R. E. KELLY.

BACK BRACE.

APPLICATION FILED OCT. 4, 1919.

1,371,690. Patented Mar. 15, 1921.

Fig. 2.



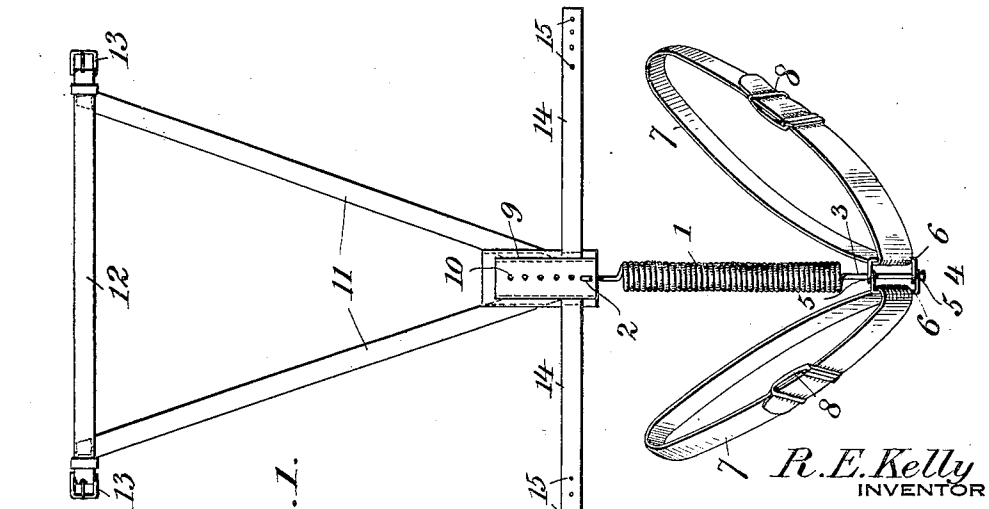


Fig. 1.

WITNESSES

Charles H. Durand

F. T. Chapman.

R. E. Kelly

INVENTOR

BY E. G. Siggers

ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT EMMETT KELLY, OF JACKSONVILLE, FLORIDA.

BACK-BRACE.

1,371,690. Specification of Letters Patent. Patented Mar. 15, 1921.

Application filed October 4, 1919. Serial No. 328,371.

To all whom it may concern:

Be it known that I, ROBERT E. KELLY, a citizen of the United States residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Back-Brace, of which the following is a specification.

This invention has reference to back braces, and its object is to provide a device which may be readily attached to the human body without the necessity of unfastening and refastening holding means after the initial adjustment is accomplished, the back brace serving as a support for the body of an operator whose occupation demands bending or stooping of the body especially at the hips, the use of the back brace to a large extent preventing or relieving fatigue of the back muscles.

The invention is an improvement, in the way of simplicity of construction and relief from localized pressure, over the back brace for which Letters Patent No. 1,202,851 were granted to me on October 31, 1916.

In accordance with the present invention, there is provided a spring tending to maintain a contracted, straight position along the back of the wearer but yieldable both longitudinally and laterally to bending movements of the wearer. Connected to one end of the spring are shoulder straps in the form of loops through which the arms may be passed, and at the other end of the spring are other loops, adapted to embrace the thighs of the wearer by introducing the legs foot foremost into the last-named loops. Provision is made for flexibility of movement and for such adjustments as may be needed to fit the back brace to the particular wearer.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that while the drawing shows a practical form of the invention, the latter is not confined to any strict conformity with the showing of the drawing but may be changed and modified so long as such changes and modifications come within the scope of the appended claims.

In the drawings—

Figure 1 is a rear view of the back brace partially spread out;

Fig. 2 is a perspective view, showing the back brace applied to the human figure and illustrating its operation.

