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SPINAL SUPPORTER.

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1,316,915. Patented Sept. 23, 1919.

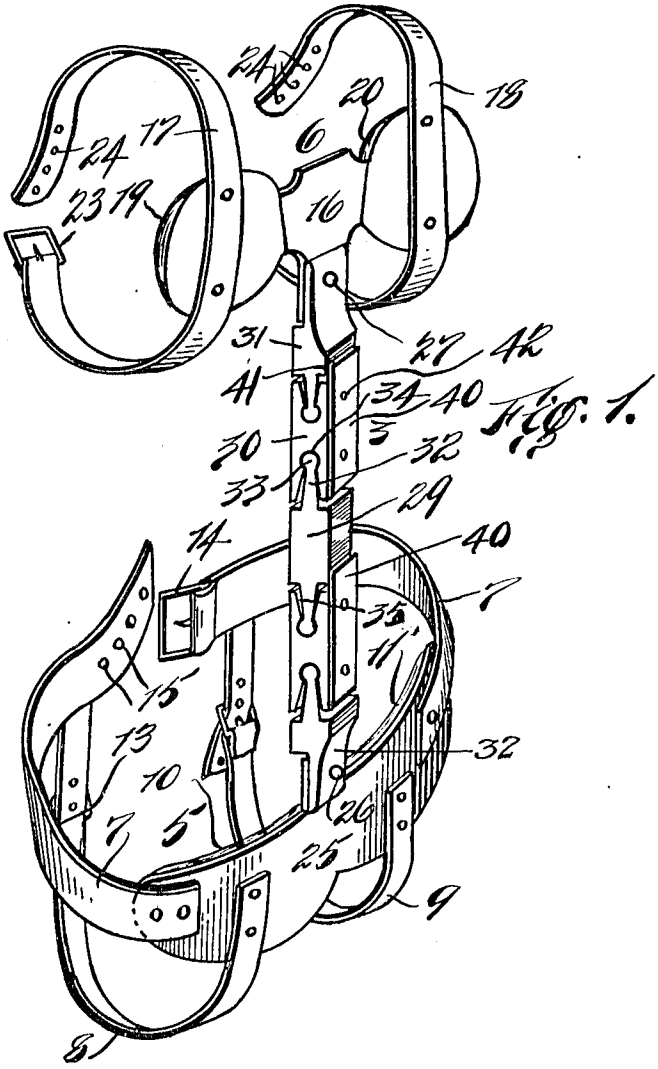


Fig. 1.

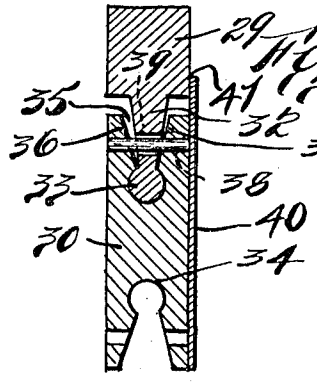


Fig. 2.

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SPINAL SUPPORTER.

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To all whom it may concern:

Be it known that we, ANTON MEYER and JOHN A. STEINERT, citizens of the United States of America, both residing at New York city, Bronx county, State of New York, have invented certain new and useful Improvements in Spinal Supporters, of which the following is a full, clear, and exact description.

This invention relates to improvements in apparatus for rendering support to the spine in cases of spinal affections, such as weak spine or paralysis. Our improved device is arranged to support the spine and allow the person affected to move the body forward, sidewise and backward to a limited extent. In cases of spinal affections weakness is evidenced and pain results when the body is moved backward and it is the object of our invention to provide a support that will permit of a forward movement of the body, but prevent a backward movement to an extent that would render the afflicted person more or less helpless.

We will now proceed to describe our improved support in detail, the novel features of which we will point out in the appended claims, reference being had to the accompanying drawing forming part hereof, wherein:—

Figure 1 is a perspective view of our improved support; and

Fig. 2 is an enlarged detail sectional view of two of the flexible brace-members.

As herein arranged our improved spinal support consists of a flexible brace member 3, a waist-member 5 and a chest member 6. The waist member 5 consists of belts 7, to be passed around the waist, and depending strap members 8 and 9 arranged to be passed under the body and through the crotch. The strap members 8 and 9 act to maintain the belt-member in position around the waist, the pads 10 and 11 carried by the belt member being located just above the hips in the lumbar region. As the straps 8 and 9, which I will term hold-down straps, pass through the crotch and under the body, and as each strap is provided with a buckle and openings 13, the belts 7 can be drawn down firmly. The buckle 14, and openings 15, carried by the belt permit said belt to be drawn firmly against the body, thereby causing pads 10 and 11 to be forced into the lumbar region of the back.

The chest-member 4 consists of a plate 16 having shoulder-straps 17 and 18 by means of which the plate can be drawn firmly against the body. The plate 16 carries pads 19 and 20 which rest against the shoulder blades. The straps 17 and 18 each carry a buckle 23 to coöperate with openings 24 in said suspenders to maintain the pads in position. The belts 7 at each end are secured to a plate 25 pivotally connected at 26 to its adjacent end of the flexible brace 3. The belt-member is made up of the straps 7 and plate 25 which carries the pads 10 and 11. The plate 16 is pivotally secured at 27 to its adjacent end of the brace 3. This pivotal connection permits freedom of movement on the part of the shoulders that is to say, the shoulders are free to be moved up and down, at one side or the other.

