No. 841,227. PATENTED JAN. 15, 1907.

W. H. CHELLIS.

SPRING HELIX.

APPLICATION FILED APR. 5, 1906.

Fig. 1.

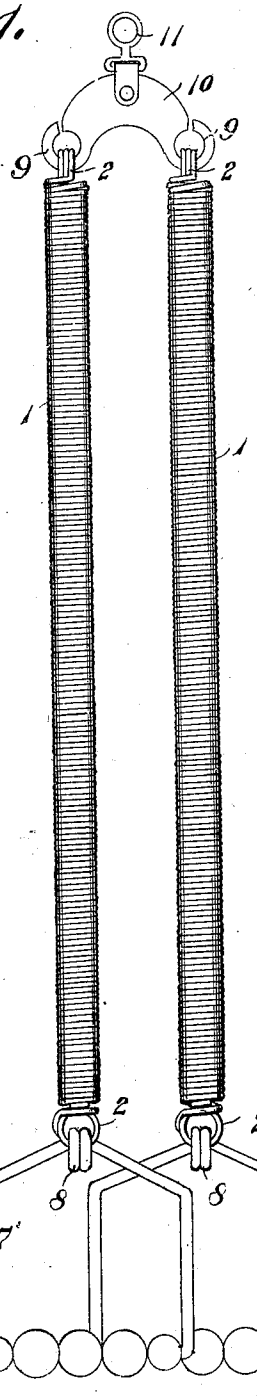
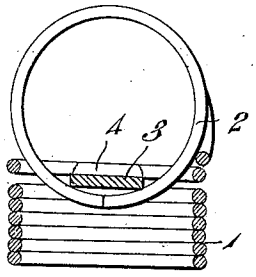


Fig. 7.



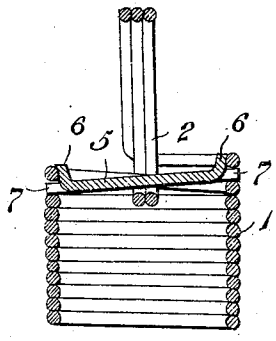


Fig. 3.

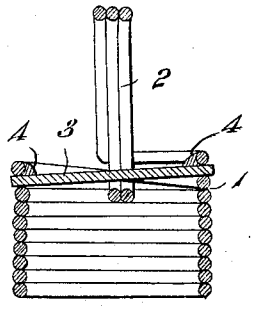


Fig. 5.

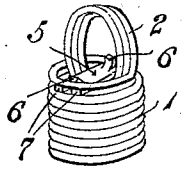


Fig. 2.

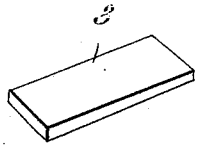


Fig. 6.

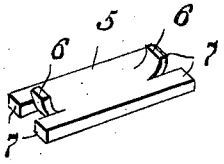


Fig. 4.

WITNESSES:

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SPRING-HELIX.

No. 841,227. Specification of Letters Patent. Patented Jan. 15, 1907.

Application filed April 5, 1906. Serial No. 310,103.

To all whom it may concern:

Be it known that I, WILLIAM H. CHELLIS, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Spring-Helix, of which the following is a specification.

This invention relates to helical springs, and has for its object to provide for strengthening the terminals thereof so as to prevent the straightening out and breaking of the terminal whirls of the spring.

While the present invention is capable of general use, it is particularly designed for use in connection with muscle-exercising devices.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is an elevation of a muscle-exerciser equipped with springs of the present invention. Fig. 2 is a perspective view of one terminal of the spring. Fig. 3 is an enlarged sectional view taken longitudinally through one end of the spring. Fig. 4 is a detail perspective view of the cross-bar employed in Figs. 1, 2, and 3. Fig. 5 is a view similar to Fig. 3, showing another embodiment of the invention. Fig. 6 is a detail perspective view of the cross-bar employed in Fig. 5. Fig. 7 is a sectional view on the line 7 7 of Fig. 5.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

The helical spring 1 is of the conventional type now commonly used for muscle-exercisers and terminates at each end in a loop 2, set diametrically across the end of the spring and formed by twisting the adjacent terminal of the spring into a plurality of substantially circular loops or whirls, which fit down into the adjacent end of the helix, so as to bear against opposite sides thereof.

