Aug. 13, 1940. R. W. PRESTON 2,211,385

SPRING BASE FOR MACHINES

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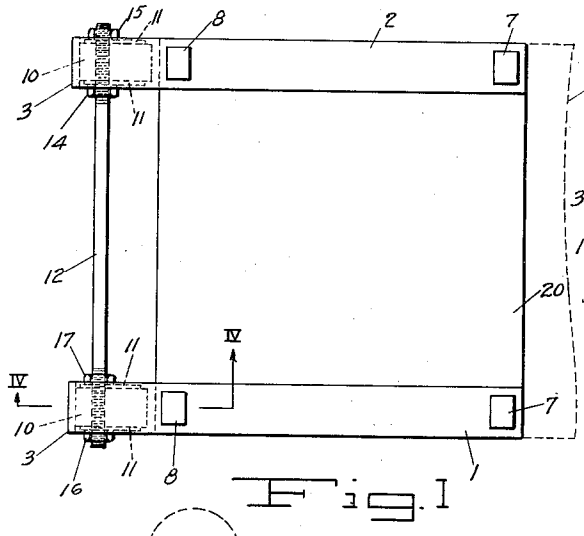


Fig. I

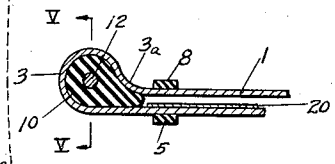


Fig. IV

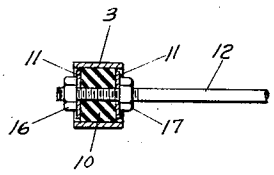


Fig. V

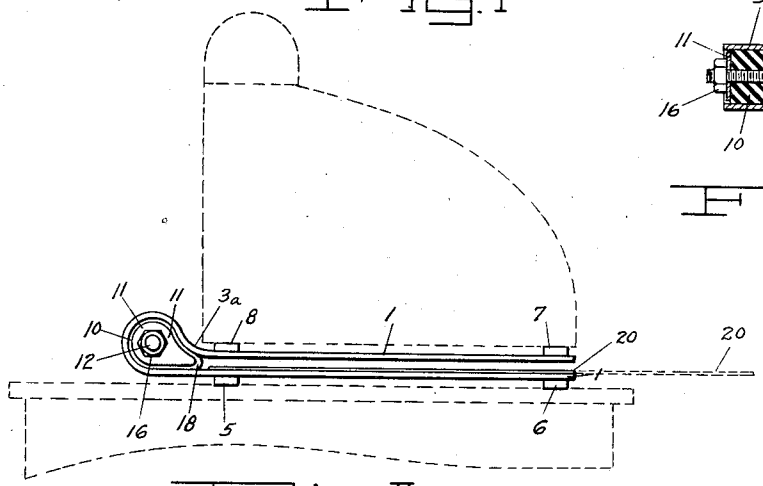


Fig. II

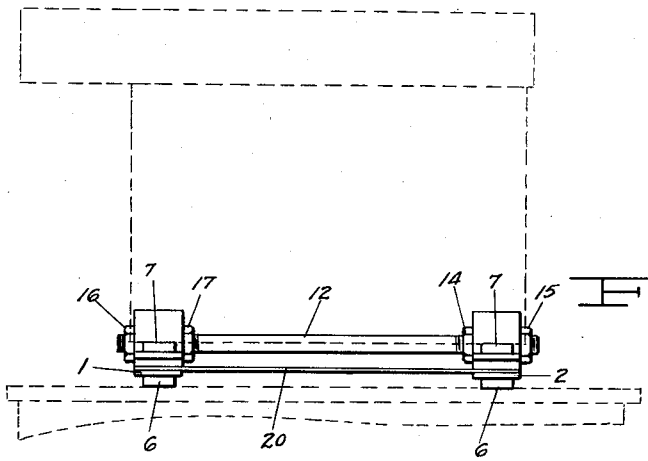


Fig. III

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SPRING BASE FOR MACHINES

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Application February 13, 1940, Serial No. 318,681

4 Claims. (Cl. 248—21)

This invention relates to a spring base for any machine where such a base will improve operation, such as typewriters, especially calculating machines, electric motors in small and medium sizes, etc.

An object of the present invention is a spring base that can be readily adjusted over quite a wide range of weight supporting ability, without diminishing its desirable characteristics.

Another object is a base that will utilize the resilient virtue of steel springs without being resonant. Other objects, such as low cost, compactness and others that will be apparent from the specification and claims attached, constitute the purposes of the invention, the scope of which is to be ascertained from the claims.

