Dec. 30. 1969 A. F. STOCKER 3,486,447

CLOSED BED IMPRINTER FOR IMPRINTING DOCUMENTS HAVING DIMENSIONS LARGER THAN THOSE OF THE IMPRINTER

Filed July 10, 1967 3 Sheets-Sheet 1

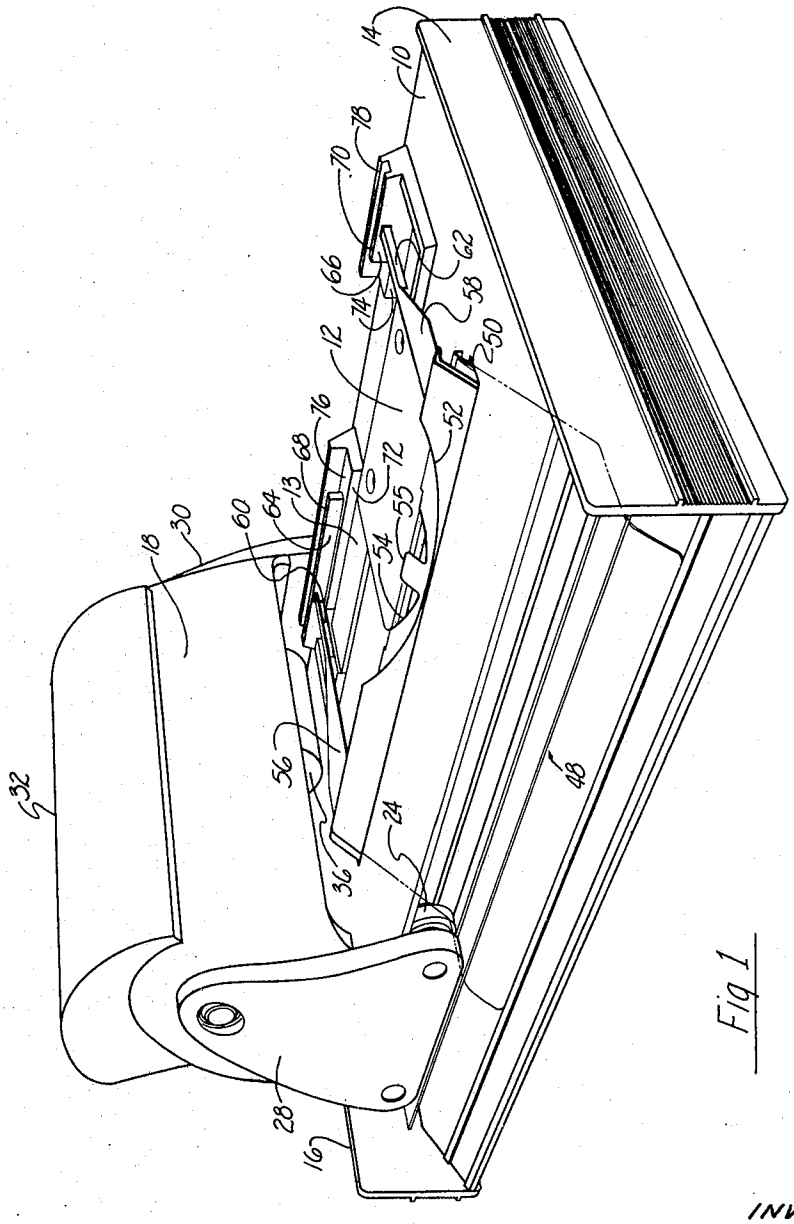


Fig 1

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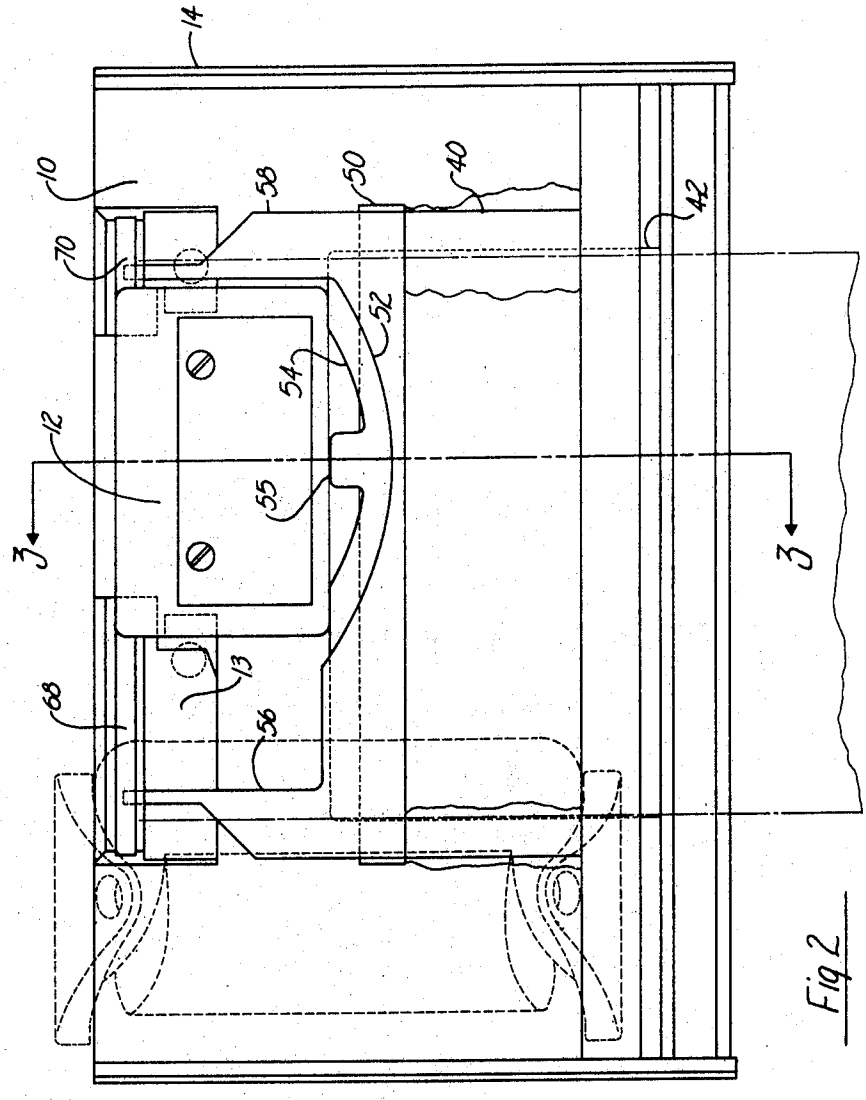


