

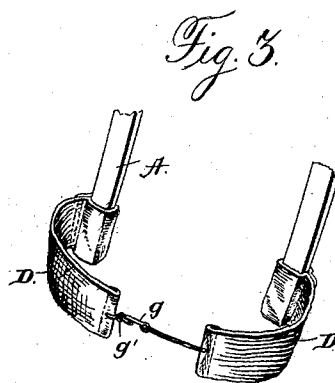
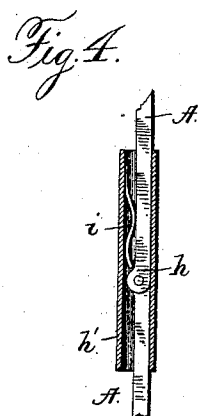
(No Model.)

2 Sheets—Sheet 1.

R. RAY.
SPRING BODY BRACE.

No. 443,113.

Patented Dec. 23, 1890.



Witnesses:
Jas. E. Hutchinson.
A. V. Cushman.

Inventor.
Richard Ray,
by Henry Calvert Attorney.

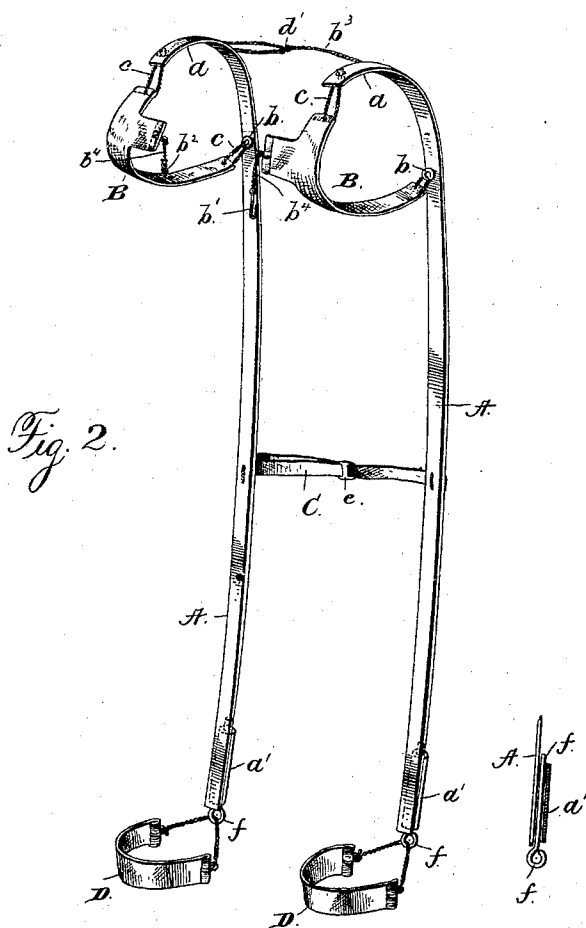
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Attorney.

UNITED STATES PATENT OFFICE.

RICHARD RAY, OF GRIFFIN, GEORGIA.

SPRING BODY-BRACE.

SPECIFICATION forming part of Letters Patent No. 443,113, dated December 23, 1890.

Application filed April 9, 1890. Serial No. 347,224. (No model.)

To all whom it may concern:

Be it known that I, RICHARD RAY, a citizen of the United States, residing at Griffin, in the county of Spaulding and State of Georgia, have invented certain new and useful Improvements in Body Braces or Supports, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide a spring body brace or support for the use of persons whose work requires a stooping position, of such construction that it may be conveniently secured to and removed from the user, and which is so made that it will afford the greatest possible relief from the fatigue incident to stooping, this being effected by transferring much of the forwardly-inclining weight of the body from the shoulders directly to the knees with but little pressure on the back.

To this end my invention comprises two connected springs, one at each side of the wearer, and extending from bands at the shoulders to the knees, said springs being attached at their upper ends to the shoulders of the wearer, and being connected at their middle portions by a cord or strap and at their lower ends to straps or bands pressing on the legs of the wearer just above the knees.

In the drawings, Figure 1 illustrates the use of my invention with a portion of the weight of the upper part of the body transferred to the knees. Fig. 2 is a general view of my invention and its attaching devices. Fig. 3 is a partial view of the same to illustrate a modified form of the lower attachments, and Fig. 4 is a detail view of the hinge in one of the springs.

