ABSTRACT OF THE DISCLOSURE

The back rest of the type bars of a typewriter is formed of two arcuate parts flexibly connected by an arcuate damping member and supported by leaf springs sliding on the same and on supporting means which have projections located in cutouts in the outer ends of the arcuate parts and of two outer leaf springs.

Background of the invention

The present invention relates to a type bar back rest for a typewriter or like machine for stopping the type bars returning to a position of rest after having made a printing impact.

It is desirable to construct type bar back rests in such a manner that the impact of the returning type bars thereon is dampened and the respective type bar is brought to a complete stop without much noise.

Constructions of the prior art serving this purpose are rather complicated, comprise a great number of parts, and are difficult and expensive to assemble.

Nevertheless, the type bar back rests according to the prior art do not accomplish their purpose to perfection, since they provide a single arcuate abutment member provided with damping means. When the returning type bar is stopped by the abutment member, the same is displaced so that the other type bars which rest on the abutment member in the normal operative position are displaced and start the next typing operation out of an incorrect position which has a detrimental effect on the appearance of the typed text.

Summary of the invention

It is one object of the invention to overcome the disadvantages of prior art constructions, and to provide a type bar back rest which is not deformed or displaced along the entire length thereof when stopping a returning type bar.

Another object of the invention is to provide a type bar back rest of simple construction which can be easily and inexpensively assembled.

Another object of the invention is to provide a type bar back rest which brings the returning type bars to a complete stop while producing only little noise.

With these objects in view, an embodiment of the invention comprises arcuate abutment means mounted on supporting means and including at least two parts disposed end to end, and yieldable flexible means connecting the parts; and resilient means resiliently connecting the parts with the supporting means. Since the abutment means consist of at least two parts, the kinetic energy transmitted from a type bar to any one of the parts is not transmitted to the other part, and is taken up by the resilient means.

In the preferred embodiment of the invention, the supporting means includes an arcuate support member having mounting projections at the ends thereof, and being supported on the frame of the machine by a pair of flat arms consisting of spring steel. The two parts are arcuate and have inner end portions forming a gap, and outer end portions formed with cutouts respectively receiving the mounting projections. The flexible means is an arcuate flexible damping member secured to the parts and extending on one side of the same between the outer end portions and across the gap so as to dampen the impact of type bars while flexibly connecting the two parts.

The resilient means preferably include a leaf spring in sliding contact with the inner end portions of the two arcuate parts and with the arcuate support member, and two outer leaf springs having cutouts receiving the mounting projections of the support member, and inner ends sliding on the support member, all leaf springs being located between the two parts and the support member.

It is advantageous to provide a thin support member, and to use leaf springs with forked ends forming slots slidingly receiving the thin support member.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

Brief description of the drawing

FIG. 1 is a fragmentary perspective view illustrating a preferred embodiment of the invention; and
FIG. 2 is a fragmentary sectional view taken on line A—A in FIG. 1.

Description of the preferred embodiment

Referring to the drawing, a type bar segment 1 carries the type bars for angular movement between a printing position and a position of rest abutting the arcuate flexible damping member 5. A pair of arms 2, 2a preferably consisting of spring steel is secured to the ends of type bar segment 1 by screws. The free ends of arms 2 are bent and carry an arcuate thin support wall member 3 which is secured by rivets to the bent-over end portions of arms 2 and 2a and extends substantially parallel to the type bar segment 1. Mounting projections 3a and 3b are secured to the ends of support member 3 and have hook-shaped end portions.

Two outer leaf springs 6 and 7 have outer ends with cutouts 6a and 7a respectively receiving the mounting projections 3a and 3b. The inner ends of leaf springs 6 and 7 are fork-shaped and form open slots embracing the thin support wall member 3, as best seen for portion 7b. A third leaf spring 8 has both ends fork-shaped and formed with open slots embracing support wall member 3. It will be understood that resilient depression of leaf springs 6, 7 or 8 will cause sliding of the ends thereof on support wall member 3.

An arcuate abutment means, generally indicated by reference numeral 4, comprises two arcuate parts 4a and 4b which are disposed in end to end relationship and have inner ends forming a gap. The arcuate parts 4a and 4b have side walls, and a bottom wall whose outer ends are fork-shaped and formed with open cutouts 4c and 4d receiving the mounting projections 3a and 3b. The damping member 5, which consists of a flexible yieldable material is inserted between the side walls of the two parts 4a and 4b and extends across the gap between the inner ends of the same so that the two parts are flexibly connected. The inner ends of parts 4a and 4b are in contact with the center portion of leaf spring 8, while other portions of parts 4a and 4b slidingly abut leaf springs 6 and 7. The hook-shaped end portions of mounting projections 3a
and 3b form shoulders against which the ends of the bottom walls of the channel-shaped parts 4a and 4b abut when the same are displaced by the impact of a stopped type bar. When a type bar returns after making an imprint, it is stopped by the damping member 5. Assuming that the respective type bar is located in the region of the part 4a, the kinetic energy, reduced by the damping member 5, is transmitted by a preferred leaf spring 6 which is deformed and slides on support wall member 3. No kinetic energy is transmitted to part 4b since the same is not rigidly connected with part 4a. When one of parts 4a, 4b receives the impact of a returning type bar, the respective other part is in no way influenced.

