

Sept. 27, 1966

J. M. PATTERSON, JR

3,274,931

PRINTING APPARATUS

Filed June 26, 1964

2 Sheets-Sheet 1

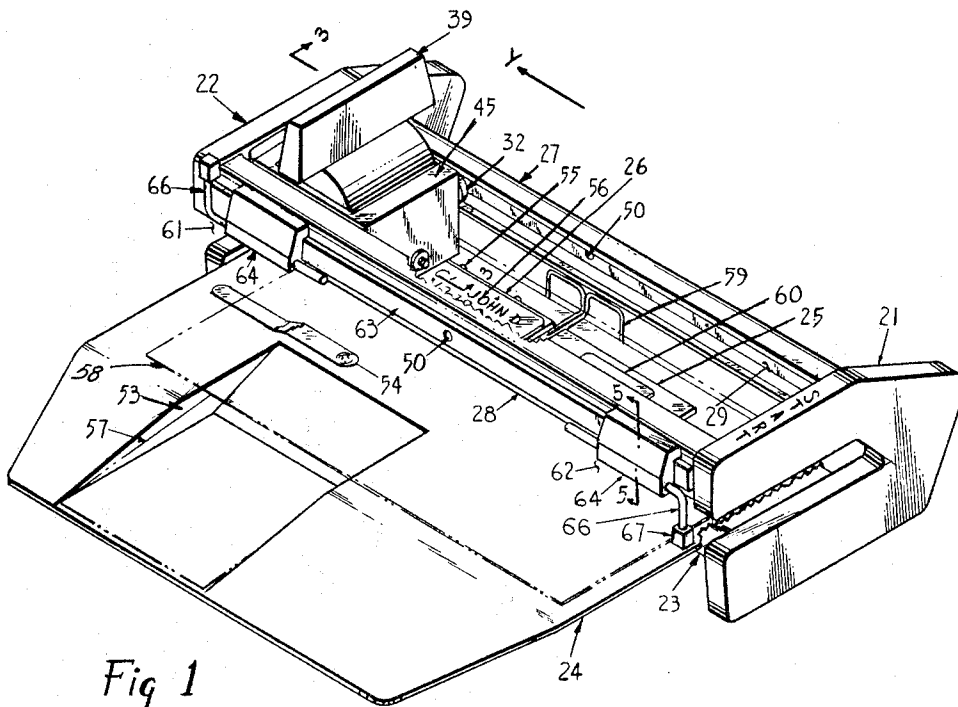


Fig 1

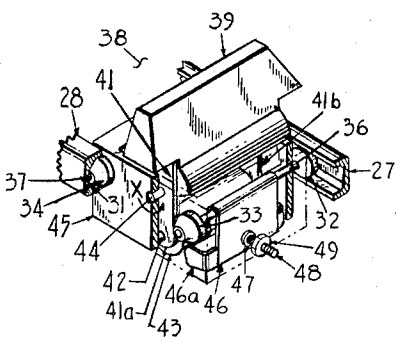


Fig 2

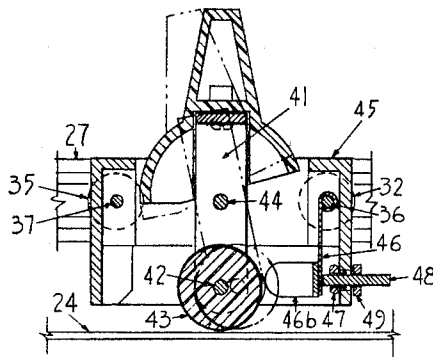


Fig 3

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2 Sheets-Sheet 2

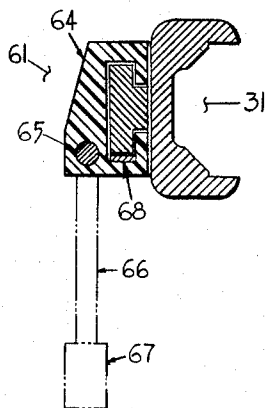


Fig 5

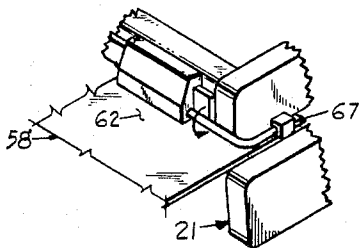


Fig 6

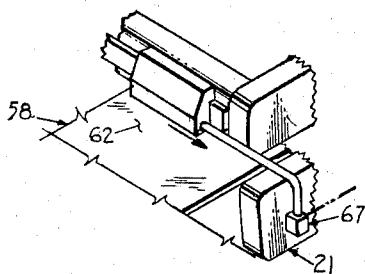


Fig 7

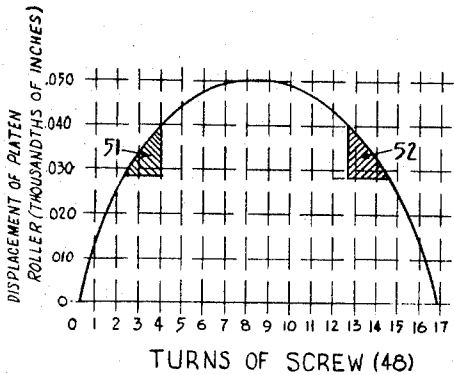


Fig 4

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3,274,931

PRINTING APPARATUS

James MacDowell Patterson, Jr., Springfield, Va., assignor to Farrington Business Machines Corporation, Springfield, Va., a corporation of Massachusetts
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2 Claims. (Cl. 101-269)

The present invention relates to a printing device and, more particularly, to an improved printing device for recording data on sales slip documents or the like by means of typographical plates of a kind suitable for use as identification tokens and adapted to be carried by individual customers.

Objects of the invention are to provide a printing device which produces clean cut and uniform printing, which operates conveniently and with little effort, which is simple and economical in construction, which can be assembled and disassembled easily and quickly, which permits the printing head and/or printing roller to be removed and/or adjusted easily and quickly, which is adaptable for virtually any size of documents or number of copies to be reproduced therefrom, and which is durable and reliable in use.

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 the imprinter constructed in accordance with the principles of the present invention.

FIGURE 2 is a perspective view of the platen head assembly and housing shown in FIGURE 1.

FIGURE 3 illustrates a section of the imprinter taken on the line 3-3 of FIGURE 1.

FIGURE 4 is a graphical chart illustrating the relationship between the adjusting screw mechanism and the distance of the platen roller from the printing bed.

FIGURE 5 shows an enlarged section of the imprinter taken on the line 5-5 of FIGURE 1.

