

May 22, 1956

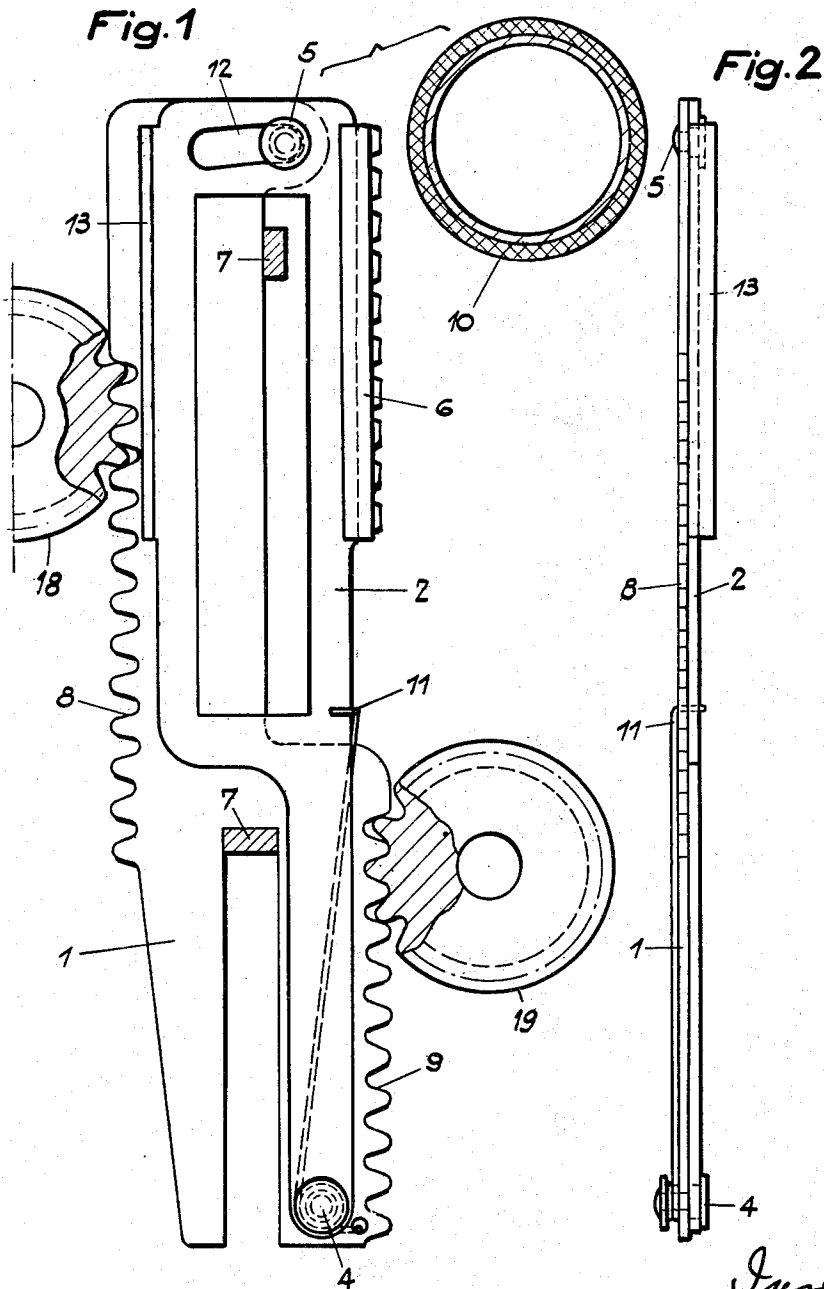
E. MÜLLER

2,746,385

TYPE BARS FOR CALCULATING-AND BOOKKEEPING MACHINES

Filed May 20, 1952

2 Sheets-Sheet 1



Inventor
Ernst Müller
By
Singer Stern & Carlsberg
attys

May 22, 1956

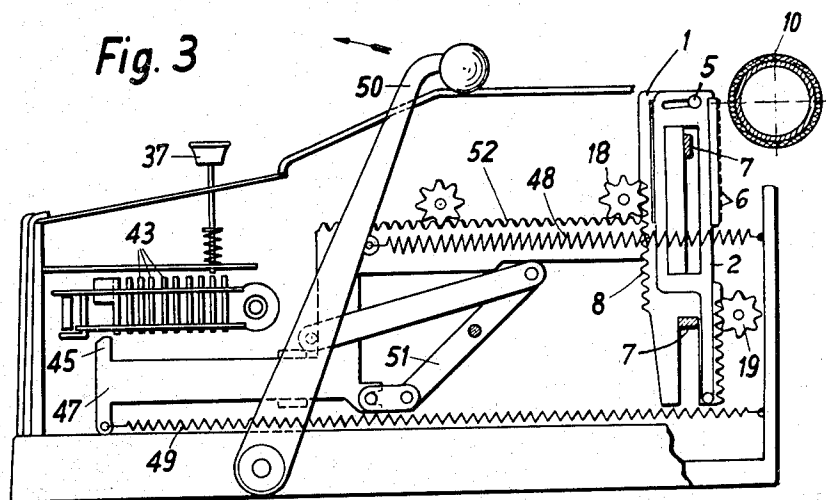
E. MÜLLER

2,746,385

TYPE BARS FOR CALCULATING-AND BOOKKEEPING MACHINES

Filed May 20, 1952

2 Sheets-Sheet 2



Inventor
Ernst Müller
By
Singer Stern & Carlberg
attys

1

2,746,385

TYPE BARS FOR CALCULATING AND BOOKKEEPING MACHINES

Ernst Müller, Zurich, Switzerland, assignor to Precisa A. G. Rechenmaschinenfabrik, Zurich, Switzerland

Application May 20, 1952, Serial No. 288,822

3 Claims. (Cl. 101-109)

The invention relates to calculating and bookkeeping machines, and more particularly to the elements thereof which carry the types for printing the numerals or characters.

Some of such calculating and bookkeeping machines use type racks which are vertically guided in operation, and are actuated by means of intermediate pinions and toothed racks. Individual types are used in such machines for the numerals or characters which are held in a cage and are horizontally projected against the platen by the printing mechanism. These individual types are brought into their rest position by means of compression springs.

Such type racks are, however, very expensive to produce since the numeral types have to be milled and stamped individually. Moreover their mounting is very laborious since the types have to be fitted individually. Finally these types have to be set individually after having been fitted to the machine, in order to attain a uniform level of the typing.

The invention has for one of its main objects the overcoming of these difficulties and in providing a type rack for calculating and bookkeeping machines wherein the setting of all types is effected simultaneously and preferably in the course of the production of the type racks without requiring any subsequent adjustment.

Another object of the invention is to provide a type lever and type bar rack arrangement for calculating and bookkeeping machines and the like consisting of but a few simple parts that are so formed that they may be quickly correlated and joined together to form finished unitary assemblies ready for use in machines of the kind mentioned.

A further object of the invention is to provide a unitary assembly of this kind wherein precision and uniformity are obtained in producing counterpart assemblies, thereby reducing manufacturing costs by eliminating the necessity of considerable hand labor and individual fitting when arranging the assemblies in a machine.

