

(No Model.)

H. E. MATTHEWS.
SHOULDER BRACE.

No. 514,834.

Patented Feb. 13, 1894.

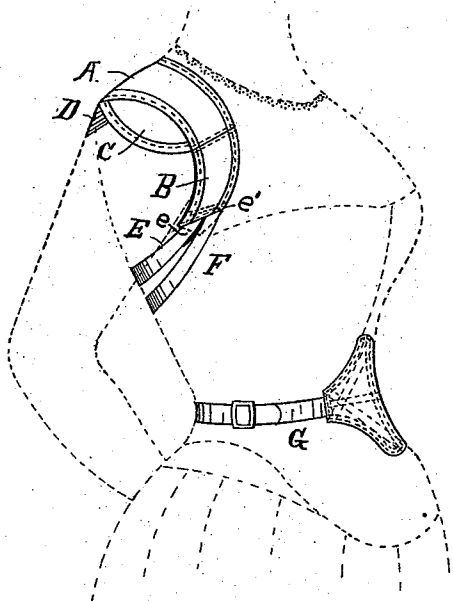


Fig. 1.

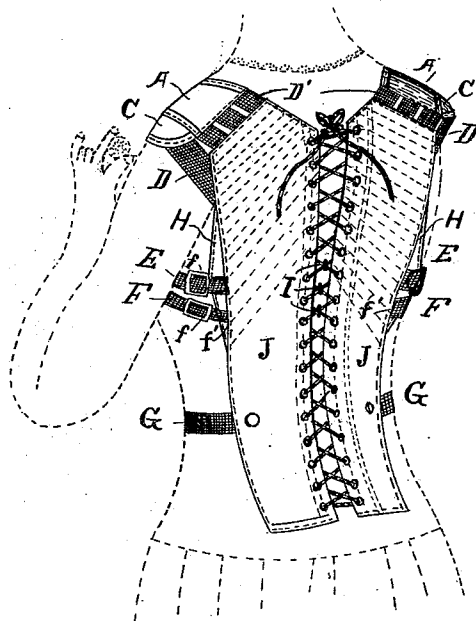


Fig. 2.

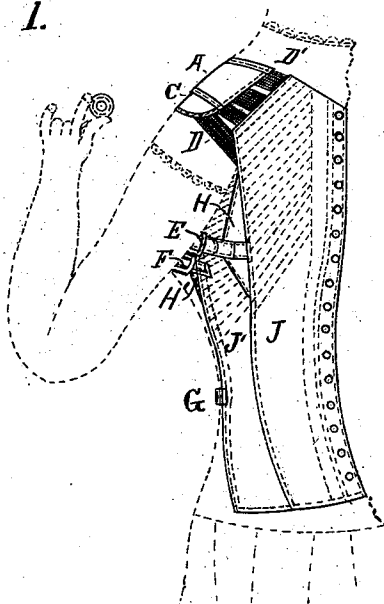


Fig. 3.

WITNESSES:

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HANNAH E. MATTHEWS, OF GRAND RAPIDS, MICHIGAN.

SHOULDER-BRACE.

SPECIFICATION forming part of Letters Patent No. 514,834, dated February 13, 1894.

Application filed August 29, 1892. Serial No. 444,458. (No model.)

To all whom it may concern:

Be it known that I, HANNAH E. MATTHEWS, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Shoulder-Braces, of which the following is a specification.

My invention relates to improvements upon the shoulder brace secured to me by Letters Patent of the United States, No. 468,425, issued February 9, 1892; and its objects are: first, to provide a means of securing the shoulder cap of my brace in position at the point of the shoulder; and, second, to cure such deformities as may exist in the back or side of the wearer, along the lower, and outer lines of the scapula. I attain these results by the means illustrated in the accompanying drawings, in which—

Figure 1. is a front perspective of a lady's form, in outline, showing the front portion of my device. Fig. 2. is a back perspective of the same, showing the back of my device; and Fig. 3. is the same with a side section attached.

Similar letters refer to similar parts throughout the several views.

The shoulder straps A, the padded section B, the caps C, the webbing D' the underarm straps E, the belt G, the backs J and their lacings are old, and shown in my former patent hereinbefore referred to. The additional elastic webbing D, the under-arm straps F, the gores H, the form of the end *e* of the padded section B, the side pieces J', and the tying of the lacing at I constitute the main features of my present invention.

In practice, I find that a great many persons,—especially those of foreign parentage,—are more or less deformed along the lower-lateral lines of the scapulas, and that the use of an ordinary shoulder brace, tends to aggravate, rather than to remedy these deformities. To overcome these difficulties: first, I attach a narrow gore H, made of any pliable material, as cotton or linen cloth, to the backs J, of the braces, substantially of the form, and in the position indicated in Fig. 2. and attach the ends of the under arm strap E to the back portions, and to this gore at the widest point. By this means the entire lateral lines of the scapula is covered by a pli-

able band which being attached to the rigid back of the brace, adjusts itself to the deformity, and acts thereon so plially and gradually that, in most instances, the deformity is soon reduced without inconvenience to the wearer, and the form of the gore is such that it draws equally upon the back its entire length. Second, I then attach an elastic web D, at one end to the back of the brace, from the upper end of the gore to the upper, outer corner of the back portions, and at the other end to the shoulder cap C. This web acts the double purpose: first, of holding the upper lateral line of the back portions J in position to support the scapula directly back of the arm pit; and, second, of holding the cap C, down over the shoulder so that the shoulder strap A cannot by any possibility slip up over the shoulder toward the neck. This element alone will often reduce a slight deformity along the upper lateral line of the scapula.