Fig 2

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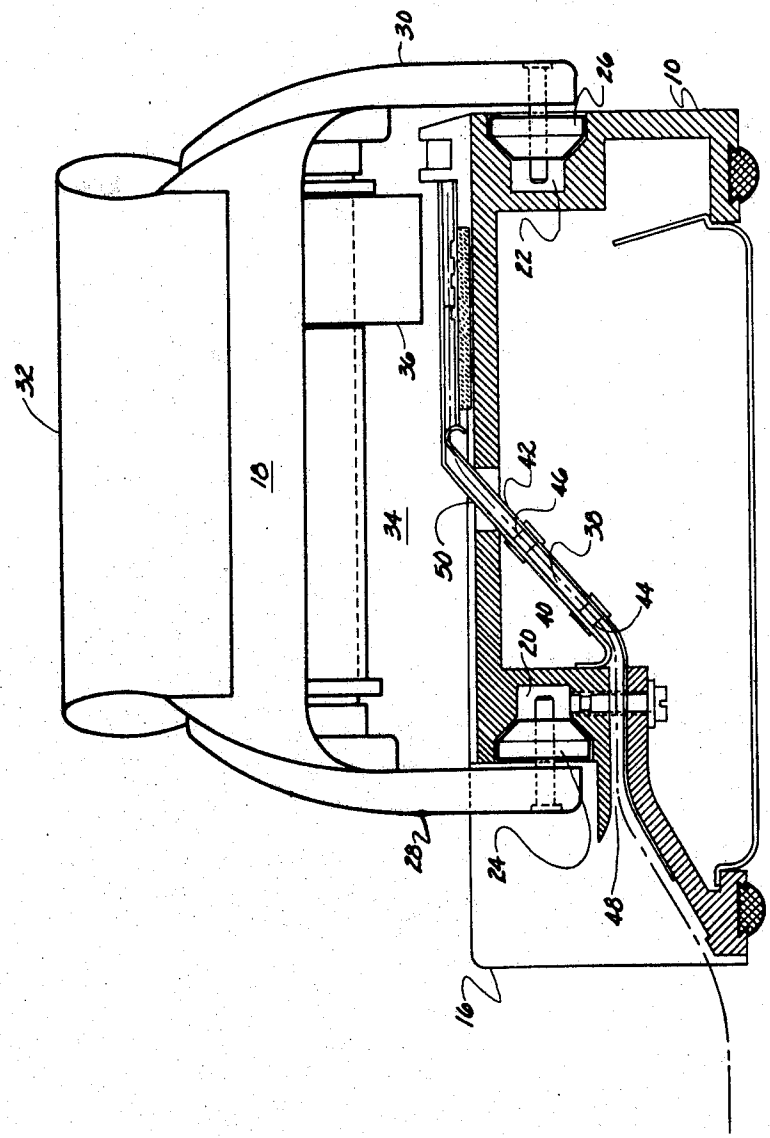


Fig. 3

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3,486,447

CLOSED BED IMPRINTER FOR IMPRINTING DOCUMENTS HAVING DIMENSIONS LARGER THAN THOSE OF THE IMPRINTER

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Int. Cl. B41l 47/46
U.S. Cl. 101—269 8 Claims

ABSTRACT OF THE DISCLOSURE

A printing machine, for use with a printing plate such as a credit card, is described which includes a printing bed on a frame, the bed including a portion adapted to support the printing plate. Disposed along the side of the frame are a pair of rails. A printing head is adapted for movement along the rails and over the printing bed. Documents having dimensions larger than the distance between the rails are accommodated by an extended slot which passes from a point at the side of the frame underneath the rail to an area of the printing bed approximately adjacent the portion adapted to support the printing plate. The document is inserted through the slot and the portion of the document upon which printing will occur is appropriately positioned on the printing bed.

RELATED APPLICATION

Application Ser. No. 482,086, now Patent No. 3,388,-660, William A. Wight, assigned to the assignee of the present application describes and shows a printing machine having characteristics similar to the present invention in that the printing head moves along a pair of spaced rails relative to the printing bed. However, in the Wight application the printing bed is inserted into position relative to the rails along which the printing head moves whereas in the present invention the printing bed is fixed relative to the rails.

BACKGROUND OF THE INVENTION

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

In printing machines of the type disclosed above, it is desirable in many applications to print the necessary data on a document having dimensions substantially larger than the dimensions of the printing machine. In certain printing machines such as that disclosed in the U.S. Patent 2,620,730 to C. H. Gilbert granted Dec. 9, 1952, this problem is overcome by pivoting the printing head with respect to the printing bed thereby permitting the placement of a document of almost any size over the printing bed prior to the pivoting of the printing head to a position over the bed. This type of printing machine is known in the art as the open-bed type. However, in the closed-bed type of printing machine, the printing head moves along a pair of spaced rails disposed at opposite sides of the frame in such a way that, at each point of its travel over the bed, an enclosed section is formed, the section being bounded by the platen of the printing head, the side legs of the printing head, and the printing bed. Such printing machines have been shown and described in the following prior art patents: J. A. Maul et al., 3,018,725 and 3,277,822; D. W. Johnson 3,272,120; and K. G. Huntley et al. 3,260,199. Because the enclosed section is formed in the closed-bed type of

machine, it has been necessary heretofore to restrict the size of the documents used with machine so that one of the dimensions thereof is restricted to a value less than the distance between the opposite sides of the frame.

