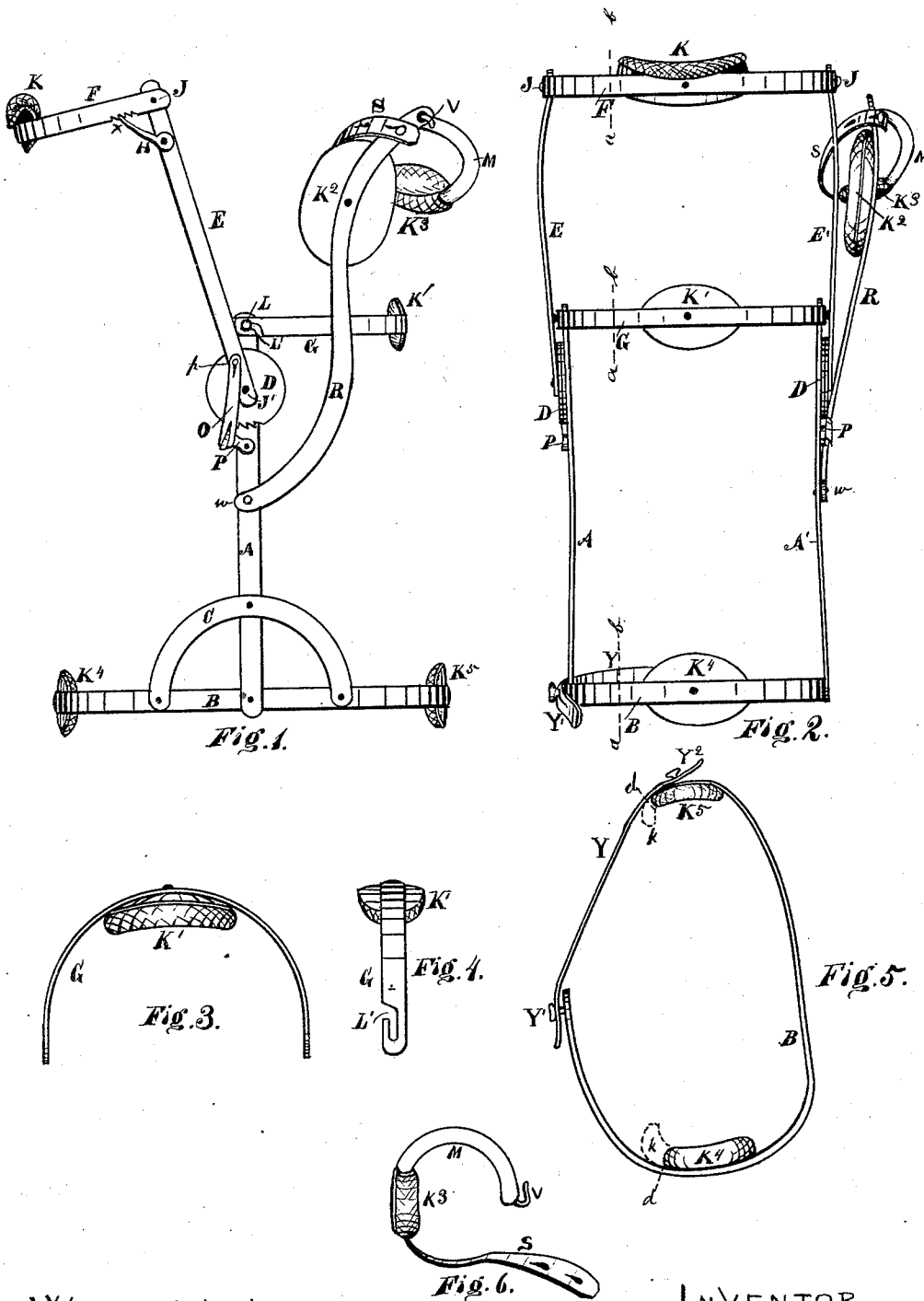


H. R. ALLEN.
BACK AND SHOULDER-BRACE.

No. 170,655.

Patented Dec. 7, 1875.



WITNESSES;
John M. Dowell
J. S. Lang

INVENTOR.
Horace R. Allen
Per. C. D. Allen, Atty.

UNITED STATES PATENT OFFICE.

HORACE R. ALLEN, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN BACK AND SHOULDER BRACES.

Specification forming part of Letters Patent No. **170,655**, dated December 7, 1875; application filed September 25, 1875.