Referring to the drawings, there is shown a spring 1, which may be and preferably is of the expansible helical type, though not necessarily confined to such particular type. At one end, the terminal portion of the spring is formed into a hook 2, and at the other end has a terminal prolongation 3, with the extremity enlarged as shown at 4, such enlargement being conveniently made by upsetting or riveting. The extension 3 traverses eyes 5 at the opposite ends of U-shaped members 6, each swiveled on the extension and each adapted to receive a loop 7, which may be formed of a strap having a buckle 8 at one end. The swivel members 6 may also be slid along the extension 3 of the spring. The other end of the strap is passed through the buckle so as to provide a continuous loop, the size of which may be varied by drawing the end remote from the buckle through the latter to the desired extent. Each loop 7 is adjusted to a suitable size to snugly embrace a respective thigh of the wearer, who may introduce his legs foot foremost into the loops when applying the back brace. There is also provided a bar 9 of webbing or other strong flexible material with a series of perforations 10 therein to receive the hook 2. Fast to and spreading away or diverging from the webbing 9 are two strap members 11, joined at their spread or separated ends by another strap 12, the last-named strap terminating at each end in a buckle 13. Fast to and extending in opposite directions from the webbing 9 are other straps 14, each terminating in a series of holes 15, so that the straps 14 may be secured to the buckles 13 in adjusted positions, whereby the straps 11 and 14 may be formed into loops through which the arms of the wearer may be passed, the strap 12 passing across the chest of the wearer and connecting the two loops formed by the straps 11 and 14.

The structure is readily applied in a manner similar to a one-piece garment, so that the lower portion of the body to the thighs is inserted through the loops 7, while the chest portion of the body is embraced by the connecting straps 11, 14 and 12, with the strap 12 extending across the chest and the straps 11 and 14 embracing the shoulders. The webbing or pad 9, which may be made sufficiently broad for the purpose, en-

gages the back somewhat above the waist, while the spring 1 extends along the back at and below, and if long enough, above the waist.

When the user is standing upright, the retraction of the spring 1 is sufficient so that there is no material slack, and the back brace is therefore in no wise uncomfortable because of looseness. When the wearer has occasion to lean over, as for instance, when picking material from the ground or near to the ground, the spring extends along the back of the wearer, and is expanded in opposition to its normal tendency by the elongation of the space between the portion of the body engaged by the loops 7 and the shoulders of the wearer where embraced by the shoulder straps. The tendency of the spring to retract serves to support the upper part of the body when the latter is bent forwardly, thus relieving the back muscles from the effort to uphold the body, and the usual fatigue which is brought about by bending over for any extended length of time, is wholly or in most part eliminated.

The back brace is so constructed as to distribute the weight of the upper part of the body and relieve any particular set of muscles from the strain of supporting the upper part of the body. The arms and legs are left entirely free, and where the weight brings pressure to bear upon parts of the body, such parts are in the main over bony structures, capable of resisting the pressure. Therefore, an operator may work comfortably in a stooping position for a long time without materially tiring.

If for any reason the operator may desire to remove the brace, this is performed by simply straightening up and throwing off the brace, as one would remove a pair of pants with ordinary suspenders attached, leaving the brace in condition for reapplication without any adjustment whatever.

What is claimed is:—

1. A back brace comprising an elongated expansible spring capable of flexing laterally, a pair of members swivelly and slidably connected with one end of the spring, means at the lower end of the spring to prevent said members from falling off the spring, an adjustable strap loop passed through each member and adapted to embrace the thighs of the wearer, webbing connected to the other end of the spring, straps connected to and extending from opposite sides of said webbing and provided with means for forming the straps into loops.

2. A back brace comprising an elongated expansible spring capable of flexing laterally, adjustable strap loops swiveled to one end of the spring, a member connected to the other end of the spring, straps connected to and extending from opposite sides of said member and provided with means for forming the straps into loops, and another strap connecting the loops when formed, said member being constructed to form a connection with the spring in different positions lengthwise of the member.

3. A back brace comprising an elongated expansible helical spring with one end formed into a hook and the other end prolonged and headed at its extremity, swivel members carried by the headed extension, straps each provided with a buckle adjustment for forming them into loops of different sizes and each connected to a respective swivel member, a connecting member with perforations therein for receiving the hook end of the spring, diverging straps fast at one end to the connecting member, another strap common to and connecting the ends of the diverging straps remote from the connecting member, and other straps extending oppositely from the connecting member, said last-named straps and the strap connecting the diverging straps having coacting joining means whereby the diverging and last-named straps may be formed into loops.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

ROBERT EMMETT KELLY.

Witnesses:
A. Aronovitz,
Sydney L. Moore.