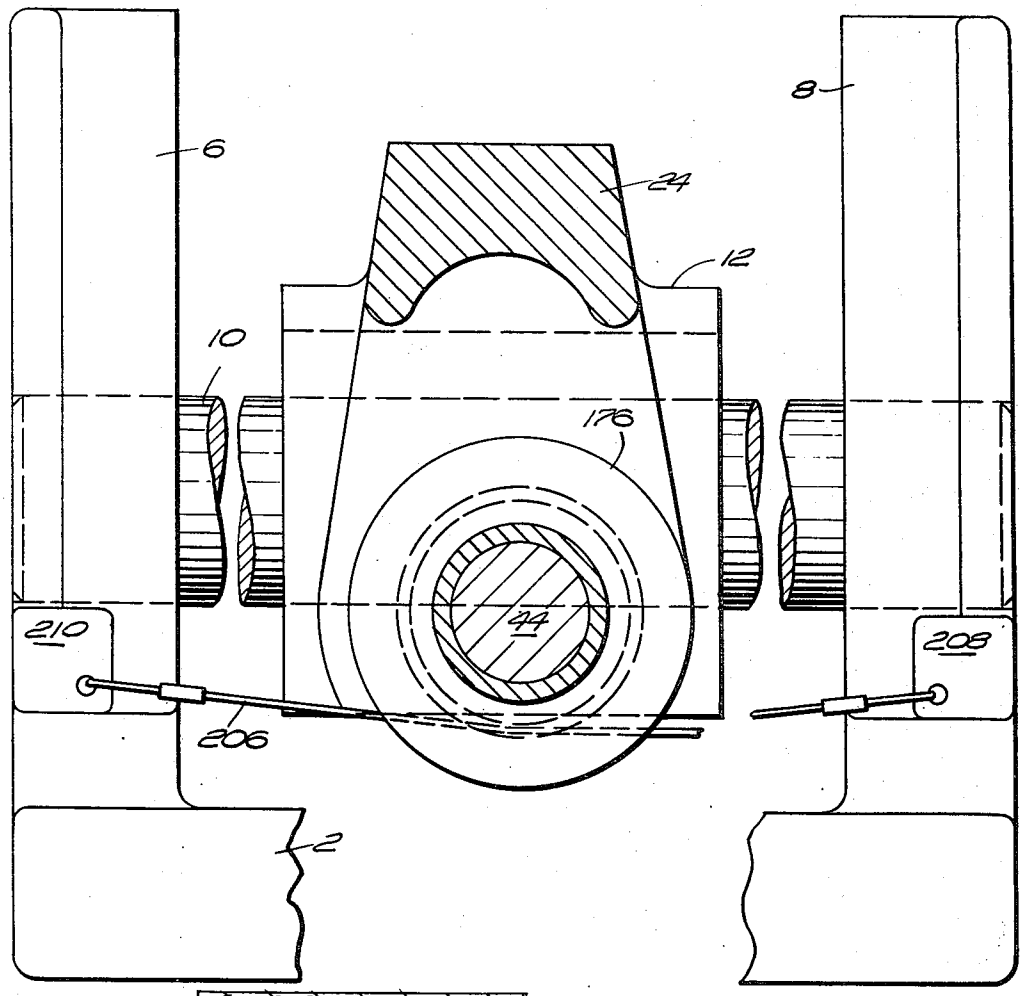


FIG. 11

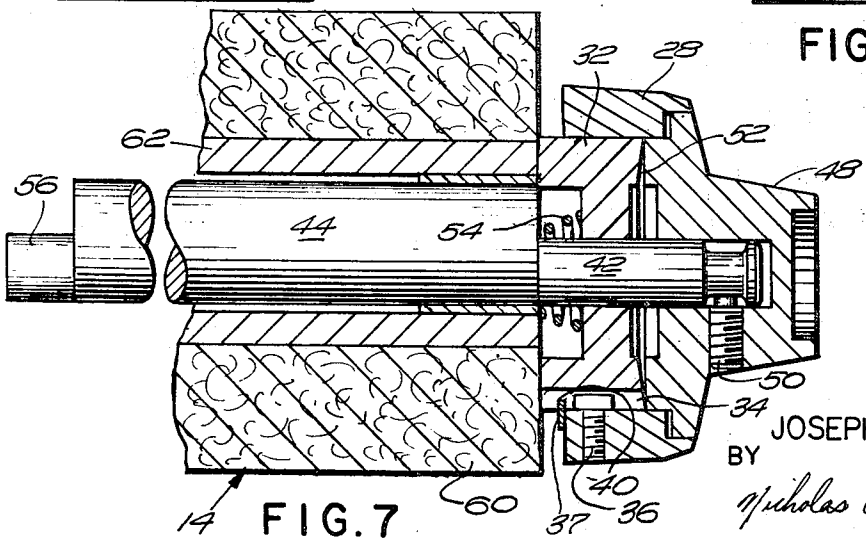


FIG. 7

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3,417,691

ROLLER PLATEN PRESSURE ADJUSTING MEANS IN HAND-OPERATED PRINTING MACHINE

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Filed Nov. 24, 1965, Ser. No. 509,554
22 Claims. (Cl. 101—269)

ABSTRACT OF THE DISCLOSURE

A hand-operated printing device of the type having a platen adapted to support embossed printing plates. The device comprises a print roll carriage, means for automatically raising and lowering the print roll carriage at the start and finish of printing movement, means for positively driving the print roll so as to prevent skidding thereof on a printing surface, means for releasing locking a printing plate on the platen, and means for at least partially ejecting a printing plate when the locking means is released.

This invention relates to addressing devices and more particularly to a small hand-operated printing machine adapted to accept embossed addressor plates.

The object of this invention is to provide a new and improved portable addressing machine that is rugged, rereliable and easy to use.

A further object is to provide an addressing machine with improved means for releasably holding embossed addressor plates.

Another object is to provide an addressing machine with an improved operating mechanism that comprises a pivotally and slidably mounted ink roller carriage, with means for adjusting the bearing pressure of the ink roller on the printing platen.

Still another object is to provide an improved portable printing machine of the type adapted to accept embossed printing plates, the machine including an ink roller carriage that is movable in a rectilinear path over a horizontal printing plate, and means for automatically swinging the carriage up away from the printing plate on completion of the printing operation.

A further object is to provide a new and improved portable printing machine that includes an ink applicator in the form of an ink roller adapted to traverse a printing surface, and means for preventing skidding of the roll on the printing surface and for insuring a fixed phase relation between the roll rotation and translation.