As embodied in Fig. 5 of the drawings, a cross-bar 3 is inserted through the terminal attaching-loop 2 and between the two outermost whirls of the spring, to which the bar is rigidly connected in some suitable manner—say, for instance, by being soldered thereto—as indicated at 4. The shape of the cross-bar 3 is clearly illustrated in Fig. 6 and is preferably in the nature of a flat plate of suitable dimensions, according to the size and strength of the spring. It will here be explained that as the cross-bar 3 extends diametrically across the extremity of the spring and is rigidly connected to diametrically opposite sides of the outermost whirl of the spring said whirl is rendered rigid, and as the bar passes through and engages the inner side of the terminal attaching-loop 2 the strain on the terminal loop comes upon the cross-bar, whereby the extremity of the spring is prevented from straightening out under the influence of strains upon the spring when the device is in use.

Another embodiment of cross-bar has been shown in Figs. 2, 3, and 4 of the drawings, said bar being in the nature of a flat metallic plate 5 similar to the plate 3; but instead of being soldered or otherwise permanently connected to the spring it is provided at each end with a laterally-projected wing or ear 6, cleft from the cross-bar and designed to bear against the inner side of the outermost whirl of the spring, the fingers or projections 7 at opposite sides of the wing being introduced between the two outermost whirls of the spring, whereby the cross-bar is held in place and the outermost whirl of the spring is rendered rigid. This cross-bar of course passes through the terminal loop 2 and engages its inner side in precisely the same manner as hereinbefore described for the form shown in Figs. 5 and 6.

As an illustration of one use of the present form of spring the same has been illustrated as a muscle-exerciser in Fig. 1 of the drawings, wherein two springs are employed, each spring being provided at one end with a bail-shaped handle 7, having an eye 8 engaged with the adjacent terminal loop 2 of the spring, the opposite terminal attaching-loop of the spring being engaged with a terminal hook 9 of a suitable cross-head 10, which is provided with a hanger 11 for engagement with a hook or other support, from which the device is suspended. This exerciser is used by grasping the handles and manipulating the same in the manner of ordinary chest-weight apparatus. It will now be understood that the strain of each handle is taken by the adjacent cross-bar, which is rigidly

attached to the terminal whirl of the spring, whereby there is no tendency upon the part of the spring to straighten out, and the same thing is true of the other end of the spring, which is attached to a suitable stationary support.

The application of the present invention as shown in Fig. 1 of the drawings is only one of many, as I contemplate having handles at opposite ends of the spring, so as to use the device as a portable exerciser.

Having thus described the invention, what is claimed is—

1. A spring-helix having one end terminating in an attaching-loop set diametrically across the helix, and a cross-bar passing through the loop and between adjacent whirls of the spring.

2. A spring-helix terminating at one end in an attaching-loop disposed diametrically across the helix and a cross-bar passing through the loop in engagement with the inner periphery thereof and engaged with one of the whirls of the spring.

3. A spring-helix terminating at one end in an attaching-loop disposed diametrically across the end of the helix, and a cross-bar passing through the loop in engagement with the inner periphery thereof with its ends received between adjacent whirls of the spring and connected to one of them.

4. A spring-helix terminating at one end in an attaching-loop disposed diametrically across the end of the helix, and a cross-bar passing through the loop in engagement with the inner periphery thereof with its ends interposed between adjacent whirls of the spring, said cross-bar having wings cleft therefrom and bearing against the inner side of the helix.

5. A spring-helix terminating at one end in an attaching-loop disposed diametrically across the helix and entering the open end thereof, and a cross-bar passing through the loop in engagement with the inner periphery thereof with its ends connected to the helix.

6. A spring-helix terminating at one end in an attaching-loop disposed diametrically across the helix, and a cross-bar passing through the loop in engagement with the inner periphery thereof with its ends connected to the helix.

7. A spring-helix terminating at one end in an attaching-loop disposed diametrically across the helix and entering the open end thereof, and a cross-bar passing through the loop in engagement with the inner periphery thereof and interposed between the two outermost whirls of the helix.

8. A spring-helix terminating at each end in an attaching-loop disposed diametrically across the whirls, and cross-bars passing through the respective loops in engagement with the inner peripheries thereof with their ends connected to the helix.

9. A spring-helix having a cross-bar inserted between adjacent whirls, and an attaching-loop embracing the cross-bar.

10. A spring-helix having one end formed into an attaching-loop, and means to brace the adjacent terminal whirl of the helix to prevent straightening out of the whirl under the influence of strains upon the attaching-loop.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM H. CHELLIS.

Witnesses:
W. O. THOMAS,
E. A. STINGL.