With these and other objects in view I provide a type rack for calculating and bookkeeping machines comprising in combination: a toothed rack guided in operation vertically in the said machine, a tiltable type lever pivoted to the said toothed rack and preferably biased into a rest position relative thereto by a spring engaging the said type lever and the said toothed rack, and a set of type forming an integral piece carried by the said type lever to which it is, for example, cast or spray-deposited.

These and other features of the invention will become apparent from the following description of an embodiment thereof given by way of example with reference to the accompanying drawing, and while I am going to describe and illustrate what may be considered a typical and particularly useful embodiment of my said invention, I wish it to be understood that I do not limit myself to the particular details and dimensions shown and de-

2

scribed, for obvious modifications will occur to a person skilled in the art.

In the drawing:

Fig. 1 is a lateral elevation, and

Fig. 2 is a rear elevation of a type rack according to the invention.

Fig. 3 is a lateral elevation of a typical calculating machine to which the invention can be applied.

Referring first to Fig. 3, each type rack 1 is guided vertically on the machine frame, and a toothed rack 8 at its back meshes with an intermediate gear wheel 18, which in turn meshes with a horizontal toothed rack 52. The latter can be moved in the horizontal direction by a tension spring 49, attached to a fixed part of the machine, when released by a cross bar 51 operated by a hand lever 50 against the action of a tension spring 48. The extent at which the racks 52 are shifted is controlled by the pins 43 cooperating with projections 45 of slides 47 integral with the racks 52. These pins are controlled by the number keys 37 of the adjusting mechanism.

In Figs. 1 and 3, the toothed rack 1 is shown to be guided vertically on the guides 7, 7 and to carry on its back one set of teeth 8, and on its front another set of teeth 9. The set of teeth 8 on the back meshes with an intermediate pinion 18 which in turn meshes with the associated one of the toothed racks 52 before mentioned of the adjusting mechanism, while the frontal set of teeth 9 meshes with an intermediate pinion 19 which in turn meshes with the repeater mechanism (not shown) of the calculating or bookkeeping machine.