Other objects and many of the attendant advantages of the present invention will become more readily apparent from the following detailed specification when considered together with the accompanying drawings; wherein:

FIG. 1 is a fragmentary side elevation of a preferred embodiment of an addressing machine constituted in accordance with the present invention;

FIG. 2 is a plan view of the machine of FIG. 1;

FIG. 3 is a front view of the same machine;

FIG. 4 is a sectional view of an enlarged scale of the ink applicator assembly;

FIG. 5 is a fragmentary plan view of the rear portion of the ink applicator assembly;

FIG. 6 is a fragmentary rear view taken at the angle of line 6—6 of FIG. 4;

FIG. 7 is an enlarged sectional view of the portion of the front end of the ink applicator assembly taken along line 7—7 of FIG. 4;

FIG. 8 is a cross-sectional view of the base taken along line 8—8 of FIG. 2;

FIG. 9 is a fragmentary sectional view of a modification of the ink applicator assembly;

FIG. 10 is a plan view of a portion of the mechanism shown in FIG. 9;

FIG. 11 pertains to the same modification as FIGS. 9 and 10 and is a fragmentary front elevation, partly in section, of the base and ink applicator assembly; and

FIG. 12 is a perspective view of one form of printing plate usable with the apparatus of FIGS. 1–11.

Turning first to FIGS. 1–3, the preferred embodiment comprises a generally rectangular metal base **2** that is provided at its corners with four supporting feet in the form of rubber suction pads **4**. Formed integral with the base adjacent its rear side are two upstanding side plates **6** and **8**. Affixed to and extending between these side plates is a slide rod **10** (omitted from FIG. 3) which slidably and pivotally supports a carriage **12** that carries an ink roller unit identified generally by numeral **14**. Carriage **12** and ink roller unit **14** constitute an ink applicator assembly which is identified generally by the numeral **16**. As shown in FIG. 4, carriage **12** is provided with a transversely extending bore that is fitted with a sleeve bearing **18**. Slide rod **10** extends through the sleeve bearing and is sized so as to permit the carriage to pivot or slide without objectionable sideplay.

