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PRINTING MACHINE HAVING MEANS FOR ROCKING PLATEN ASSEMBLY FROM ONE POSITION TO ANOTHER DEPENDING ON DIRECTION OF TRAVEL

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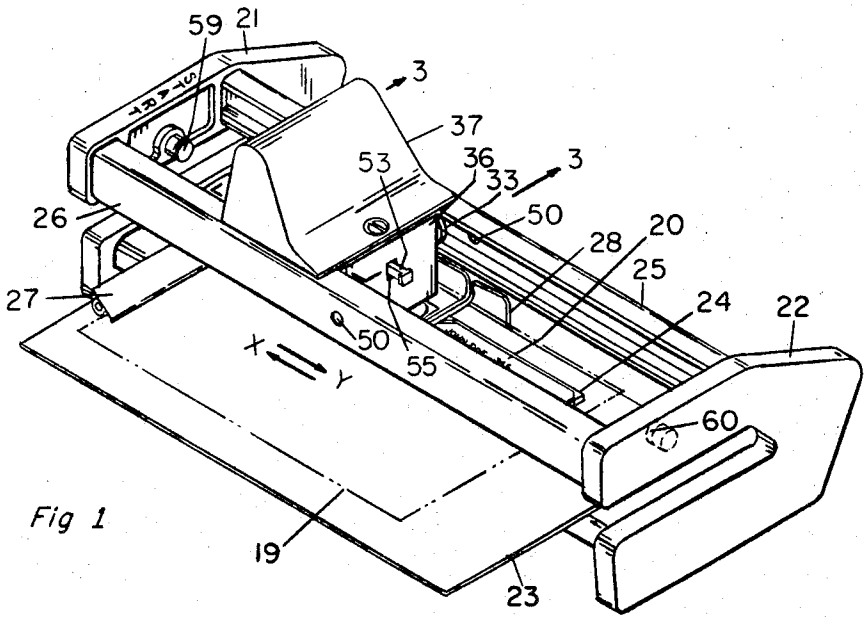


Fig 1

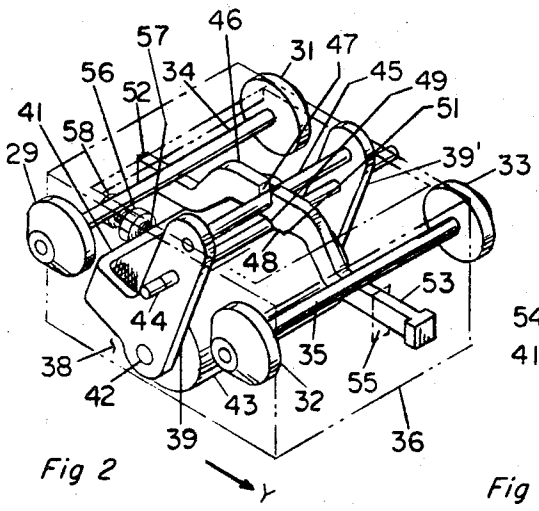


Fig 2

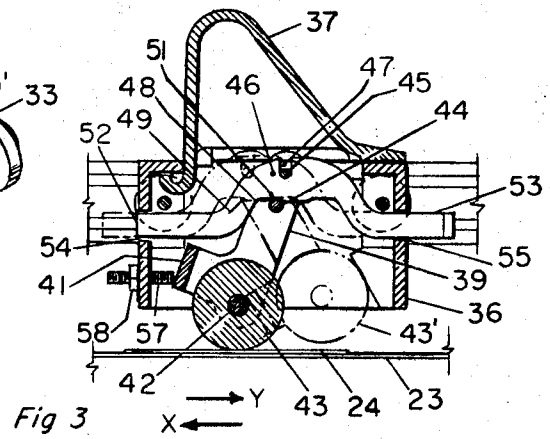


Fig 3

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PRINTING MACHINE HAVING MEANS FOR LOCKING PLATEN ASSEMBLY FROM ONE POSITION TO ANOTHER DEPENDING ON DIRECTION OF TRAVEL

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ABSTRACT OF THE DISCLOSURE

A printing machine having a platen assembly which is rockable from one position to another depending on the direction of travel of the platen assembly is disclosed. In a first direction of travel over the printing bed of the machine, the platen assembly is held in one position by an elongated bar, the platen assembly engaging in a first detent on the bar. At the completion of the movement of the platen over the printing bed in the first direction, the elongated bar engages a stop thereby moving the bar to a second position and rocking the platen assembly to engage a second detent on the elongated bar, which corresponds to the second position of the platen assembly. Thus, when the platen assembly is moved back across the printing bed, there is no engagement of the platen assembly with the printing bed thereby preventing any overprints during the return movement of the platen assembly.

