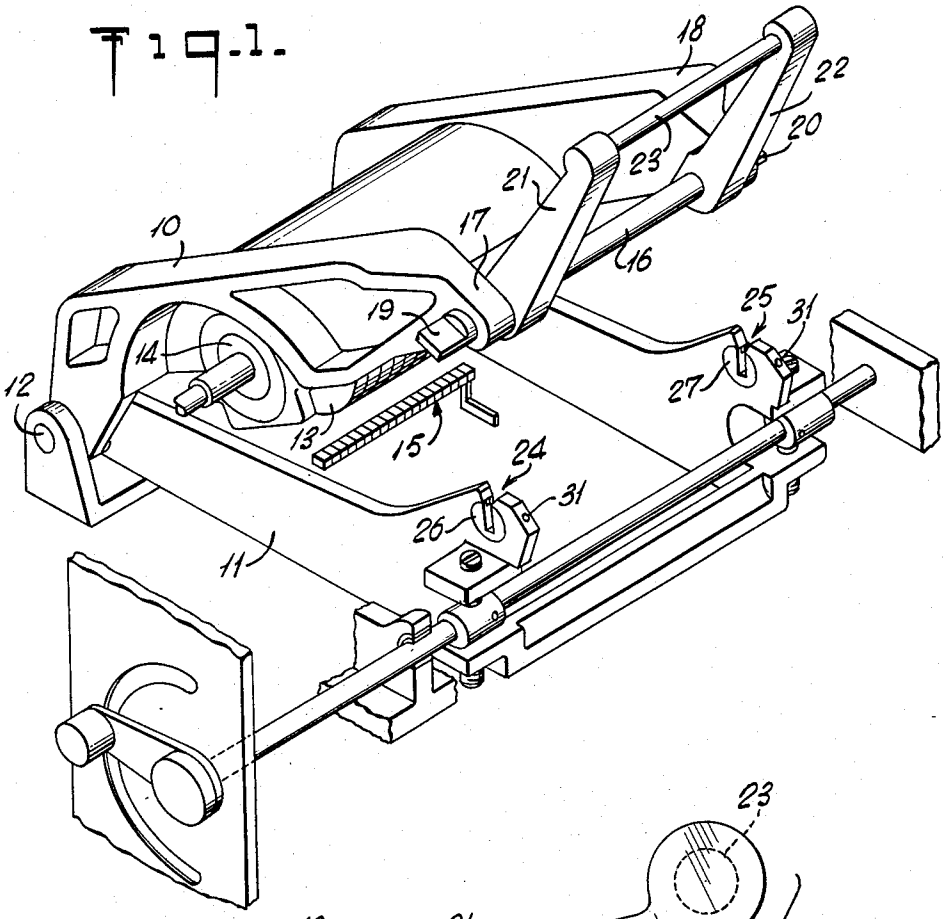
Jan. 21, 1964 C. J. ANTONUCCI 3,118,369

DRUM HOUSING LATCH ASSEMBLY

Filed Dec. 11, 1961

Fig. 1.