When a deformity along the lower lateral line of the scapula is very prominent, I sometimes find it necessary to attach a second strap F to the section B of the shoulder strap outside of the strap E, and, passing it under the arm, attach it to the back portions, as at *f'*, a little below the end of the strap E. To do this I find it necessary to cut the end of the section B, at *e'*, at a sharp angle to give greater breadth to receive both straps E and F. When a prominent deformity exists upon the side, beyond the reach of the gore H, I have found it necessary to attach the side pieces J' to the back and attach the strap F to this piece, instead of to the back J. A gore H', similar to H, may be attached to this side piece; and, also, a corset front if desired.

To render these straps, &c., effectual, it is necessary to hold the lacings in the back portions, upon the line of the straps E. F. rigid, and for this purpose I tie two or more knots, as at I, in them, so that they cannot slip in the eyelets and allow the back portions to spread at this point. I hold the lower ends of the back portions to position by means of the belt G attached in the usual way. I connect the shoulder straps to the backs with elastic webbing D' and provide them with the padded sections B as described in my patent of February 9, 1892, hereinbefore referred to.

The advantages that I claim for my present shoulder brace over others are, first, that the use of the additional elastic web D prevents the shoulder cap from sliding up over the point of the shoulder; second, that the use of the two arm straps E and F, instead of one, together with the knots I in the lacing, adjusts the back more perfectly to the form of the wearer, and hold the shoulder strap B in a better position than can be done with the use of a single strap; and, third, the use of the gore H and the additional side pieces J', together with the two arm straps, renders it possible to reduce serious deformities, upon parts of the person covered by them, which cannot be attained with any shoulder brace or corset now in use without great inconvenience to the wearer.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a shoulder brace, of a back portion, shoulder straps flexibly connected therewith, an arm strap, and a shoulder cap; of an elastic web connected at one end with the back edge of the shoulder cap and at the other end with the lateral edges of the back portion, substantially as, and for the purpose set forth.

2. The combination in a shoulder brace, of the back portions, shoulder straps flexibly attached thereto, arm straps, and shoulder caps; with an elastic web connecting the shoulder caps with the outer edges of the back portions, and a flexible gore attached at one edge to the edge of the back portions, and the other edge connected with the arm strap substantially as, and for the purpose set forth.

3. The combination, in a shoulder brace, of back portions, shoulder straps elastically connected to the upper ends of the back portions and terminating in under arm straps the free ends of one pair of which attached to a flexible gore on the back portions, and of the other pair to the back portions, flexible gores attached to the outer edges of the back portions, said shoulder straps provided with shoulder caps which are connected to the back portions by elastic bands, substantially as and for the purpose set forth.

4. The combination, in a shoulder brace, of back portions having straps elastically connected with their upper ends, padded sections

upon said shoulder straps and under-arm straps upon the ends thereof, a flexible gore upon the outer edges of the back portions, the free end of one of the under-arm straps being connected by buckle with said gore, and the other with the back portion, and a series of knots tied in the lacing between the back portions, upon the line of the under-arm straps, substantially as, and for the purpose set forth.

5. The combination, in a shoulder brace, of back portions, shoulder straps elastically connected with the upper ends thereof, and under-arm straps upon the free ends of said shoulder straps; with shoulder caps attached at one edge to said shoulder straps and connected, at the other edge with the back portions by means of an elastic webbing, flexible gores upon the outer edges of the back portions arranged to receive the free ends of the under-arm straps and a series of knots in the lacing between the back portions upon the line of the under-arm straps, substantially as, and for the purpose set forth.

6. The combination in a shoulder brace of back portions, shoulder straps elastically connected with the upper ends of the back portions and having shoulder caps attached and under-arm straps; with flexible gores attached to the outer edges of the back portions, side supports, and auxiliary under-arm straps, substantially as specified.

7. The combination, in a shoulder brace, of back portions laced together at the center line, shoulder straps elastically connected with the upper ends of the back portions, and having shoulder caps attached, under-arm straps attached to the shoulder straps, flexible gores attached to the outer edges of the back portions and arranged to receive the free ends of the under arm straps, side supports attached to the outer edges of the back portions, auxiliary under arm straps, and a series of knots in the lacing between the back portions upon the line of the under-arm strap, substantially as specified.

Signed at Grand Rapids, Michigan, this 17th day of August, 1892.

HANNAH E. MATTHEWS.

In presence of—
M. PURVIS,
I. J. CILLEY.