CASE D.

To all whom it may concern:

Be it known that I, HORACE R. ALLEN, of Indianapolis, county of Marion, State of Indiana, have invented a new and useful Improvement in Braces for Treating Deformities of the Back and Shoulders, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to the construction and arrangement of an adjustable brace, which is designed to treat deformities of the spine and shoulders.

Figure 1 represents a back elevation of my improved brace. Fig. 2 is a side elevation of the same. Fig. 3 represents the curved adjustable side supporting-bar that is hooked onto the upper ends of the upright back and front bars. Fig. 4 is a side view of Fig. 3. Fig. 5 represents a plan view of the curved base spring-bar and pads. Fig. 6 represents the universal shoulder-brace with its pad and means of attachment.

The curved spring-bar B passes or extends about three-fourths of the way around the body, and is secured thereto by means of the strap Y, either buckled or buttoned to the ends of the spring-bar B, as at Y¹ Y². The spring-bar B is also provided with pads K⁴ K⁵, which are intended to fit on the outside of the pelvis, and, when necessary, are extended, as shown by the dotted lines k k, Fig. 5, transversely in front, so as to more securely fit this band or spring-bar to the pelvis by turning the ends of the bar B in front and against the bones. On the back and front of the band or spring-bar B are riveted the upright bars A A', and supported there by the curved braces C C'. Near the upper end of these upright bars A A' are circular ratchets D, pivoted at J', and immediately below these ratchets, and also pivoted to the uprights A A', are the pawls P P, which engage with the ratchets D. The side bars E E' are riveted to the ratchets D, so that any movement of the bars E E' forward or backward turns the ratchets D on the pivot J. The pawls P P are held against the ratchets by means of the springs O O'. At the upper end of the front and back bars A A' are studs L, over which the adjustable side spring-bar G is hooked or secured in any man-

ner. This side spring-bar is also provided with an adjustable pad, K¹. At the upper end of the front and back bars E E', at J, is pivoted the upper circular spring-bar F, which is also provided with a pad, K, and ratchets x x. The pawls H H are pivoted to the front and back bars E E'. This arrangement allows the adjustment of the upper curved bar F to any desired position. Between the circular ratchets D D' and the curved braces C on the bars A or A' is pivoted the adjustable curved arm R, which extends upward to the back of the shoulder, and is provided with an adjustable pivoted pad, K². Above this pad, and at the end of the arm R, is a hole, in which the hook V of the inside shoulder-brace M is hooked. This brace M is formed of wire covered with rubber tube, and is also provided with a pad, K³. The brace M passes either over or under the shoulder, allowing the pad K³ to rest over the shoulder on the point of the shoulder or under the arm, and is secured in any of these positions by means of the strap S, which is buttoned or buckled to the end of the arm R. The hook V, working in the hole at the end of the arm R, forms a universal joint, so that the arm is free to move in any direction.

This brace can be made for one side instead of both, by having the spring-bars B, G, and F divided, as shown by the lines a b. This division of the brace can be on either side of the pads K K¹ K⁴, and the adjustable curved arm R can be attached to either of the side bars A A'.

What I claim as new, and wish to secure by Letters Patent, is—

1. The curved base-spring B, provided with pads K⁴ K⁵ and strap Y, in combination with the upright back and front bars A A' and curved braces C C', substantially as set forth and described.

2. The curved bar or arm R, pivoted as shown, and provided with a pad, K², substantially as set forth and described.

3. The combination of the upright front and back bars A A' with the circular ratchets D D', pawls P P', and upper front and back bars E E', substantially as and for the purpose set forth and described.

4. The upper front and rear bars E E' and

the adjustable top spring-bar F and pad K, ratchets *x x*, and pawls H H, constructed and operated substantially as and for the purpose set forth and described.

5. The adjustable curved side bar G, provided with the hooks L', or other means of fastening to the upper ends of the side bars A A' and pad K¹, substantially as and for the purpose set forth and described.

6. The shoulder-brace M, provided with a pad, K³, strap S, and hook V, in combination with the arm R, substantially as and for the purpose set forth and described.

7. The braces, as above described, constructed so as to operate on both sides, as shown in Fig. 1, or separated at the line *a b* of Fig. 2 for one side, substantially as set forth and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HORACE R. ALLEN.

Witnesses:

WM. P. JOHNSON,

WM. L. PECK.