FIGURE 6 is a detailed perspective view showing one possible arrangement of the right hand slide assembly shown in FIGURE 1.

FIGURE 7 is a detailed perspective view showing another possible arrangement of the right hand slide assembly shown in FIGURE 1.

Referring to the drawings, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in FIGURE 1, illustrating an embodiment of the present invention a pair of C-frame members 21 and 22, each being in parallel relationship with the other, yet spaced by a base channel 23. A tray member 24 is mounted upon the base channel 23 by suitable fastening means (not shown), there being affixed to the top of tray member 24, between C-frame members 21 and 22, a pair of anvils 25 and 26, the surface of which anvils defines the plane of a printing bed. On each side and overhead of the printing bed is located one of a pair of parallel guide rails 27 and 28, which guide rails are fastened at their ends to the upper portion of the respective C-frame members 21 and 22 by suitable means (not shown). The inner sides of the guide rails 27 and 28 are channelled to define a pair of paths 29 and 31 respectively, for guiding the bearings 32, 33, 34, and 35 shown in FIGURES 2 and 3, bearings 32 and 33 being mounted on a shaft 36 and bearings 34 and 35 being mounted on a shaft 37.

The bearings are employed to guide a platen head assembly, generally referred to as 38, over the printing bed

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for imprinting purposes as will hereinafter be described. The platen head assembly is comprised of a handle 39 to which is attached a U shaped bracket 41 having downward side extensions 41a and 41b the lower end of the side extensions being adapted to slideably receive a shaft 42 supporting a rotatable platen roller 43 whereby the platen roller is either of the ink or dry type. The middle portions of extensions 41a and 41b are bored to readily receive a rod 44. A housing member 45 is also bored to receive the rod 44 as well as shaft members 36 and 37, the latter, by way of bearings 32, 33, 34 and 35 being utilized to support the housing member 45 and thereby the platen head assembly.