The present invention relates to a printing machine and, more particularly, to an improved printing machine for recording data on documents from individual printing devices, of a kind suitable for use as identification tokens, by impressing a platen across the face of the document inserted between the path of the platen and the printing device.

In certain printing machines of the type disclosed above, it is well known that in order to obtain a uniform and clear imprint the platen roller should be brought into engagement with a printing plate and sales slip or like document in only a single unidirectional rolling pass. It is the general purpose of this invention to accomplish the above function by providing a printing mechanism that contemplates a simply constructed yet efficient means for automatically lowering the platen of a printing machine into an effective printing position for a subsequent imprint operation in a first direction, and for automatically elevating the platen roller into an ineffective position relative to a printing plate prior to a return operation in a second direction. There is additionally provided a simple mechanism for readily adjusting the distance in which the platen roller is separated from the printing field during the occurrence of an imprint operation. It will be readily apparent that the unique automatic lowering and elevating means for the platen can be employed independently from the adjustment mechanism.

Objects of the invention are to provide a printing machine which produces clear cut and uniform printing, which operates conveniently and with little effort, which is simple and economical in construction and which permits the platen roller in a unidirectional imprinter to be automatically spaced at printing and non-printing elevations from the print bed during a complete printing cycle to avoid superfluous overprinting.

Another object of the present invention is the provision

in an imprinting machine of adjusting the platen roller height to adapt the same for virtually any size thickness of printing plate or document.

Other objects, advantages, and capabilities of the present invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, illustrating a preferred embodiment of the invention.

In the drawings:

FIGURE 1 is a front perspective view of an imprinter constructed in accordance with the principles of the present invention.

FIGURE 2 is a perspective view of the carriage shown in phantom disclosing the platen assembly.

FIGURE 3 illustrates a section of the imprinter taken along line 3—3 of FIGURE 1 as the carriage is traversing the print bed area supporting a printing plate.

Referring to the drawings wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in FIGURE 1, a pair of parallel C-frame members **21** and **22**, each of which is spaced from the other by a tray member **23** having an upper planar surface defining a print bed. Located on the print bed is a guide device **24** for supporting and positioning a portable printing plate **20** and overlying the printing plate and a portion of the print bed is a document or business form **19** on which an imprint is to be made. If desired, a biased clip **27** and guide **28** may be utilized to properly place the document on the print bed. On each side and overhead of the print bed area is situated one of a pair of parallel guide rails **25** and **26** fastened at their ends to the upper area of mutual C-frame members **21** and **22** by suitable means (not shown). The inner sides of guide rails **25** and **26** are channeled to define a track for directing the bearings **29**, **31**, **32** and **33** which are more clearly shown in FIGURE 2. Bearing pairs **29–31** and **32–33** are mounted on shafts **34** and **35** respectively.

The bearings are employed to guide a platen-supporting carriage **36** over the printing bed for imprinting purposes as will hereinafter be described. To impel the carriage during an imprinting operation a handle **37** is conveniently mounted on the carriage top by screw means as shown. The platen assembly, a preferred embodiment of which is illustrated in the drawings, is comprised of an L-shaped bracket **38** formed with a pair of upwardly extending arms **39** and an integral rearwardly extending U-shaped bracket bar **41** joining arms **39**, the lower ends of arms **39** adapted to receive a shaft **42** supporting a rotatable platen roller **43** which may be either of the ink or dry type. Carriage **36** is bored to receive a rod **44** and bearing shafts **34** and **35**, the mid-section of each arm **39** also being bored to readily receive rod **44** allowing the entire platen assembly to be pivotable relative to the carriage.

