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TYPE BAR SUPPORTING FRAME.

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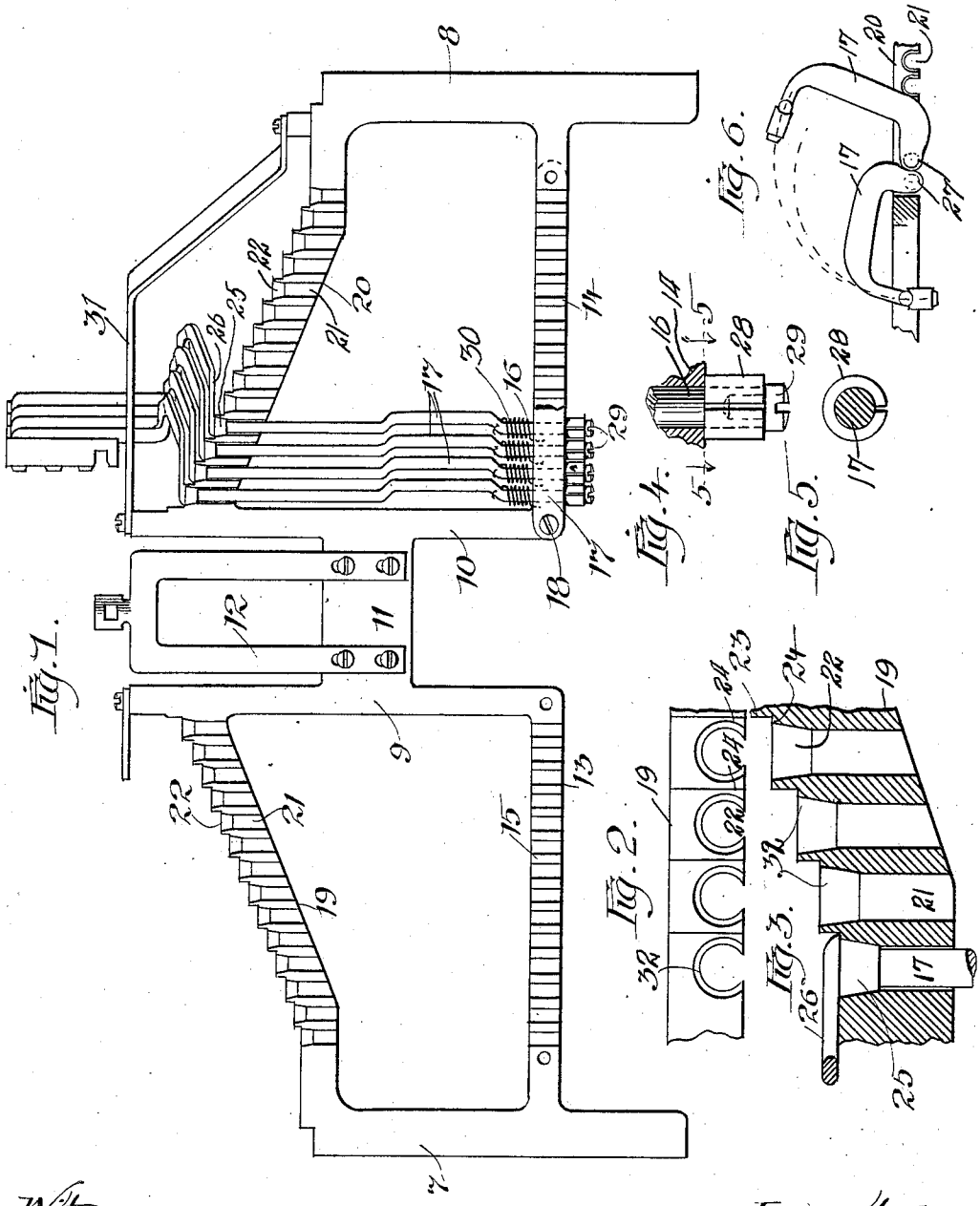
1,018,989. Patented Feb. 27, 1912.



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UNITED STATES PATENT OFFICE.

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TYPE-BAR-SUPPORTING FRAME.

1,018,989. Specification of Letters Patent. **Patented Feb. 27, 1912.**

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To all whom it may concern:

Be it known that I, JOSEPH RABER, a citizen of the United States, residing at Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Type-Bar-Supporting Frames, of which the following is a specification.

The frame of the present invention is adapted to serve as the support and mounting for the bank or banks of type bars upon which are mounted the type of a typewriting machine.