To illustrate the invention, I have chosen the type that will be especially useful for a computing machine, but this choice is made for purposes of explanation and not for limitation.

A drawing accompanies and forms a part hereof, in which

Fig. I is a top or plan view of a spring base for a computing machine;

Fig. II is an orthographic projection of Fig. I with a dotted outline suggesting the superposition of a computing machine;

Fig. III is an end view, looking at the left-hand end of Fig. II;

Fig. IV is a section taken on IV—IV, Fig. I; and

Fig. V is a section taken on V—V, Fig. IV.

In the drawing, 1 and 2 are identical return bends made of flat spring metal, preferably steel. They have loops 3, at one end, preferably offset as shown and the legs are, at least for the present embodiment, made of the same length. This form will be hereinafter referred to as hairpin bent, which is a widely used designation for pipes, springs and other things bent into the general form shown for various uses.

Pads such as 5, 6, 7 and 8 may be placed underneath the bottom of the lower leg and on top of the upper one, as shown in Fig. II if desired, and obviously the spread of the legs will be somewhat more without a weight, represented by the calculating machine, dotted, than with it.

Quite obviously the law of the lever will place practically all of the bending stress in the center of the loop in a hairpin bent spring of equal cross section throughout, with very little deflection of the leg members; hence were I to stop here each base would have to be made with extreme care for some machine of nearly exact weight, but I do not.

I form a rubber block that fits neatly within the loops such as 3 when the springs are open and without any weight. These blocks are indicated by the numeral 10 in Figs. IV and V, and follower plates 11, having an outline like the longitudinal section of the loop 3 but somewhat smaller are placed, one on each side of each block. Through bolts such as 12 are provided with nuts, on the outside and inside of each plate such as 14, 15, 16 and 17, which will serve to compress the plates 11 individually against the rubber blocks 10, not only adjusting for height but also for level.

Since rubber, though having an extremely high modulus of elasticity, is practically as incompressible as water when closely confined, I have here an adjustment for my steel springs that will very considerably change their weight carrying ability with a very small amount of adjustment by the nuts such as 15, etc. The weak point, or that which will yield quickest if unsupported is the throat 3a of the bend 3 now best supported.

When the weight is considerable, greater compression will result in the rubber being forced out longitudinally between the legs of the spring as illustrated at 18, Fig. II, which also has a marked effect on the strength of the springs because here also the law of leverage controls. "Rubber" as used herein is intended to include natural rubber and compounds thereof as well as synthetic substitutes having the resilient characteristics of natural rubber.

The through bolt 12, in this embodiment serves also as a distance piece to give proper separation of the two spring members, as shown in Fig. I, but I prefer also to securely attach a thin plate, 20, to the lowermost limb of the springs which adds a new and very desirable function, especially with a calculating machine, in that the operator can slip his data sheet under the machine as he works from column to column.

As indicated in the drawing, the plate 20 is not necessarily made of the same size as the base of the machine served, but may be extended at either or both sides or in front to provide a work holder of considerable utility.

It will be noted that the ends of the hairpin bent springs shall not touch, hence paper can be inserted from front as well as side. For bases intended for use as illustrated, on a table or the like, I prefer to make the bends of the hairpin bent springs offset as shown so that even without pads such as 5 and 6, the springs will lay flat on such a surface.

Having disclosed my invention in such a way

that it will be clear to those familiar with the art, what I claim is:

1. A spring base for a machine comprising a plurality of hairpin bent spring members, rubber filler blocks in the loops of the springs, follower plates on both sides of the filler blocks, screw means for compressing the filler blocks by forcing the follower plates thereagainst and means for holding the hairpin bent springs in spaced relationship to constitute a base of selected area.

2. A spring machine base of the character described comprising a plurality of hairpin bent springs the loops thereof being offset, rubber blocks in the loops, follower plates held against both sides of the blocks, means for compressing the follower plates against the rubber blocks to increase the resistance of the springs and means for rigidly spacing the springs laterally from each other to comprise a base of selected area.

3. A spring base for a machine comprising a plurality of hairpin bent spring members having legs of sufficient length so that one leg of each spring is adapted to form a part of the machine supporting structure while the other is adapted to rest on a support means, and means for adjusting the carrying capacity of the hairpin bent spring members comprising a rubber block fitted into the bent portions thereof and means for selectively compressing the rubber as required.

4. A spring for a machine base comprising a hairpin bent spring member, at least the loop of which is flattened on the inside, a rubber block fitted within the loop, follower plates on both sides of the rubber block and screw means for compressing the follower plates against the rubber block to change the carrying capacity of the legs of the hairpin bent spring.

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