The carriage is formed with a forwardly extending arm **22** which is eccentric to slide rod **10**. A handle **24** is secured to the upper side of arm **22** by means of screws **26**. The forward end of arm **22** terminates in a depending extension **28**. The latter has a bore **30** extending at a right angle to slide rod **10**. Disposed in bore **30** is a circular disc **32** which is provided with a keyway **34** at its bottom, i.e., at the six o'clock position. A set screw **36** anchored in extension **28** projects into keyway **34** and thus holds the disc against rotation. An angular spring clip **37** pivotally connected to a pin **38** fits into a circumferential groove **40** in disc **32** to prevent its moving axially in bore **30**. Disc **32** rotatably supports a front reduced diameter extension **42** of a shaft **44** that forms part of ink roller unit **14**. Shaft extension **42** projects through a center hole in disc **32** and it is provided at its end with a knob **48** that is releasably held in place by a set screw **50**. The front face of disc **32** and the confronting rear face of knob **48** are provided with radially extending serrations **52** (FIG. 7) that cooperate to function as a detent so that shaft **44** cannot rotate freely relative to the disc. A compression spring **54** on shaft extension **42** urges the shaft away from disc **32** and thus keeps the serrations on knob **48** engaged with the serrations on the disc. The opposite end of shaft **44** also has a reduced diameter extension **56** that fits into a suitable hole **58** in carriage **12**. Hole **58** and the center hole in disc **32** are aligned along an axis that is eccentric to slide rod **10** and parallel to arm **22**. The two shaft extensions **42** and **56** are in coaxial alignment with one another but are eccentric to shaft **44**. This eccentricity is seen best in FIG. 7. Ink roller unit **14**, consisting of tubular inking member **60** on a metal sleeve **62**, is rotatably mounted on shaft **44**. A spacer sleeve **64** on shaft **44** cooperates with disc **32** to hold the roller against movement lengthwise of the shaft, but does not prevent it from rotating. The inking member **60** may be made of any of a variety of resilient materials capable of holding a supply of printing ink and of applying the ink and the necessary inking pressure to the surfaces to be printed on. The roller units are presently commercially available and need not be further described here. From the foregoing description it is believed to be clear that the extent to which the ink roller projects below the arm can be varied by rotating shaft **44** by means of knob **48**. In practice the front face of the knob is graduated with appropriate markings, e.g., 1, 2, 3, etc. (not shown), and

the front face of extension **28** is provided with a positional reference point for the knob graduations. With this arrangement the user can readily select a particular setting for knob **48**. As hereinafter explained, this adjustability of the ink roller permits a change in the amount of pressure with which the roll engages the printing surface. In the illustrated embodiment the positional reference point for knob **48** is provided by the head of pin **38** which is exposed to view on the front of extension **28**.

The carriage also projects behind slide rod **10** and is provided with dual guide roller means that engage a guide rod **70**. A cover **71**, pivotally secured to side plates **6** and **8** as shown at **73** (FIG. 1) normally conceals guide rod **70** and the read end of carriage **12**. Guide rod **70** is secured to side plates **6** and **8** and is disposed parallel to slide rod **10**. One of the dual guide roller means consists of a roller **72** rotatably mounted on a spindle **74** that is screwed into a hole in a bushing **76**. The latter is mounted in a circular cavity **78** in the carriage. Cavity **78** extends along a radius of slide rod **10** at an angle of approximately 28° to shaft **44**. A set screw **80** (FIG. 6) in the side of the carriage releasably locks the bushing in cavity **78**. The axis of spindle **74** is slightly off center with respect to the bushing so that if the latter is rotated in cavity **78** the angle between spindle **74** and shaft **44** can be made slightly larger or smaller than approximately 28°. The guide roller means that engages guide rod **70** consists of a roller **84** that is rotatably mounted on a spindle **86** that is bolted to a yoke identified generally by numeral **88**. The yoke consists of two ears **90** and **92** (FIGS. 4 and 5) that extend along opposite sides of the carriage and are joined by a cross member **94**. Spindle **86** is bolted directly to cross member **94**. The two ears are pivotally mounted on a pin **96** that extends through the carriage. The two ears are formed with laterally projecting lugs **98** to which are connected like tension springs **100**. The opposite ends of these springs are attached to the opposite ends of pin **102** that is anchored in the carriage. The two tension springs urge roller **84** toward roller **72** and thereby maintain both rollers in tight contact with guide rod **70**. A cover plate **104** held in place by a screw **106** conceals springs **100**.