One of the objects of the present invention is to so construct the frame that when the type bars are mounted thereon any individual bar of the set of bars can be removed from the frame without the necessity of removing or disturbing any of the remaining bars.

Another object of the invention is to provide a cone-shaped groove in one of the rails of the supporting frame, which will receive a cone-shaped member on the type bar, thus providing a mounting for the type bar within the frame, whereby, when the wearing of the parts takes place, the bars can be readjusted so as to regain a firm seat within the frame. And a further object is to maintain a firm seat along the top of the frame for the swinging portion of the type bars.

Further objects of the invention will appear from the detailed description of the parts hereinafter described and claimed.

In the drawings, Figure 1 is a rear elevation of the supporting frame of the present invention, showing a portion of the type bars mounted in position within said frame; Fig. 2, an enlarged plan view of a portion of the upper part of the frame; Fig. 3, an enlarged sectional elevation of a portion of the upper part of the frame, showing the upper portion of one of the type bars in position therein; Fig. 4, an enlarged detail of a portion of the lower part of the frame, showing the lower end of one of the type bars in position therein; Fig. 5, a section on line 5—5 of Fig. 4, looking in the direction of the arrow; and Fig. 6, a detail showing a plan view of a portion of the upper rail, and showing one of the bars in normal position and the next adjacent bar in its acting or swung position.

The frame of the present invention comprises outer vertically extending rails 7 and 8, and inner vertically extending rails 9 and 10. As shown in Fig. 1, the inner rails 9 and 10 are connected by a plate 11, to which is secured a centering member 12. The centering member, however, is not a portion of the present invention, and it is understood that this feature may be entirely eliminated, or other features substituted therefor, without departing from the spirit of the invention.

Secured to the parts 9 and 7 and to the parts 10 and 8, or cast integral therewith, are horizontally extending rails 13 and 14 which comprise what is hereinafter termed a lower rail of the frame. Each of the rails 13 and 14 is traversed longitudinally by a plurality of grooves 15 adapted to receive the lower ends 16 of the type bars 17. The lower ends are maintained in place within the grooves 15 by means of a plate 17 which overlies the bars and extends along the outer faces of the rails 13 and 14 and is secured thereto by screws 18, or other suitable fastening means.

Secured to the rails 7 and 9 and to the rails 10 and 8 are upper rails 19 and 20. The upper rails, as shown more clearly in Fig. 1, extend from the central vertical rails to the outer vertical rails with a downwardly extending slope. Each of the rails 19 and 20 are traversed vertically with a plurality of grooves 21, each of which grooves terminates in an enlarged conical upper end 22; and each of the grooves, as shown in Fig. 2, is of a greater than semi-cylindrical depth. As shown more clearly in Fig. 1, the upper termini of the grooves 21 are stepped with respect to one another in a direction extending from the center of the frame downwardly toward the outer ends of the frame, and one wall of each groove 21 is projected beyond the terminus of said groove to form a vertically extending shoulder 23. The shoulder, however, as shown more clearly in Fig. 3, is not a direct continuation of the wall of the tapered end 22, but is offset therefrom so as to form a horizontally extending shoulder 24 between the terminus of the groove and the lower end of the shoulder 23.

Each of the type bars is provided at a suitable point upon its length with a conical enlargement 25 adapted to seat itself with-

in the conical end 12 of one of the grooves 21. The enlarged conical portion 25 terminates in a horizontally extending portion 26, which, as shown in Figs. 3 and 6, rests and travels upon the metal lying at either side of the terminus of the grooves 21. As shown in Fig. 1, each of the portions 26 of the respective type bars lie in a plane out of horizontal alinement with the other type bars of the particular bank in which it is placed. This is because of the stepped formation of the terminus of the slots 21. As shown in Fig. 6, when the type bars are swung, it tends to bring them into acting position; that is to say, to carry the type mounted thereon into position to engage the ribbon and perform the printing operation. The end 27 of the type swung will be clear of the end of the bar adjacent and directly below the swung bar. Hence, if the bar adjacent the one shown in swung position should have to be removed from the frame, it could be readily slipped out therefrom, since the overlying portion of the bar next adjacent and above thereto has been thrown out of the way.