A denotes the springs of my improved brace or support, these springs being preferably flat steel strips, thickest at their middle portions and gradually thinner toward their ends, as is common with the leaves of wagon-springs. At the upper ends of these springs A are preferably formed bends *a* to hook over on the wearer's shoulders, and a little distance below the said bends are eyes *b*, for the attachment of the broad bands or straps B, which pass around beneath the arms of the wearer and are connected to the tops of the springs A and the eyes *b* by cords *c*, the lengths of

which latter may be varied to suit different persons. The bands or strips B are connected together across the wearer's breast by a cord or strap *b*⁴, having suitable detachable connecting means, herein shown simply as a hook *b*⁵ and eye *b*⁶. The upper ends of the springs A are connected together by a cord or strap *b*³, the length of which may be varied by a friction-slide, which may be an 8-formed wire link *d*⁷. This cord or strap *b*³ passes across the shoulders of the wearer behind, and thus, in connection with the front cord or strap *b*⁴ and the straps or bands B, holds the upper ends of the springs A to the body of the wearer; and the said springs are also loosely connected a little below their middle portions by a cord or strap C, the length of which may be varied by a friction-slide, herein shown as a sliding-buckle *e*. This strap C holds the springs from swinging outsidewise away from the body of the wearer, and serves to some extent as a fulcrum on which said springs bend as the wearer stoops. With the form of my invention shown in Fig. 1 the pressure of the strap C on the back of the wearer is but slight, as the said springs have a tendency to bend like bows by reason of the pressure at their opposite ends.

The connection of the lower ends of the springs to the wearer may be effected either by providing said lower ends with sockets *a*⁸, Fig. 2, to receive wires *f*, attached to the bands D, which are secured to the legs of the wearer just above his knees, or the lower ends of said springs may be entered into pockets formed in the knee-bands, and the latter be detachably connected together in front of the wearer by a hook *g* and eye *g*⁹, as shown in Fig. 3. The former of these connections is more especially intended for men and the latter for women.

With the form of my invention shown in Fig. 3 the pressure of the adjustable strap C across the back of the wearer will be sufficient to tighten the bands D, so as to prevent the latter from sliding below the knees of the wearer, and thereby rendering no support.

To enable a person wearing my improved brace or support to sit down with comfort without removing the same, the springs A are preferably provided at or near their centers with joints *h*, (shown in the detail view, Fig. 4.)

the said joints being held rigid when the brace is in use by sliding sleeves *h'*, held in any positions to which they may be moved by friction-springs *i* within the same. When a person wishes to sit down without removing the brace, he slides the sleeves *h'* from over the joints *h*, thus permitting said springs to bend sharply at said joints, and when he rises he restores the sliding sleeves to their original positions, and the joints will then again be rendered rigid.

From the foregoing it will be apparent that a person wearing my improved brace or support will when he stoops have a very considerable part of the forwardly-inclining weight of the upper part of the body transferred to the knees, very much as is done when a person stooping over places his hands on his knees, the knee-bands *D* (shown in Fig. 2) being tightened when the wearer stoops, so that said bands cannot work down by the pressure of the springs. Thus the fatigue incidental to stooping in picking cotton, weeding, and doing various other kinds of work requiring a stooping position will be greatly lessened by the use of my invention, and that, too, without bringing any pressure on the back or otherwise binding the body in any uncomfortable way.

I am aware that a brace for cotton-pickers and others has heretofore been devised in which a spring at the center of the wearer's back and attached to a pad to rest on the back above the hips, and two springs extending from said pad down the backs of the legs to the level of the knees were employed; but from my experiments I have ascertained that a brace of this kind produces an uncomfortable pressure on the back and rump of the wearer, which is avoided in my brace having the two springs at the side of the body and extending from the shoulders downward, so that no pressure is brought on the body except at the shoulders and at the knee bands or straps.

In the form of my invention shown in Figs. 1 and 2 the wires *f* are of sufficient length so that when the brace-wearer straightens up the sockets *a'* will not become detached from said wires by rising over the tops of the lat-

ter; but if the wearer wishes to partially free himself from the brace, as when he might want to climb a fence or free his legs for other purposes, he can quickly uncouple the said sockets from said wires simply by lifting the springs *A*, thus releasing the lower ends of the said springs from attachment to his legs.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A body brace or support consisting of two connected springs of proper length to extend from the shoulders of the wearer downward to the knees at the sides of the body, combined with shoulder bands or straps attached to the upper parts of said springs, with a cord or strap connecting the middle portions of said springs, and with knee bands or straps to which the lower parts of said springs are to be connected.

2. A body brace or support consisting of the connected springs *A*, provided with the sockets *a'*, the shoulder bands or straps attached to the upper parts of said springs, the adjustable cord or strap *C*, connecting the middle portions of said springs, and the knee bands or straps *D*, having the wires *f* attached thereto, said wires to enter said sockets, and thus connect said knee-bands with the lower parts of said springs.

3. A body brace or support consisting of the connected springs *A*, provided with the sockets *a'*, the shoulder bands or straps attached to the upper parts of said springs, the adjustable cord or strap *C*, connecting the middle portions of said springs, and the knee bands or straps *D*, having the wires *f* attached thereto, said wires to enter said sockets, and thus connect said knee-bands with the lower parts of said springs, and the latter having joints at or near their middle portions and being provided with rigid sliding sleeves to cover the said joints and hold them rigid when desired.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD RAY.

Witnesses:

EWELL A. DICK,
HENRY CALVER.