

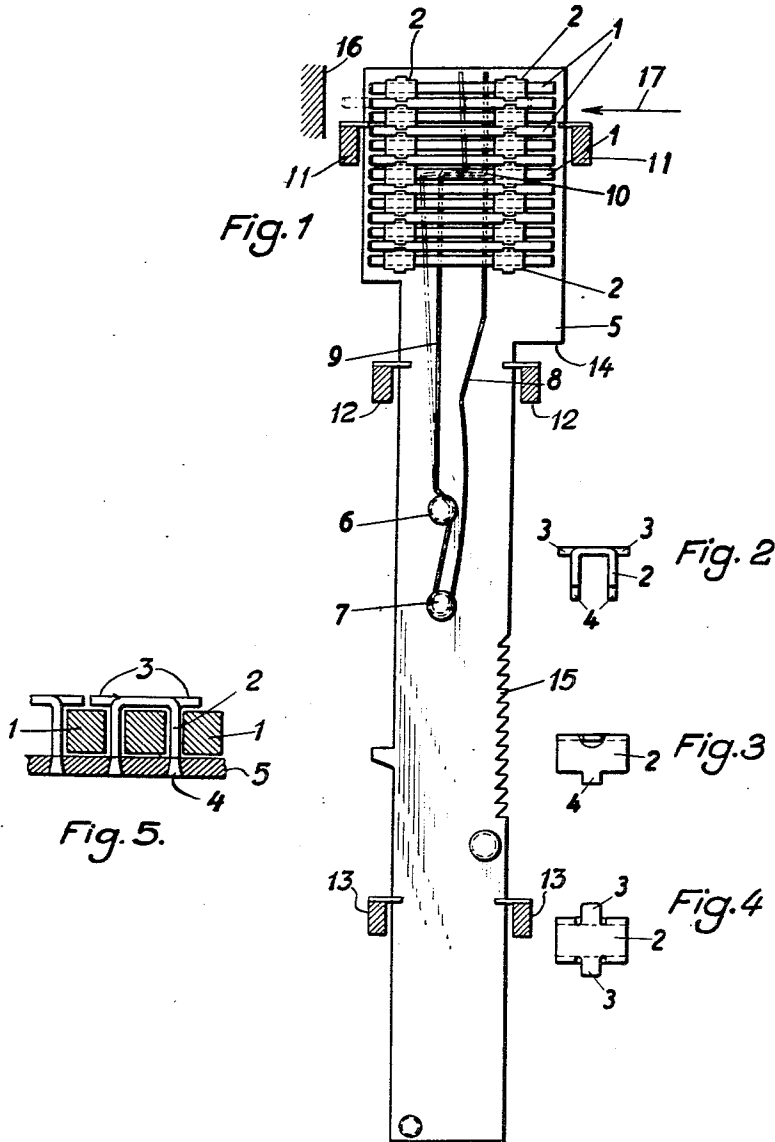
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TYPE MAGAZINE FOR BUSINESS MACHINES

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TYPE MAGAZINE FOR BUSINESS MACHINES

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4 Claims. (Cl. 101—109)

My invention relates to business machines such as cash registers, calculating or accounting machines, and particularly to the type magazines for the pertaining printing apparatus.

It is desirable to place the type members in such magazines as closely together as feasible in the direction of the type-selecting movement to be performed by the carrier on which the type members are mounted. This desirability stems from the fact that the displacement of the type carrier needed for the selection of the last type in a type row increases with the length of the row, and that an increased carrier displacement involves corresponding larger structural demands and requires more time for each printing. There is a limit to increasing the speed of the carrier because the proper stopping of the carrier becomes increasingly difficult with larger speeds. There is also a limit to reducing the size of the type faces because certain minimum dimensions are needed for readability of the printed text and for sufficient mechanical strength against bending.

It is an object of my invention to devise a type magazine in which the type-selecting movement is greatly reduced without requiring a reduction in the size and strength of the individual type member as compared with those of comparable known devices. Another object is to design the type magazine in such a manner that the individual type members can be arranged so closely together that the interstices are not larger than needed for mechanical tolerance.

While a type magazine meeting the aforementioned objects is disclosed in copending application Serial No. 179,445, filed August 15, 1950, now Patent No. 2,681,616, entitled "Type Magazine Device for Business Machines" and assigned to the assignee of the present invention, it is a further object of the present invention to satisfy the above-mentioned aims while also greatly reducing the number of guide parts needed for slidably mounting the type members on their carrier. Another particular object of my invention is to greatly reduce the length of the type members as well as their width without foregoing any of the above-mentioned objects.

According to a feature of the present invention, the means that secure a group of elongated and mutually parallel type members on a common type carrier and that permit each member to individually slide in its axial direction consist of guide parts of which each individual one is in slidable engagement with two or three immediately adjacent type members.

According to another feature of my invention, each of these guide parts is substantially U-shaped and straddles one type member, while a lateral lug projecting from the U-shaped part is in overlapping engagement with an adjacent type member. The two legs of the U-shaped part extend through the respective interstices between two adjacent type members and are riveted or otherwise secured to the displaceable type carrier.