The guide rod has a smooth circular cross-section through its length except that it has slots **108** and **110** adjacent its ends. Each slot is formed by cutting away a half section of the rod at an angle offset slightly from the vertical (with reference to the base). Throughout most of its length the base of each slot is a flat inclined surface (indicated at **112** in FIG. 4) whose top edge is forward of its rear edge. The ends of slots **108** and **110** nearest the adjacent side plates **6** and **8** respectively are defined by flat surfaces **114** extending at a right angle to the axis of the guide rod. The opposite ends of the same slots are defined by inclined cam surfaces **118** that are at an angle of about 45° to the axis of the rod. The direction of incline of each cam surface **118** is away from the adjacent side plate. The purpose of slots **108** and **110** will now be explained.

Assuming that the ink applicator assembly is positioned about halfway between the ends of slide rod **10**, the roller **72** will be in engagement with the peripheral surface of guide rod **70** and will be spaced from roller **84** by the full width of the guide rod. Because of the angular relationship betwen guide rod **70** and roller **72** with the pivot point of the carriage, i.e., slide rod **10**, the shaft **44** will be disposed parallel to the base **2** and the ink roller will be in contact with the printing surface, e.g., a paper sheet, supported on the base. The carriage will remain in this horizontal position so long as it is between slots **108** and **110**. When it is moved to the extreme left or right, roller **72** will engage the inclined cam surface **118**. Due to the pull of tension springs **100** on roller **84**, roller **72** will ride down along cam surface **118** and thereby will cause the carriage to swing upward (counterclockwise in FIGS. 1 and 4) away from the base. The limits of movement of the carriage **12** are determined by the engagements thereof with the respective side plates **6** and **8** of the machine. On reverse movement of the carriage along slide rod **10** the inclined cam surface **118** will cause it to swing downward to a horizontal position wherein the ink roll will again engage the printing surface. Continued movement of the carriage in the same direction will result in the same upward swinging and stopping when roller **72** enters the other slot. Rotation of bushing **76** will alter the down position of the arm, causing it to be above or below the horizonal according to the position of the bushing.

Referring now to FIGS. 1, 2, and 8, the base is formed with a longitudinally extending groove **122**. Secured in this groove by means of screws **123** is a flat platen or anvil plate **124** whose ends are tapered as shown at **126** (FIG. 8). These tapered ends are notched as shown at **128** (FIG. 2) so as to provide access to identical latch plates **130**. The inner ends of these latch plates are secured to the base by pivot pins **132**. Each latch plate is provided with a downwardly projecting tab **134** stuck out of its center. Each latch plate is urged upward by a compression spring **136**, one end of which fits in a depression formed in the base and the other end of which is held by tab **134**. Formed integral with each latch plate at one side thereof is a latch element **140** comprising (see FIG. 8) an inclined surface **142** terminating in an upright shoulder **144**. Upward movement of the two latch plates is limited by engagement of their latch element with two sheet metal guide plates **148** and **150** that are screwed to the base. The upper surfaces of these guide plates are above the upper surface of the anvil plate by an amount equal to the thickness of the printing plates intended for use in the machine. Additionally the inner edges of the two guide plates terminate short of the side edges of the anvil plate so as to leave a gap therebetween. This arrangement permits an embossed printing plate **151** (shown in cross-section in FIG. 1) to be slipped over the anvil. A typical addressor printing plate **151** is shown in FIG. 12. This plate consists of a flat surface **152** and offset side edges **153**. The flat surface has appropriate printing (not shown) embossed therein, i.e., the characters are raised in relief. In the usual case the embossed characters make up the name and address of an individual or firm. The printing plate **151** is inserted from either end of the base with its offset side edges extending under and held by the inner edges of guide plates **148** and **150**. The embossed characters on the printing plate protrude slightly above the guide plates so that when the ink roll is pressed down onto a suitable printing surface such as a billhead placed on the printing plate, an ink impression of the characters on the printing plate will be made on the interposed printing surface.