By means of these sets of teeth 8, 9 the toothed rack 1 is adjusted in operation to the required level relative to the platen 10.

The toothed rack 1 and a type lever 2 are pivotally connected together at the bottom ends for relative swinging movement about a pin or stud 4. A spring 11 tends to retain the type lever 2 in its rest position as shown in Fig. 1. A rivet or stud 5 on the top end of said rack and a slot 12 in the like end of said type lever 2 serve to limit such movement and provide for the mutual guidance of the parts 1, 2. The slot 12 is an arcuate one and has its axis coincident with that of the pin or stud 4. As will be seen, the type lever 2 carries a set of types 6 along its top front edge and which types are stamped or cast integrally as one piece, whereby the expensive setting of the types as well as the fitting of the individual numerals or characters is dispensed with. The upper end of the type lever 2 is provided at its rear or back edge with an abutment ledge 13 which is adapted to be acted upon by the printing mechanism of the associated machine in the usual way.

The construction of the type lever and type bar rack as described has the advantage that it may be produced as a unitary assembly and, if desired, said assembly can be fitted subsequently to existing machines which previously were equipped with vertically guided type racks having the numerals arranged in a cage. Fitting the new type lever and type bar rack assembly does not involve any alterations of the other components of the machine whatsoever.

A calculating machine showing the general arrangement to which the present invention may be applied is disclosed for example in the patent specification No. 2,062,963 of Eugen Benninger, issued December 1, 1936.

What I claim as my invention and desire to secure by Letters Patent, is:

1. A type rack for calculating and bookkeeping machines comprising in combination: a toothed rack slidably mounted in said machine and arranged to be guided vertically during operation when controlled by the actuating mechanism of said machine, a toothed rack series

3

of teeth on opposite edges thereof adapted to be engaged by the actuating mechanism of said machine, a type lever rockably mounted on said tooth rack with its lower end pivoted to the lower end of said rack, a spring arm encircling said pivot with one end affixed to said rack and the opposite end engaging said type lever to yieldingly urge said lever in an inoperative position, a pin and slot connection between the upper ends of said tooth rack and type lever to guide said type lever in its to and fro movement with respect to the machine platen, and a set of type formed integral with said type lever and extending along one of the vertical edges thereof.

2. A type rack for calculating and bookkeeping machines and comprising in combination therewith, a relatively flat bar mounted in the machine for guided longitudinal movement under the control of the actuating mechanism of said machine, rack teeth at opposite edges of said bar engageable by parts of said mechanism for imparting said longitudinal movement to said bar, a type lever pivotally mounted at one end on one end of said bar for a to and fro swinging movement in a plane parallel the edges of said bar, type characters integral with one edge of the other end of said lever, a pin and slot connection between the other ends of said bar and lever respectively for guiding and limiting said movement of said lever relative to said bar, at least in one direction, and spring means engaged with parts of said bar and said lever respectively normally operating to yieldingly urge said lever into its inoperative position with respect to the platen of said machine.

3. As an article of manufacture, a type lever and rack assembly for calculating and bookkeeping machines and the like, comprising a relatively flat bar like member

4

having a bifurcated lower end and provided with gear engaging rack teeth along its front and rear edges, and a type bar lever disposed along one side of said member and having type characters along the front edge of its upper end, means providing a pivotal connection between the lower ends of said lever and member respectively and whereby said lever may swing to and fro relative to said member in the direction of the plane of the edges of said member, means providing a pin and slot connection between said lever and said member at a point spaced longitudinally from said pivotal connection for limiting the relative swinging movement of said lever and said member, spring means operatively engaged with parts of said lever and said member respectively and tending to swing the lever rearwardly into its inoperative position on said member, and means carried by the rear upper end of said lever forming an engageable actuating abutment therefor.

References Cited in the file of this patent

UNITED STATES PATENTS

1,225,655	Landseidel	May 8, 1917
1,240,256	Quentell	Sept. 18, 1917
1,334,758	Horton	Mar. 23, 1920
1,336,840	Johantgen	Apr. 13, 1920
1,396,215	Johantgen	Nov. 8, 1921
1,508,532	Quentell	Sept. 16, 1924
1,542,223	Dolph	June 16, 1925
2,165,922	Garbell	July 11, 1939
2,307,669	Crosman	Jan. 5, 1943
2,405,562	Ellerbeck	Aug. 13, 1946
2,561,646	Benninger	July 24, 1951