These and other features of my invention are apparent from the embodiment exemplified on the drawing and described in the following. In the drawing:

Fig. 1 shows a complete type magazine assembly;

Figs. 2, 3 and 4 show respectively a front view, a side view and a top view of one of the guide parts of the same assembly; and

Fig. 5 shows a partial cross section along a vertical plane through one of the rows of guide parts in the assembly of Fig. 1.

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As illustrated in Fig. 1, a number of elongated type members, in this instant a total of thirteen, are mounted on a flat type carrier 5 of sheet metal. The type members 1 consist of slide bars which extend parallel to one another and are slidably secured to the carrier 5 by two vertical rows of guide parts 2 so that each bar is individually displaceable in its axial direction relative to the carrier.

Each guide part 2 is bent into a substantially U-shaped configuration and has two lateral projections or lugs 3 which are punched out of the material of the guide part. Two further projections 4 at the respective leg ends of each part pass through respective openings in the type carrier 5 and serve as rivets for firmly securing the guide part to the type carrier.

Two studs 6 and 7 fastened to the type carrier 5 serve as abutments for a generally hairpin-shaped spring. One limb 8 of the spring bears against the lower six type members 1 while the other limb 9 bears against the upper seven type members. To this end, the limb 9 has a nearly rectangular bend at 10. Each individual type bar has a shoulder abutted by one of the spring limbs. Such a design of the spring has the advantage that the spring forces acting upon the type members are better equalized so that the upper seven type members are subjected to about the same spring force as the lower six type members.

The type carrier 5 is guided for vertical motion by stationary guides, for instance those shown at 11, 12 and 13. Normally the type carrier 5 is in its lowermost position which is determined by some suitable stationary stop. In the illustrated embodiment, for instance, a stop face 14 of the type carrier then rests upon one of the guides 12 which thus acts as a stop. The type carrier 5 has a rack portion 15 which is engageable with a control mechanism (not shown) of the machine. When the type carrier is in its lowermost position, the uppermost type member 1 lies in front of the printing area schematically indicated at 16. When the type carrier 5 is raised, another type member is placed in the printing position, for instance as shown, the second type member counted from the top. When the printing hammer or platen (not illustrated) is actuated, it hits upon the selected type member in the direction and at the place of the arrow 17 and thus forces this type member toward the printing area. The left-hand ends of the type members carry respective type faces. After each actuation, the spring limb 8 or 9 returns the type member into the initial position.

It will be recognized that, since only the narrow width of one leg of each guide part 2 enters between two adjacent type members, the spacing between two adjacent members can be reduced to the utmost minimum so that this spacing is smaller than the vertical width of the type member. Nevertheless the guide parts at either side of the type member group may be arranged within a single vertical row. As a result, the horizontal width of the type member group is much smaller than otherwise required. Due to the fact that only each second type member is straddled by one of the guide parts in each row, only about one half of the number of guide parts are required than are otherwise needed.

I claim:

1. A printing type magazine device for business machines, comprising a displaceable type carrier having a flat surface, a group of elongated rectangular type members extending parallel to one another in a direction transverse to the carrier displacement and being individually movable in said direction relative to said carrier, and two rows of guide parts mounted on said carrier and slidably securing one side of each of said type members against said flat surface of said carrier, each guide part embracing the remaining three sides of its respective type member, said rows standing parallel to the carrier displacement and being spaced from each other in said transverse direction, and each of said guide parts being U-shaped and having spaced legs the ends of which are individually mounted on said carrier, said guide parts having outwardly extending portions in engagement with the sides opposite said one side of two adjacent ones of said type members.

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2. A printing type magazine device for business machines, comprising a displaceable type carrier, a group of elongated type members extending parallel to one another in a direction transverse to the carrier displacement and being individually movable in said direction relative to said carrier, two rows of guide parts, said rows being spaced from each other in said direction and the guide parts of each row being aligned in the displacement direction of said carrier and being individually mounted on said carrier for slidably securing said type members thereto, each of said guide parts straddling the side of alternate ones of said type members, each of said guide parts having a lateral projection overlapping a portion of the side of an adjacent type member, said guide parts having legs which extend across the width of said type member and project into said carrier at the opposite side of the type members.

3. A printing type magazine device for business machines, comprising a displaceable carrier plate, a group of elongated type members extending parallel to one another in a direction transverse to the carrier displacement and being individually movable in said direction relative to said plate, said members being spaced from each other a distance less than the width of each individual member in the plane of the plate, and a number of guide parts individually mounted on said carrier for slidably securing said type members thereto, each of said guide parts having a U-shaped portion straddling the sides of alternate ones of said type members, each of said guide parts having two laterally projecting lugs overlapping portions of the sides of adjacent type members, said guide parts having legs which extend across the width of said type members and project into said carrier at the opposite side of the type members.

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4. A printing type magazine device for business machines, comprising a displaceable type carrier, a group of elongated type members extending parallel to one another in a direction transverse to the carrier displacement and being individually movable in said direction relative to said carrier, and a number of guide parts individually mounted on said carrier for slidably securing said type members thereto, each of said guide parts consisting of a punched piece of sheet material having a substantially U-shaped portion and having two punched-out lugs laterally projecting from said two each of said guide parts straddling the sides of alternate respective ones of said type members, said punched-out lugs of each guide part overlapping portions of the sides of adjacent type members, said guide parts having legs which extend across the width of said type members and project into said carrier at the opposite side of the type members.

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