The purpose of latch elements **140** is to lock the printing plate in place during a printing operation. In this connection there is provided a thin rod **154** mounted in a narrow groove in the base in line with the two latch elements. Rod **154** runs parallel to the anvil and carries a movable dog **156** which is urged to a center position by two compression springs **158** and **160**. Dog **156** projects just high enough to intercept the leading end of a printing plate **151** inserted at either end of the base. The dog moves with the printing plate as it is pushed to a center position on the base. When a printing plate is inserted in the base it engages the nearest latch element **140** and holds it down against the force of spring **136**. As the printing plate reaches center position it rides off of the latch element, whereupon the latter snaps up behind the printing plate to captivate it between its upright shoulder **144** and dog **156**. The printing plate is released by depressing the latch plate which is holding it. When this occurs, the dog will move back rapidly to its original midpoint position under the force of one of the springs

158 and 160, and in so doing it will eject the printing plate. The same locking and ejecting action occurs if the printing plate is inserted at the opposite end.

FIGS. 9–11 show a modified form of the invention designed to prevent the ink roll from skidding on the printing surface and for maintaining a fixed phase relation between the roll rotation and translation. This latter feature is necessary where part of the periphery of the ink roller is to be cut away so that only a predetermined portion of the indicia on the embossed plate will be actually printed. Skidding tends to cause movement of the printing surface and this is objectionable because it results in blurred printing. In this modification the spacer sleeve 64 (FIG. 4) of the preferred embodiment is eliminated and replaced by a differential gear mechanism identified generally by numeral 170. This differential mechanism comprises a bushing 172 mounted on and keyed to carriage 12 by means of a projection 173 as shown in FIG. 9. Rotatably mounted on bushing 172 is a gear 174 and a pulley 176. Pulley 176 is mounted on and locked to the hub of gear 174. The latter meshes with a first planetary gear 178 that is rotatably mounted on a stub shaft 180 attached to a relatively large disc 182 that is rotatably mounted on bushing 172. Planetary gear 178 also meshes with and drives a second planetary gear 186 of the same size and having the same number of teeth. Gear 186 is rotatably supported by a second stub shaft 188 that also is attached to disc 182. Planetary gear 186 rides on a gear 190 that is formed integral with bushing 172. Gear 190 is the same size as and has the same number of teeth as gear 174. A pair of retaining rings 192 and 194 keeps the foregoing elements on bushing 172. This differential mechanism is enclosed by a sleeve 198 that is rotatably supported on shaft 44 by a pair of conventional roller bearings 200. Sleeve 198 is formed with an internal shoulder 202 that abuts disc 182 and is locked thereto by a roll pin 204. Although not shown, it is to be understood that sleeve 198 is connected to the ink roll unit 14 so that the ink roll and disc 182 will turn as a unit when pulley 176 is rotated.

Referring now to FIGS. 9 and 11, a flexible stainless steel cable 206 is looped about pulley 176. The ends of the cable are secured to brackets 208 and 210 that are attached to the side plates 6 and 8. The cable is sufficiently taut to cause rotation of pulley 176 when the carriage is moved in either direction along slide rod 10. The relative sizes of gears 174, 178, 186 and 190 and disc 182 are such that one revolution of pulley 176 will cause disc 182 and thus the ink roller to rotate ½ revolution. Accordingly pulley 176 is made with a diameter equal to half the outer diameter of the ink roll. Hence as the carriage moves a given distance along slide rod 10, a point on the outer periphery of the ink roll will travel along a curved path of the same length. Because rotation of the ink roll is determined by rotation of pulley 176, the ink roll will not skid on the printing surface as it tends to do when its rotation is dependent upon frictional engagement with the printing surface.

Although the illustrated embodiment of the invention is designed to accept conventional metal addresser plates, it is believed obvious that embossed plastic plates also may be used. It also is contemplated to replace the ink roll with a plain roller and use carbon paper to produce a printed impression. For convenience "print roll" is used in the following claims as a generic term covering plain press rolls as well as ink-bearing rolls. Still other obvious modifications will suggest themselves to persons skilled in the art.

It is to be understood that the invention is not limited in its application to the foregoing details of construction and arrangement of parts, and that within the scope of the appended claims, it may be practiced otherwise than specifically described or illustrated.