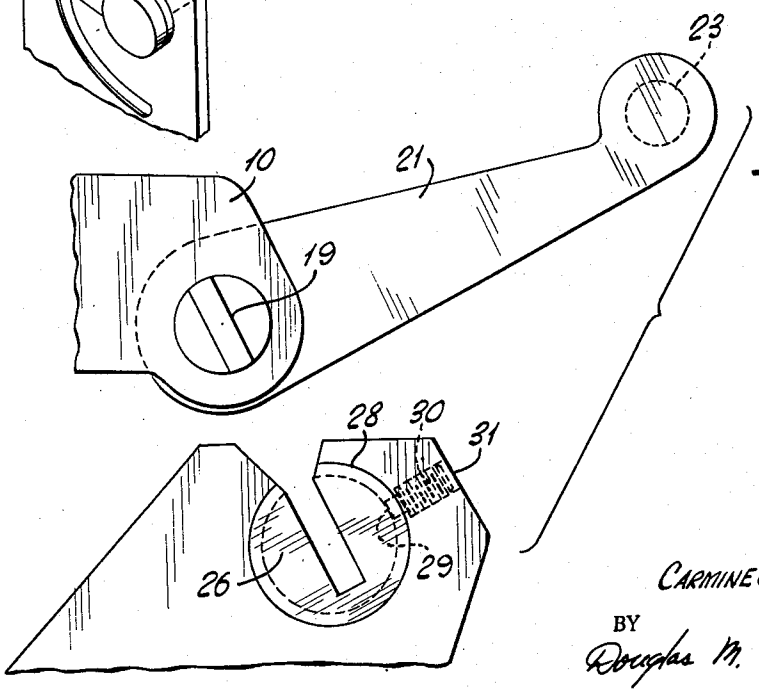


Fig. 2.

INVENTOR.
CARMINE J. ANTONUCCI

BY
Douglas M. Clarkson
ATTORNEY

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DRUM HOUSING LATCH ASSEMBLY

Carmine J. Antonucci, Uniondale, N.Y., assignor to Potter Instrument Company, Inc., Plainview, N.Y., a corporation of New York

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The present invention, generally, relates to high speed printers and, more particularly, to a latch assembly adapted to attach a pivotable frame portion of the printer firmly and accurately in a printing position.

High speed printers of the type with which the present invention relates must achieve high speeds primarily because the input is supplied by computer apparatus at relatively high speeds. The high speeds which are attained require that the frame portions of the printer apparatus be substantially rugged, massive and arranged rigidly relative to component parts thereof to avoid the development of vibrations which would affect the printing operation.

In such printer apparatus, it is necessary to have one portion of the frame attached to pivot away from another frame portion for such purposes as access to inner component parts for repairs, inserting paper supplies, etc. It is essential, therefore, that a latch assembly for attaching any movable frame portion in a printing position be at least as rugged as the frame itself, and more importantly, it is essential that such a latch assembly return the movable frame portion to an accurately predetermined position.

Accordingly, it is a principal object of the invention to provide a latch assembly to attach a movable frame portion of a high speed printer in a printing position.

A further object of the invention is to provide a latch assembly for detachably securing one member in an accurately predetermined portion relative to another member.

Another object of the invention is to provide a latch assembly adapted to releasably attach one portion of a high speed printer frame to another frame portion in a positive accurately predetermined relationship.

Briefly, the invention contemplates a high speed printer apparatus having a plurality of printing hammers and a printing surface spaced therefrom. A portion of the printer frame is pivotable to permit separation of the printing hammers and the printing surface. In accordance with the invention, a latch to attach the separable frame portions in a printing position includes a blade-like element having a handle means attached thereto. A slot is adapted to receive the blade portion, and a circular insert in the slot permits the innermost end of the slot to be rotated when the blade is inserted and the handle turned, so that the blade is locked positively in place.

With these and other objects in view, the nature of which will become more apparent, the invention will be understood more fully by reference to the drawings, the accompanying detailed description and the appended claims.

In the drawings:

FIG. 1 is a view in perspective of a portion of a high speed printer apparatus wherein one frame part is pivotable relative to another, and a latch assembly in accordance with the invention is adapted to secure the pivotable frame positively in a printing portion; and

FIG. 2 is a side view in elevation of one end of the latch assembly only, shown in FIG. 1.

Referring now to a preferred form of the invention, having particular reference to FIGS. 1 and 2 of the drawings, the numeral 10 identifies a pivotable frame portion, and the numeral 11 identifies a fixed frame portion of a high speed printer apparatus. The two frame portions 10 and 11 are pivotable about a common axis 12, although it is only necessary that they be pivotable relative to each other.