As shown in Figs. 1 and 4, the lower ends of the type bars are provided with split collars 28, and into the ends of the bars are inserted screws 29. This split formation is for the purpose of allowing the collar and screw to swing together so that no loosening of the screw will result from the swinging of the bar. The collars and screws cooperate to prevent vertical movement of the bars within the frame during their operation. If, however, it becomes necessary to remove one of the bars, the bar above and adjacent thereto is swung into the position shown in Fig. 6, and the collar and screw removed from the lower end of the bar which is to be removed. A coiled spring 30 is then unfastened and the bar slid upwardly, and thence pulled outwardly to remove it from the supporting frame. The spring 30 above referred to is for the purpose of returning the bar to normal position. This method of removal is made possible because of the fact that the grooves 21 are all open; that is to say, there is no supporting plate on the upper rail similar to the plate 14 on the lower rail. This plate is eliminated because of the formation of the grooves 21, which, as heretofore stated, are of a greater than semi-cylindrical depth; and furthermore, the entire strain of movement during operation is toward the front of the supporting frame, the type bars being checked in their return movement by a stop member 31, shown in Fig. 1. Obviously, the forward strain of the bars is against the end wall 32 of the slots; hence, said wall furnishes a substantial and firm bearing for the bars during their movement; and the grooves 21, being of greater than semi-cylindrical depth, prevent the slippage of the bars out therefrom past their center by reason of any unusual jolt or strain placed thereon.

In the operation of these type bars, it is, of course, evident that a certain amount of wear will take place around the bearings. It is to compensate for this wear that the conical groove and conical enlarged portion on the type are provided. With this conical formation, when such wearing occurs, obviously it can be readily compensated for by simply adjusting the bar so as to lower it slightly with respect to the frame, the tapering walls of the groove and the tapering portions of the type bars permitting said bars to center themselves at any point to which they may be adjusted and obtain a firm bearing within the grooves after such adjustment has been made. Were these walls unangled, no such adjustment could be performed, and after the parts had become worn, a rattling would take place during their action, owing to the poor contact between the type bar and the walls of the groove.

As shown in Fig. 3, a portion 26 of each of the type bars travels across the upper face of the upper rails. The wearing of this face will be practically identical with the wearing of the conical portion of the type bar; hence an adjustment to compensate for the wearing of one will bring the other into firm engagement with its seat and thus the entire device will be accurately and rigidly centered.

The provision of the horizontally extending shoulder 24 permits the portion 31 of the type bar to extend beyond the conical portion of the type bar and rest on said shoulder 24. A mounting is therefore provided for the portion 26 of the type bar to permit it to have a bearing at either side of the conical groove.

It is, of course, understood that the particular formation of the type bar or the particular style of type mounted upon the bar is not deemed to be a portion of the present invention, except for those portions heretofore described, which enter into the operation of the mounting of the type bar and into the construction of the same, so that it may be readily removed.

I claim:

1. In a typewriter, the combination of a supporting frame for type bars comprising upper and lower rails, means for pivotally mounting the lower ends of the type bars within the lower rail, and seats for the bars in the upper rail consisting of a series of open grooves of a greater depth than the radius of the bars, whereby the bars lie in unlocked condition within said upper rail, substantially as described.

2. In a typewriter, the combination of a supporting frame for type bars comprising

upper and lower rails, means for pivotally mounting the lower ends of the type bars within the lower rail, the upper rail being provided with open tapered grooves, each type bar having a tapered portion thereon adapted to seat within the tapered groove, said groove being of a greater depth than the radius of the bars, whereby the bars lie in unlocked condition within said upper rail, substantially as described.

3. In a typewriter, the combination of a supporting frame for type bars comprising upper and lower rails, means for pivotally mounting the lower ends of the type bars within the lower rail, the upper rail being provided with a series of open grooves of a greater depth than the radius of the bars, whereby said bars lie in unlocked condition within said upper rail, each groove terminating in an enlarged tapered portion, each type bar having a tapered portion adapted to seat within the tapered portion of the groove, substantially as described.

4. In a typewriter, the combination of a supporting frame for type bars comprising upper and lower rails, means for pivotally mounting the lower ends of the bars within the lower rail, seats for the bars in the upper rail consisting of a series of open grooves of a greater depth than the radius of the bars, whereby said bars lie in unlocked condition within said upper rail, the upper termini of the grooves being in stepped relation from the center toward the outer ends of the frame, substantially as described.

5. In a typewriter, the combination of a supporting frame for type bars comprising upper and lower rails, means for pivotally mounting the lower ends of the type bars within the lower rail, the upper rail being provided with tapered grooves of greater depth than the radius of said bars, each bar having a tapered portion thereon adapted to seat within the tapered portion of the groove, the upper termini of the grooves being in stepped relation from the center toward the outer ends of the frame, said bars lying within said upper rail in unlocked condition, substantially as described.

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