I claim:

1. A printing device comprising a base having a platen for supporting a printing plate, a slide rod and a guide rod, means attached to said base for supporting said rods in spaced parallel relation to each other and said platen, a carriage pivotally and slidably mounted on said slide rod, said carriage including an arm extending at right angles to said rods, a print roll unit comprising a shaft and a print roller rotatably mounted on said shaft, means securing said shaft to said carriage with one end of said shaft supported by the free end of said arm, a guide roll on said carriage disposed in engagement with said guide rod, said guide rod being disposed so that said guide roll pivotally urges said arm toward said base, said print roller disposed so as to produce a firm rolling pressure against said platen when said shaft is generally parallel to said base, said guide rod having a notch in position to accommodate said guide roll, and means on said carriage for urging said guide roll into continuous engagement with said guide rod so that said arm pivots upward away from said platen when said guide roll enters said notch and pivots downward toward said platen when said guide roll leaves said notch, said notch located adjacent one end of said guide rod so that said arm is pivoted upward as the carriage reaches the limit of its path of movement.

2. A printing device as defined by claim 1 wherein said shaft includes a first intermediate portion on which said print roller is supported and second and third opposite end portions that are rotatably attached to said carriage, said second and third portions being coaxial with each other but eccentric to said first portion, and further including means for releasably holding said shaft against rotation.

3. A printing device as defined by claim 2 further including means for manually rotating said shaft to a selected angular position.

4. A printing device as defined by claim 1 further including a latch for releasably holding a printing plate on said platen.

5. A printing device as defined by claim 4 further including means for at least partially ejecting a printing plate from said platen when said latch is released.

6. A printing device as defined by claim 1 wherein said means for urging said guide roll into continuous engagement with said guide rod comprises a second guide roll, a support member for said second guide roll pivotally attached to said carriage, and spring means urging said support member in a direction to hold said second guide roll against said guide rod.

7. A printing device as defined by claim 1 further including a second like notch at the opposite end of said guide rod.

8. A printing device as denfied by claim 1 wherein said notch is characterized by an inclined cam surface along which said first guide roll enters and leaves said notch.

9. A printing device comprising a base, means for supporting a printing plate on said base, a slide rod and a guide rod supported by said base in spaced parallel relation to each other and said base, a carriage pivotally and slidably supported on said slide rod; a print roll supported by said carriage for rotation on an axis at right angles to the axis of said slide rod, said guide rod having a slot with an inclined cam surface adjacent one end thereof, and carriage pivot control means for pivoting said carriage to move said print roll into and out of operative relation to a printing plate on said platen, said carriage pivot control, means comprising first and second guide roller means supported by and movable with said carriage, said guide roller means each comprising a guide roller oriented so that its axis of rotation is at a right angle to said guide rod, one of said guide roller means being pivotally secured to said carriage on a pivot axis extending parallel to said guide rod, said first and second guide roller means being disposed so that said guide rod extends between and is engageable by said guide rollers

and one of said guide rollers can move into and out of said slot during sliding movement of said carriage toward and away from said one end of said guide rod, and biasing means urging said one pivotally mounted guide roller means to pivot in a direction to maintain said guide rollers constantly engaged with said guide rod so as to cause said carriage to pivot in a first direction to raise said print roll with respect to said platen when said one guide roller moves along said cam surface into said slot and pivot said carriage in a second direction to lower said print roll into operative relation to a printing plate on said platen when said one guide roller moves out of said slot and along said cam surface.

10. A printing device as defined by claim **9** further including a second slot with an inclined cam surface adjacent the opposite end of said guide rod, said cam surfaces being inclined in opposite directions so that as said carriage travels in one direction along said slide rod said carriage pivot control means lowers said print roll into operative relation with said platen when said one guide roll moves out of one slot along the cam surface of said one slot and raises said print roll away from said platen when said one guide roll moves into the other slot via the cam surface of said other slot.

11. A printing device as defined by claim **10** wherein said print roll is rotatably mounted on a shaft that is supported by said carriage, and further including mechanical means for rotating said print roll as said carriage undergoes sliding movement along said slide rod, said mechanical means comprising a gear train with rotating input and output members carried by said carriage, means attached to said base for causing rotation of said input member as said carriage undergoes said sliding movement, and means connecting said print roll to said output member so that said print roll will rotate in synchronism with said input member.

12. A printing device as defined by claim **11** wherein said input member is a pulley, and further wherein said means for causing rotation of said input member is a cable secured to said base that extends parallel to said slide rod and is in engagement with said pulley.

13. A printing device as defined by claim **9** wherein said first and second guide rollers means are disposed so that the guide roller of said first guide roller means is above and the guide roller of said second guide roller means is below said guide rod, and said biasing means is a spring connected between said carriage and said pivotally mounted guide roller means.