Depending on the amount of kinetic energy of the returning type bar, the engaged portion of damping member 5 is locally deformed, while the respective part 4a or 4b displaces springs 8, 6 or 7 so that a part of the kinetic energy is consumed by the friction between the fork-shaped ends of the leaf springs and the support wall member 3. The remaining kinetic energy is consumed by the deformation of the leaf springs. The displacements are minute, and the abutment means 4 with damping member 5 and parts 4a and 4b remains in its initial position.

The combination of the local deformation of the damping means 5, with the transmission of kinetic energy to the energy consuming resilient means 6, 7, 8, reduces the noise produced by the impact of the returning type bars to a degree which cannot be obtained without the provision of the leaf spring assembly of the invention.

The above description of a preferred embodiment will it become apparent that the type bar back rest of the invention consists of few parts which can be easily assembled without the use of screws and rivets so that it can be inexpensively manufactured, while performing the required function perfectly.

It will be understood that each of the elements described above or two or more together, may also find a useful application in other types of type bar back rests differing from the types described above.

While the invention has been illustrated and described as embodied in a type bar back rest consisting of several yieldingly and flexibly connected abutment parts which do not transmit kinetic energy between each other, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

1. Type bar back rest comprising, in combination, supporting means; arcuate abutment means mounted on said supporting means, and including at least two parts disposed end to end with spacing from one another to form a gap, and yieldable flexible means connecting said parts with freedom of movement relative to and independently of one another; and resilient means resiliently connecting said parts independently of each other to said supporting means so that the kinetic energy transmitted from a type bar to one of said parts is not transmitted to the other part and is taken up by said resilient means.

2. Type bar back rest as defined in claim 1 wherein said two parts have outer end portions mounted on said supporting means and inner end portions forming said gap; and wherein said flexible means is secured to said parts and extends on one side of the same between said outer end portions and across said gap so as to dampen the impact of type bars on said parts while flexibly connecting the same; and wherein said resilient means are located on the other side of said parts and interfaced by the damping member 5.

3. Type bar back rest as defined in claim 2 wherein said resilient means include spring means in sliding contact with said supporting means and with said inner end portions of said two parts.

4. Type bar back rest as defined in claim 2 wherein said supporting means have two mounting projections; and wherein said outer end portions have cutouts receiving said mounting projections whereby said abutment means are mounted on said supporting means for limited movement.

5. Type bar back rest as defined in claim 4 wherein said resilient means include two leaf springs having cutouts receiving said mounting projections whereby said leaf springs are mounted on said supporting means and a third leaf spring intermediate said leaf springs and in sliding contact with said inner end portions of said two parts, said leaf springs being located between said supporting means and said parts.

6. Type bar back rest as defined in claim 1 wherein said supporting means includes an arcuate support member having mounting projections at the ends thereof; wherein said parts are arcuate and have inner end portions forming said gap, and outer end portions formed with cutouts respectively receiving said mounting projections; wherein said flexible means is an arcuate flexible damping member secured to said parts and extending on one side of the same between said outer end portions and across said gap so as to dampen the impact of type bars on said parts while flexibly connecting the same; and wherein said resilient means includes leaf spring means in sliding contact with said two parts and located on the other side of said parts between the same and said support member.

7. Type bar back rest as defined in claim 6 wherein said leaf spring means include leaf springs having forked ends with slots slidingly receiving said support member.

8. Type bar back rest as defined in claim 6 wherein said two parts are channel shaped, each part having a pair of side walls and a bottom wall, and holding said damping member between said side walls, said bottom wall having said cutouts.

9. Type bar back rest as defined in claim 6 wherein said resilient means include two leaf springs having ends formed with cutouts receiving said mounting projections and other ends formed with slots slidingly embracing said support member, and a third leaf spring between said two leaf springs and having a center portion in contact with said inner end portions of said two parts, and ends formed with slots slidingly embracing said support member.

10. Type bar back rest as defined in claim 6 wherein said supporting means include two flat arms consisting of spring steel and secured to the ends of said arcuate support member for supporting the same with said abutment means and leaf spring means.

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