Perpendicular to the axis of rod **44** is a yoke shaped member **46** in the form of a movable elongated bar means extending parallel to the path of travel by the carriage **35** for rocking the platen assembly about its pivot point. Member **46** is provided with a slot **47** in its upper face to receive shaft **45** and an irregular or cammed exterior **48** on its lower face arranged to be substantially offset relative to the slot. A pair of detents **49** and **51** are formed on the sides of the cammed exterior each detent adapted to readily accommodate and hold rod **44** when snapped therein. The ends **52** and **53** of yoke **46**, respectively protrude through apertures **54** and **55** on opposite sides of carriage **36** as illustrated in the drawings.

Within the carriage wall, parallel to and immediately at the back of bracket bar **41**, there is fixedly seated a threaded unit **56** fitted to receive a screw **57** for abutting bracket bar **41** at a right angle thereto. After screw **57** has been set, a lock nut **58** is employed to prevent further movement of the screw by locking the same to the outer surface of the carriage. Through accurate adjustment of the screw **57**, the bottom surface of the platen roller may be located, during a printing stroke, in a certain predetermined plane parallel to the print bed, for as the printing stroke is manually effected in the Y direction arm **53** of the yoke is extended outwardly beyond carriage **36** and the platen assembly is disposed in its most clockwise position about rod **44**, in the position shown in FIGURES 2 and 3. Rod **44** is snapped within detent **49** thus urging bracket bar **41** in abutting relation toward the adjustment screw **57**. Situated on the inner sides of C-frame members **21** and **22** are protruding bumpers **59** and **60** respectively, adapted to engage and act upon the corresponding ends **52** and **53** of yoke **46** at the termination of the printing or the return stroke. The screw adjustment for regulating the platen assembly position prior to imprinting operations is made on occasions to compensate for changes in the platen roller diameter; changes in the document and/or printing plate thicknesses; changes in the weather and environment, etc. Thus, the adjustment mechanism in the present invention is easily manipulated to produce quick and improved results, however, it is readily apparent that the present invention may be utilized independently of the screw adjustment as shown herein, by merely employing conventional shimming techniques.

There is further provided one of a pair of openings **50** one of which is located opposite the other in each guide rail **25** and **26** for removing shafts **34**, **35** and/or rod **45** to easily disassemble the platen assembly and other associated parts contained within the carriage. In such a manner the platen roller **43** may be speedily replaced.

The operation of the present invention may be best illustrated by first referring to FIGURE 3, wherein a sectional view of carriage **36** and the platen assembly shown in solid lines is disclosed in its start position whereby the yoke **46** has been axially shifted to the right to protrude through aperture **55**, thus rocking the platen assembly by way of shaft **45** into a clockwise direction about rod **44** and seating rod **44** in holding detent **49** of cam **48** until bracket bar **41** abuts adjusted screw **57** locating the platen roller **43** adjacent to anvil **24** to perform an imprinting function. The platen assembly is held in the disclosed printing position as illustrated by the friction fit between rod **44** and holding detent **49**. After having inserted a printing plate and a document to be imprinted into position on the print bed, an imprinting function will be accomplished by manual movement of the carriage via handle **37** in the Y direction. As the carriage is moved to the extreme right end of the imprinter as viewed in FIGURE 1, the protruding end **53** of yoke **46** will engage the bumper **60** to shift the yoke to the left and thus force shaft **45** to the left simultaneously rocking the L-shaped bracket **38** in a counter-clockwise direction about rod **44** to the position shown in dashed lines in FIGURE 3. As a result of the latter action the lower periphery of roller platen **43** is displaced from its previous adjacent position relative to the print bed allowing the carriage to be returned across the imprinter to its start position without accidentally causing an imprint (superfluous overprinting) to be made at the printing bed during such return travel. Once the carriage is returned to the start position, end **52** of the yoke will engage bumper **59** to again set up the platen roller for a printing operation as heretofore disclosed.