The platen head assembly 38 is pivotally mounted within the housing member 45 by way of rod 44. Attached in swivelling fashion to shaft 36, inside the housing member 45, is a brace 46 having a U-shaped member on its lower portion consisting of extension pieces 46a and 46b. In the housing wall which is parallel to and immediately in back of brace 46, is fixedly positioned a threaded unit 47 adapted to receive a screw 48 for abutting the brace 46 at a right angle thereto. A lock nut 49 is employed to prevent further movement of screw 48 by locking the screw at the housing surface. By accurate adjustment of the screw 48, the bottom surface of the platen roller will be located, during a printing stroke, in a certain predetermined plane parallel to the printing bed, for as a printing stroke is manually effected in the Y direction, the printing head assembly will be rotated about rod 44 in the direction indicated by the arrow X, thereby causing side extensions 41a and 41b, respectively, to abut the extension pieces 46a and 46b of brace 46. One of a pair of slots 50 is located opposite each other in each of the guide rails 27 and 28 for readily removing shafts 36, 37 and rod 44 to easily disassemble the platen head assembly 38 or housing member 45. In such a manner the platen roller 45 may be easily replaced.

The preferred adjustment of the screw is disclosed as lying within the area determined by the shaded areas 51 and 52, shown in the graphical chart disclosed in FIGURE 4, wherein the bottom surface of the platen roller 43 is first arbitrarily set to be in a plane approximately .050 inch from the printing bed, when the median of the platen head assembly 38 is perpendicular to the printing bed as illustrated in FIGURE 3. Each of the areas 51 and 52, represents that position of the platen head assembly as it lies in one of the two respective quadrants about the median of the platen head assembly when the median is perpendicular to the printing bed as described above. The graphical chart shown is applicable when the center to center distance between rod 44 and shaft 36 is substantially one and three sixteenths inches, when the center of shaft 36 to the mid-portion of extension arms 46a and 46b is approximately one inch, and when the center to center distance between rod 44 and shaft 42 is substantially one inch.

In actual practice the platen head assembly adjustment is made on frequent occasions due to changes in the platen roller diameter; changes in the documents or printing plate; changes in the weather and environment, etc. The conventional technique normally employed to properly locate the platen roller with respect to the printing bed is to employ a plurality of shims to vertically shim down or up the moveable platen roller with respect to the platen head assembly, the latter being fixed relative to the printing bed. It can be seen that in the latter system a considerable amount of time is spent, and in addition, there is a necessity for shims of various dimensions to be carried by the adjustor. However, it is readily apparent that the adjustment mechanism in the present invention, unlike the conventional technique, is easily ma-

nipulated to produce quick and effortless, as well as improved results.

Shown in FIGURE 1 is a depressed portion 53 of the tray 24, a guide and clamp member 54, and a backstop member 55, each of which is utilized for properly locating a printing plate 56 on the printing bed, the printing plate 56 being attached to an elongated card 57 or equivalent means. A document 58, which is to be imprinted upon, could be of various lengths and/or widths, therefore, there is provided an extensible backstop 59 for guiding one edge of the document 58 to its proper position.

There is further provided a novel guide system to accommodate the varied widths of the document to be imprinted, consisting of a pair of slide assemblies 61 and 62, each of which is slideably mounted on a track 63, the track being an integral part of the guide rail 28. Each of the slide assemblies, as more clearly illustrated in FIGURE 5, comprises a block 64, preferably of plastic stock, having a T-shaped cut-out adapted to be compatible with the track member 63, and a bored hole 65 having one elbow of bent rod 66 press fitted therein, allowing the rod 66 to be rotated thereabout or moved lengthwise of the block 64. The other elbow of bent rod 66 is so designed to be fixed to a stop member 67 which bottom portion is flush with the surface of tray 24 as disclosed by slide assembly 62 on the right hand side of the imprinter shown in FIGURE 1, to thereby guide the left and/or right side of the document 58. Since guide rail 28 and therefore track 63 are parallel to the tray 24, the lower surface of stop member 67 will remain flush with tray 24, the lower surface of stop member 67 will remain flush with tray 24 as it is moved across the tray surface.