As seen in the drawings, a print drum 13 is supported by suitable bearings 14 on the frame portion 10, and when in a printing position, the surface of the print drum 13 is spaced an accurately predetermined distance from a plurality of printing hammers 15. However, it is necessary that the print drum 13 and the frame portion 10 be pivotable away from the fixed frame portion 11 and the hammers 15 to permit the insertion of a supply of paper for printing purposes. With the printing paper in place, it is necessary to return the frame portion 10 and the print drum 13 to its printing position, and it is necessary that the pivotable frame portion 10 be held positively and accurately in the same printing position during any printing cycle. To provide this hold or latching function, a latch assembly is provided for locking the two frame portions in place and for providing a self-aligning of the print drum 13 in the event that the pivotable frame portion 10 is distorted even slightly when in an open position.

A bar 16 extends across the pivotable frame portion 10 between flanges 17 and 18, and opposite ends of the bar 16 are flattened to provide blade-like elements 19 and 20, respectively. A lever 21 and a lever 22 are attached to the bar 16 at spaced apart locations, and a handle 23 spans the distance between the two levers 21 and 22 for grasping and rotating the blade-like elements 19 and 20.

The fixed frame portion 11 is provided with slots 24 and 25 at spaced apart locations to receive, respectively, the blades 19 and 20. Circular inserts 26 and 27 are within the frame 11 about each slot 24 and 25 so that with the blades 19 and 20 in place within the slots 24 and 25, pivoting the handle 23 will turn the blades 19 and 20 and the inserts 26 and 27 to approximately 90 degrees from the position shown in FIG. 1, thereby positively locking the two frame portions 10 and 11 together.

In addition to the locking feature, any distortion of the frame portion 10 will be corrected by the rotation of the blades 19 and 20 within the inserts 26 and 27.

In FIG. 2 of the drawings it is seen that each circular insert, insert 26 for example, is provided with an annular groove 28 in which rides a pin 29. The pin 29 is urged into the groove 28 by a spring 30 adjusted through an opening 31 by means of a suitable wrench. A principal purpose of the pin 29 and the groove 28 is to prevent the insert 26 from slipping laterally and to keep the slot accessible while the blade is removed.

Inasmuch as the invention herein described is susceptible to many variations by one skilled in the art, all such variations are intended to be included within the scope of the invention as set forth in the claims appended hereto.

What is claimed is:

1. In a high speed printer apparatus having
a plurality of printing hammers and a printing surface spaced therefrom,
a pivotable frame portion to permit separation of said printing hammers and said printing surface,
and latch means to attach said pivotable frame portion in a printing portion,
said latch means comprising a bar having flattened ends to form blade-like elements,
handle means attached to said bar to pivot said bar to a predetermined angle,
said printer apparatus having two slots spaced apart to receive said blade-like elements respectively, and
a circular insert mounted rotatably to form the innermost end of each of said slots permitting the innermost end of each slot to be rotated when the respective blade-like element is inserted and the handle turned to lock said pivotable frame portion positively.

2. In a high speed printer apparatus having

a plurality of printing hammers supported by a base frame portion and a printing surface supported in spaced apart relationship therewith by a pivotable frame portion to permit separation of said printing hammers and said printing surface,

and latch means to attach said pivotable frame portion in a printing position with said base frame portion,

said latch means comprising a bar having flattened ends to form blade-like elements,

said bar being journaled in spaced apart flanges extending from said pivotable frame portions,

at least two levers fixedly attached at spaced apart points on said bar,

handle means extending between said spaced apart levers to permit grasping and turning said blade-like element through a predetermined angle,

said base frame portion having edges at spaced apart locations with slots to receive respective ones of said blade-like elements,

a circular insert mounted rotatably within the edges to form the innermost end of each of said slots to permit the innermost end of each slot to be rotated when

the respective blade-like element is inserted and the handle turned,

the outermost ends of said slots being flared away from each other to permit each respective blade-like element to be inserted easily, and

means to retain each circular insert in place.

3. In a high speed printer apparatus as set forth in claim 2 wherein said means to retain said circular insert in place includes a spring-urged pin bearing against the outer peripheral surface of each circular insert.

4. In a high speed printer apparatus as set forth in claim 2 wherein each of said circular inserts has a groove extending around its outer peripheral surface, and a spring urged pin fitted within said groove to retain each circular insert in place.

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