The closed-bed type of printing machine is also distinguished from the printing machine where the printing head moves along a pair of rails which overhang the printing bed such as disclosed in U.S. Patent 3,056,347, granted to S. A. Dashew et al. In such a machine, an enclosed section is not formed as in the closed-bed type of machine. However, for many applications, the closed bed type of machine is preferred to the overhanging rail arrangement shown in the Dashew et al. patent.

SUMMARY

Thus, it is a primary object of this invention to provide an improved closed-bed type of printing machine which is capable of accommodating documents of a wide range of sizes.

It is a further object of this invention to provide an improved closed-bed type of printing machine wherein the document size accommodated thereby is not restricted by the distance between the rails of the machine.

The objects are accomplished in an illustrative embodiment of the invention by providing document passage means upwardly extending from an area at the side of the frame of the closed-bed machine and under the rail to an area of the printing bed. Thus, the documents may be inserted through the slot and the portion of the document upon which printing will occur is appropriately positioned on the printing bed.

BRIEF DESCRIPTION OF THE DRAWING

FIGURE 1 is a perspective view of an illustrative embodiment of a printing machine constructed in accordance with the present invention;

FIGURE 2 is a plan view, broken away, of the printing machine of FIGURE 1 with the position of the printing head indicated in dotted lines; and

FIGURE 3 is a section view taken substantially on the line 3—3 of FIGURE 2.

DETAILED DESCRIPTION OF AN ILLUSTRATIVE EMBODIMENT OF THE INVENTION

Referring to the drawings, where like reference characters designate like or corresponding parts throughout the several views, there is shown in FIGURES 1–3 a printing machine comprising a frame **10** upon which is mounted an anvil **12** disposed to receive an embossed customer identification printing plate or token (not shown), as is well known. The printing plate may be of the construction shown in U.S. Patents 2,620,729 or 3,034,430, being formed with raised characters.

The uppermost surface of the anvil **12** defines a portion of a printing bed. The printing bed also includes the uppermost surface of an additional anvil **13** (FIGURE 1), which would have affixed thereto such data as the station or store's address, assigned number for recording purposes, etc.

At each end of the frame **10**, respective end walls **14** and **16** are fixedly attached to prevent movement of a printing head **18** externally of the printing machine. Each side of the frame **10** is channeled to form respective parallel paths or rails **20** and **22** (FIGURE 3) for guiding mutual bearings **24** and **26**, which bearings support printing head **18**. The head **18** is comprised of a pair of shoulders or side legs **28** and **30**, a handle **32** and a platen assembly generally indicated at **34** and including platen **36**. The platen assembly **34** is mounted in side legs **28** and **30**. Thus, the printing head may be reciprocably moved over the printing bed for printing

data from the printing plate onto a portion of the document interposed between the printing bed and the platen **36** of the head **18**.

In order to accommodate documents, the dimensions of which are not restricted by the distance between the rails **20** and **22**, a document passage means or passageway **38** is provided. The passageway **38** includes an upper plate **40** and a lower plate **42** which are spaced apart by spacers **44** and **46** (FIGURE 3). A slot **48** is formed in one side of the frame **10** under the rail **20** as shown in FIGURE 3. The plates **40** and **42** are respectively attached to the top and bottom of slot **48** by appropriate fastening means. A slot **50** is also formed in the top of the frame **10**, the plates **40** and **42** passing through slot **50**. The plates **40** and **42** are respectively recessed at **52** and **54** as shown in FIGURE 2 to facilitate the withdrawal of the document from passageway **38**. A tab **55** may also be provided to facilitate withdrawal of the document over the printing bed. Connected to the upper plate **40** is a pair of rigid, horizontally extending members **56** and **58**, which act as document guide means for the document after it is drawn through the passageway **38**. The provision of these guide means is optional and in some applications, they may be dispensed with. Rather than employ rigid members **58** and **60**, it may be preferable in some applications to replace these members with a pair of wires (not shown). These wires would be so connected to the frame that they would be readily depressed upon passage of the platen thereover thereby preventing any interference with the movement of the platen.