To ensure a tighter fit between track 63 and slide assemblies 61 and 62, and to urge stop member 67 against tray 24 leaf springs 68 are inserted at the bottom of the T-shaped cut-out in each of the slide assemblies. The leaf spring also permits the stop member 67 to be slightly displaced from the tray 24 when urged upward, allowing the bent-rod 66 to be rotated to a convenient out-of-the-way position when not in use, as disclosed by slide assembly 61 on the left hand side of the imprinter shown in FIGURE 1, or in the manner shown in FIGURE 6. If desired the stop member 67 may be moved lengthwise in the block 64 to extend beyond the tray surface, as shown in FIGURE 7, should the length of the document 58 warrant such a move.

In operation screw 48 is first adjusted for enabling a favorable imprint to be produced with the specific types of printing plates and documents to be employed. The printing plate 56 is then inserted into position on the printing anvil 26, as shown, being guided by the depressed portion 53, guide and clamp member 54, and backstop member 55. The document 58 to be recorded upon, is then placed on tray 24 over printing plate 56 as guided by pre-set backstop 59 and the pre-set stop members 67 attached to slide assemblies 61 and 62, for permitting only a certain area of the document 58 to overlie printing plate 57 and (when required) a dealer's plate 60. The handle 39 of platen roller assembly 38 is then pushed from the start position in the direction Y to; simultaneously rock the platen head assembly about rod 44 (counter clock-wise) in the X direction, positioning the platen roller 43 a predetermined distance from the printing bed as heretofore disclosed, and thereafter direct the platen roller assembly across the printing bed, printing plate 56 and record 58 to cause an imprint to be made on the document.

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 plates, a machine comprising a frame, a tray mounted on the frame at least a portion thereof forming a plane which defines a printing bed, means for positioning on the printing bed printing means to enable an impression to be transferred therefrom, means for positioning on said tray the document to be imprinted, means for providing at least a pair of spaced guide rails above and parallel to the plane of the printing bed, a housing, a pair of shafts extended through said housing, bearings mounted on the end of said shafts and adapted to be directed by said guide rails over the printing bed, a platen head assembly having a handle, a pair of members fixed to and extending from said handle, a shaft with a platen roller rotatably mounted on said extension members, a rod for pivotally mounting said platen head assembly in said housing, adjustment means for setting the distance to be displaced between the platen roller and the plane of the printing bed when the platen head assembly is rocked into engagement with the adjustment means, said adjustment means comprising means mounted in swiveling fashion from one of the shafts extending through the housing and adapted to abut the extension members carrying the platen roller, screw means threaded through one wall of said housing adapted to abut said swivel mounted means, and means for locking said threaded screw.

2. In the art of printing machines of the type adapted to use portable printing plates, a machine comprising a frame, a tray mounted on the frame at least a portion thereof forming a plane which defines a printing bed, means for positioning on the printing bed printing means to enable an impression to be transferred therefrom, means for positioning on said tray the document to be imprinted, means for providing at least a pair of spaced guide rails above and parallel to the plane of the printing bed, a housing, means for guiding the housing by way of said spaced guide rails over the printing bed, a platen head assembly having a platen roller rotatably attached thereto, means for pivotally mounting said platen head assembly in said housing, adjustment means for setting the distance to be displaced between the platen roller and the plane of the printing bed when the platen head assembly is rocked about said pivot means into abutment with said adjustment means, said means for positioning the document to be imprinted comprises an extensible backstop member for guiding one edge of the document and a slide assembly for guiding another edge of the document, said slide assembly comprising a block slideable the width of said tray on one of said guide rails, a bent rod having one of its elbows frictionally fitted in said block to be moveable lengthwise or rotatably with respect thereto, said bent rod adapted to be extensible in said block beyond the tray surface, a stop member mounted on the remaining elbow of said bent rod, and spring means biasing said block against said guide rail for urging said stop member flush with the tray when the stop member is adapted to guide the document.

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