It should be understood, of course, that the foregoing disclosure relates to only a preferred embodiment of the invention and that numerous modifications or alterations may be made therein without departing from the spirit and the scope of the invention. It is desired, therefore, that only such limitations be placed on the invention as are imposed by the prior art and as set forth in the appended claims.

What is claimed is:

1. In the art of printing machines of the type adapted to use portable printing means, a machine comprising a base at least a portion thereof forming a plane which defines a print bed adapted to support a printing means, a carriage mounted for reciprocating travel across the print bed, a platen assembly mounted for pivotal movement relative to said carriage, a platen rotatably mounted at one end of said platen assembly, movable elongated bar means extending parallel to the path of travel by the carriage for rocking said platen assembly about its pivot points to elevate the platen roller from the print bed when rocked in one direction and to lower the platen roller toward the print bed when rocked in the opposite direction.

2. In the art of printing machines of the type adapted to use portable printing means, the combination recited in claim **1** including mechanical means for holding said platen assembly when rocked into its elevated or lowered position.

3. In the art of printing machines of the type adapted to use portable printing means, the combination recited in claim **1** wherein said movable means comprises an elongated bar having a cammed surface for holding said platen assembly when rocked into its elevated or lowered position.

4. In the art of printing machines of the type adapted to use portable printing means, the combination recited in claim **2** including adjusting means acting on said platen assembly for to vary the spacing between the platen roller and the printing bed for making an imprint.

5. In the art of printing machines of the type adapted to use portable printing means, a machine comprising a base at least a portion thereof forming a plane which defines a print bed adapted to support a printing means, a carriage mounted for reciprocating travel across the print bed, a platen assembly mounted for pivotal movement relative to said carriage, a platen rotatably mounted at the lower end of said platen assembly, a movable elongated bar having a partly cammed surface and generally extending parallel to the path of travel by the carriage and adapted to engage the upper end of said platen assembly and rock said platen assembly about its pivot points for elevating the platen roller from the printing bed when moved in a first direction and for lowering the platen roller toward the printing bed when moved in a second direction opposite to the first, said cammed surface holding said platen assembly when the platen roller rocked into its elevated or lowered position.

6. In the art of printing machines of the type adapted to use portable printing means, the combination recited in claim **5** including fixed means positioned at each side of said printing bed and in the direction with the path of travel by the carriage to move said elongated bar in the first and second directions respectively when the carriage reaches the respective ends of its stroke.

7. In the art of printing machines of the type adapted to use portable printing means, the combination recited in claim **5** including adjustable means acting on said platen assembly to vary the spacing between the platen roller and the printing bed for making an imprint.

8. In the art of printing machines of the type adapted to use portable printing means, a machine comprising a base at least a portion thereof forming a plane which defines a print bed adapted to support a printing means, a rectilinear track spaced from yet parallel to the plane of the print bed, a carriage mounted on the track for reciprocating travel across the printing bed, a platen assembly comprising a bracket, a roller platen rotatably mounted at one end of said bracket and a connecting bar at the other end of the bracket, shaft means for pivotally mounting the bracket relative to the carriage at points intermediate the roller platen and connecting

bar, a movable yoke shaped bar engaged with said connecting bar and extending parallel to the track through apertures at each end of the carriage, actuating means to move the yoke shaped bar in opposite directions for rocking said platen assembly about its pivotal shaft means to respectively elevate and lower the platen roller relative to the printing bed, said yoke shaped bar being cammed and coacting with said pivotal shaft means to hold the platen assembly when the platen roller is rocked into its elevated or lowered position, said actuating means being located at each end of the path traversed by the reciprocating carriage.

9. In the art of printing machines of the type adapted to use portable printing means, the combination recited in claim 8 wherein a U-shaped bracket is joined at right angles with the lower portion of said platen assembly,

and adjustable screw means in the carriage is adapted to act on said U-shaped bracket to vary the spacing between the platen roller and the print bed for making an imprint.

References Cited

UNITED STATES PATENTS

1,305,778	6/1919	Cushing et al.	101—269
3,045,589	7/1962	Hill et al.	101—269
3,183,834	5/1965	Narmor et al.	101—260
3,260,199	7/1966	Huntley et al.	101—269
3,274,931	9/1966	Patterson	101—269

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