14. A printing device as defined by claim **9** wherein said means for supporting a printing plate on said base comprises a platen disposed in a groove in said base and means on opposite sides of said platen for holding down the side edges of a printing plate, and further including manually releasable latching means adjacent one end of said groove for preventing endwise movement of said printing plate in said groove, said latching means comprising a latch plate, means attached to said base pivotally securing said latch plate for pivotal movement about an axis extending parallel to the plane of said base and spring means normally holding said latch plate in latching position.

15. A printing device as defined by claim **9** wherein the guide roller of said one pivotally mounted guide roller means extends below said guide rod and the guide roller of the other guide roller means extends above said guide rod, and further wherein said one pivotally mounted guide roller means comprises a member that is pivotally secured to said carriage, the guide roller of said pivotally mounted guide roller means being attached to said member and said biasing means being connected between said carriage and said member.

16. A printing device comprising a base having a platen for supporting a printing plate, a slide rod, means attached to said base for supporting said rod in spaced parallel relation to said platen, a carriage mounted on said slide rod for pivotal movement about the axis of said slide rod to and from a printing position and for sliding movement along the axis of said slide rod between start and finish positions of printing movement, a print roll, a shaft rotatably supporting said print roll, said shaft mounted on said carriage so that its axis extends at right angles to said slide rod, carriage pivot control means for preventing pivotal movement of said carriage away from said printing position during said printing movement and for pivoting said carriage to and from said printing position at the start and end respectively of said printing movement, and mechanical means for rotating said print roll as said carriage undergoes printing movement, said mechanical means comprising a gear train supported by said shaft having rotatable output and input members, said output member connected to said print roll so that said print roll will rotate in synchronism with said output member, said input member comprising a pulley, first and second cable support means attached to said base, and a cable having its opposite ends secured to said first and second cable support means, said cable support means located so that said cable extends parallel to said slide rod, said cable being in engagement with said pulley and being sufficiently taut to cause rotation of said pulley when said carriage undergoes sliding movement along said slide rod.

17. A printing device as defined by claim **16** wherein said gear train is a differential gear mechanism.

18. In a printing device comprising a base adapted to support a printing plate, a slide rod and a guide rod, means supporting said rods in spaced parallel relation to each other and said base, a carriage and a print roll rotatably supported by said carriage, said carriage being mounted on said slide rod for pivotal movement about the axis thereof to and from a printing position and for sliding movement along the axis thereof between start and finish positions of printing movement, said print roll disposed with its axis at a right angle to said rods, means on said carriage engaging and guided by said guide rod for preventing pivotal movement of said carriage away from said printing position during said printing movement, the improvement comprising a groove in said base having a longitudinal axis extending parallel to the axes of said slide and guide rods, a platen for supporting a printing plate secured in said groove, printing plate guide members extending along opposite sides of said groove and disposed so as to overlie the edges of a printing plate positioned on said plate, at least one end of said groove being open so as to permit insertion of a printing plate from said at least one end, and means for restraining a platen-supported printing plate against endwise movement, said restraining means including a manually releasable latch plate in said groove at said one end, means attached to said base securing said latch plate for pivotal movement about an axis extending parallel to the plane of said base, first spring means normally holding said latch plate in latching position, and a dog in said groove for holding a platen-supported printing plate against said latch plate.

19. The combination of claim **18** wherein said dog is moveable lengthwise of said groove and is disposed to intercept the leading end of a printing plate inserted in said groove, and second spring means opposing lengthwise movement of said dog away from said latch plate.

20. The combination of claim **18** wherein said dog is disposed to at least partially eject said printing plate from said groove under the influence of said second spring means when said latch plate is moved out of latching position.

21. The combination of claim **18** wherein said latch plate has an inclined surface in position to be engaged by the leading edge of a printing plate as it is being inserted in said groove, said surface being inclined in a direction such that the force exerted thereon by the printing plate being inserted will pivot said latch plate out of latching position by an amount sufficient for said printing plate to be positioned on said platen, said latch plate being

returned to latching position by said first spring means after said printing plate has been fully inserted over said platen.

22. The combination of claim **19** wherein both ends of said groove are open so that a printing plate may be inserted from either end thereof, and further wherein said restraining means includes a second latch plate in said groove at the end thereof opposite to said one end, means attached to said base securing said second latch plate for pivotal movement about an axis extending parallel to said base, third spring means normally holding said second latch plate in latching position and fourth spring means opposing lengthwise movement of said dog away from said second latch plate.

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