An important feature of our invention resides in the brace 3 which is made up of a plurality of pivotally connected blocks 29, 30 and end blocks 31 and 32, the end blocks being connected to their respective members 4 and 5. To produce the desired result both from a manufacturing and a therapeutic point of view, we prefer to form the brace 3 out of members which are pivotally connected but without resorting to pivot-pins which would necessitate the drilling of holes to produce a neat fit devoid of lost motion. To accomplish this result we provide a plurality of tongue-blocks or members 29 and socket-blocks or members 30, the tongue members carrying tongues 32 having rounded heads 33 to fit correspondingly shaped sockets 34 in the socket members 30, said socket members being provided with angularly formed passages 35 communicating with the sockets 34. The walls 36 and 37 of the passages 35 act as stops, to limit the forward and backward flexing of the brace 3, by coacting with the tongues 32. To prevent the brace-members from being prematurely separated sidewise, we pass pins 38 through said members, the tongues 32 being provided with openings 39 somewhat larger in diameter than the pins 38; hence the pivotal movement of the blocks will not be hindered. To connect the brace-members it is merely necessary to slip the blocks one over the other and apply the pins 38.

The device will be made up to suit the wearer. In other words, the brace 3 will be

built up or assembled according to the length of the back of the wearer; for that reason we prefer to provide blocks of various lengths, as it might be necessary to insert a relatively short block, in the combination of blocks, to produce a brace of a length to cause the pads 10 and 11 to be positioned over the hips in the lumbar region and the pads 19 and 20 over the shoulder-blades.

To permit of a forward movement of the body in excess of a backward movement thereof, the wall 36 of the passages, in the female blocks, is disposed at a greater angle relative to the faces of the blocks than the walls 37 thereof. Hence the brace 3 can be flexed forward to a greater extent than backward. In practice, there will be a very slight backward flexing of the brace 3; in fact it will be negligible. To prevent backward movement, we provide blocks 30 with plates 40 which at one end overlap the male blocks at 41 to act as stops to prevent the backward pivotal movement of the blocks. The opposite end of each plate 40 is made flush with the adjacent end of the female block to which it is secured by rivets or screws indicated by 42. The plate 40 also acts to cover the adjacent end of its pin 38.

Having described our invention what we claim is:

1. A bracing element consisting of a plurality of jointed tongue and socket block members and means permitting the flexing of said brace in one direction only.

2. A bracing element consisting of a plurality of jointed tongue and socket block members and means permitting the flexing of said brace in one direction only, a belt member connected to one of the end members of said brace, and means connected to the opposite end member to secure the adjacent end of the brace to the upper portion of the body.

3. A bracing element consisting of a plurality of jointed tongue and socket block members and means permitting the flexing of said brace in one direction only, a belt member pivotally connected to one end member of the brace, and a chest-member pivotally secured to the opposite end member of the brace.

4. A brace consisting of a plurality of block members provided with sockets, a plurality of coöperating block members having tongues to pivotally engage said sockets, and stops arranged to limit the pivotal movement of the blocks in one direction.

5. A brace consisting of a plurality of pivotally connected jointed tongue and socket members, and means permitting the flexing of said brace in one direction only.

6. A brace consisting of a plurality of socket blocks provided with passages at each end thereof and having angular walls, and a socket at the end of each passage, a plurality of coöperating blocks having a tongue at each end to pass through said passages, and a head at the end of each tongue to engage the said sockets.

7. A brace consisting of a plurality of socket blocks provided with passages at each end thereof, said passages having angular walls of different degrees of inclination, said blocks being provided with a socket at the inner end of each passage therein, a plurality of coöperating blocks, each having a tongue and a rounded head at the end of each tongue to engage the socket in the end of an adjacent block.

8. A brace consisting of a plurality of socket blocks provided with passages at each end thereof, said passages having angular walls of different degrees of inclination, said blocks being provided with a socket at the inner end of each passage therein, a plurality of coöperating blocks, each having a tongue and a rounded head at the end of each tongue to engage the socket in the end of an adjacent block, and means carried by each socket block to prevent the movement of said coöperating blocks in one direction.

9. A brace consisting of a plurality of socket blocks provided with passages at each end thereof, said passages having angular walls of different degrees of inclination, said blocks being provided with a socket at the inner end of each passage therein, a plurality of coöperating blocks, each having a tongue and a rounded head at the end of each tongue to engage the socket in the end of an adjacent block, and a plate carried by each socket block extending beyond one end thereof to overlap the adjacent end of its coöperating tongue block.

10. A spinal support, comprising a belt-plate, lumbar region pads carried thereby, belts connected to the said plate, a chest-member plate, shoulder pads carried thereby, shoulder straps connected to said chest-plate, a flexible brace pivotally connected to said plates and composed of jointed tongue and socket blocks and means permitting the flexing of said brace.

11. A spinal brace, comprising a series of alined pivotally jointed blocks, a plate adjacent each joint arranged to act as a stop to limit the pivotal movement of the blocks, and means to secure the brace to the body.

Signed at New York city, N. Y., this 15th day of January, 1919.

ANTON MEYER.
JOHN A. STEINERT.

Witnesses:
MAURICE BLOCK,
EDWARD A. JARVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."