To further facilitate the alignment of the document over the printing bed legs **60** and **62** may be respectively connected to members **56** and **58** as shown in FIGURE 1. Also the vertical walls **64** and **66** of members **68** and **70** cause alignment of the document over the printing bed. Members **68** and **70** also respectively act as anchors for the members **56** and **58** as shown in FIGURES 1 and 2. The vertical walls **72** and **74** of members **76** and **78** provide alignment for the printing plate.

In operation, the document is inserted into slot **48** and pushed through passageway **38** until its upper edge appears at the recessed portions **52** and **54**. At this point, the document is grasped and pulled through the passageway **38** to the printing bed where it is aligned against walls **64** and **66** and between legs **60** and **62**. The printing operation can next be performed in a manner well known in this art by movement of the printing head **18** across the printing bed. Of course, the height of the legs **56** and **58** is so adjusted as not to interfere with the movement of the platen across the printing bed. As can now be readily appreciated the document size accommodated by the printing machine is not limited by the distance between the rails **20** and **22** since, once a first portion of the document is positioned over the printing bed, a second portion of the document can be extending out of the slot **48** of the machine. Thus, by disposing the slot **48** of passageway **38** of the machine under the rail **20**, the limitation imposed by the prior art closed-bed printing machine on document size has been overcome in accordance with the teachings of this invention.

What is claimed is:

1. In a closed-bed printing machine, the improvement comprising a document passage means upwardly extending from an area at one side of the frame and under the rail at said one side through the frame to the top of the frame at an area approximately adjacent the printing bed

whereby the document dimensions are not restricted by the distance between the rails since the document may be inserted through the document passage means and over the portion of the printing bed which supports the printing plate.

2. The improvement as in claim **1** including document guide means for receiving the document from the document passage means and further guiding the document to the area of the bed adapted to support the plate.

3. A printing machine comprising:

a frame;

a printing bed on the frame including a portion for supporting a printing plate bearing data to be printed;

a printing head having side legs and including a platen, said side legs being connected to a pair of spaced rails respectively disposed at the sides of said frame so that said printing head may be moved over the bed for printing said data onto a portion of a document interposed between said printing head and the bed;

said printing head being so mounted on the frame to form, at each point of its travel over the bed, an enclosed section bounded by the said platen of the printing head, the side legs of the printing head and the printing bed; and

document passage means upwardly extending from an area at one side of the frame and under the rail at said one side through the frame to the top of the frame at an area approximately adjacent said printing bed

whereby said document dimensions are not restricted by the distance between said rails since said document may be inserted through said document passage means and over said portion of the printing bed for supporting said printing plate.

4. A printing machine according to claim **3** including document guide means at said printing bed for receiving the document from the document passage means and further guiding the document over the area of the bed adapted to support a printing plate.

5. A printing machine according to claim **4** wherein said document guide means is connected to the document passage means where the latter means intersects the top of the frame.

6. A printing machine according to claim **3** wherein the entrance of said document passage means includes a slot disposed in the said one side of the frame and the exit of said document passage means includes a slot disposed in the top of the frame.

7. A printing machine according to claim **6** wherein said document passage means comprises a pair of spaced plates, both of which are respectively secured to the said one side and top of the frame.

8. A printing machine according to claim **7** where said plates are recessed at a portion adjacent said top of the frame to facilitate the withdrawal of the document from the document passage means.

References Cited

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