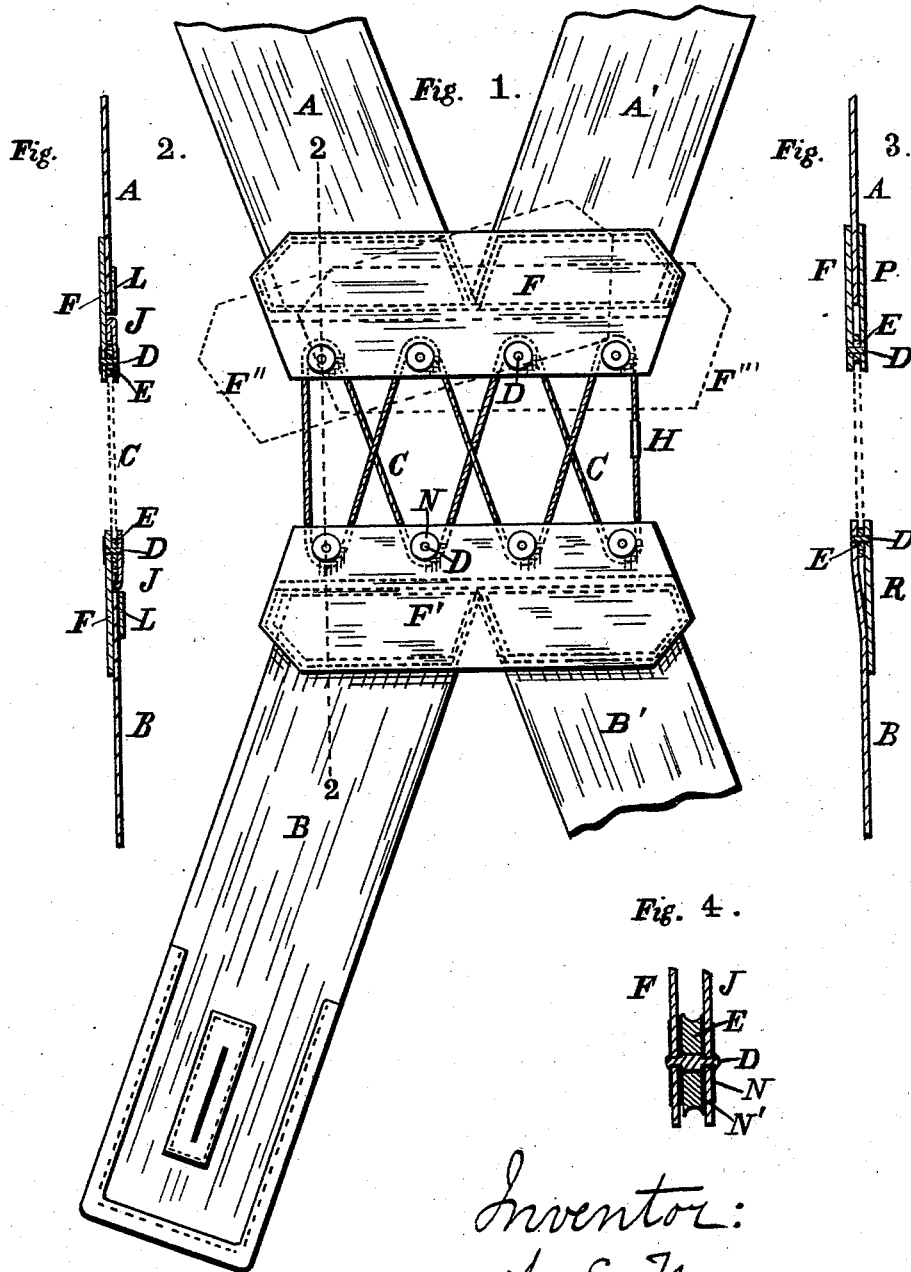


(No Model.)

A. S. MANN.
SUSPENDERS.

No. 455,409.

Patented July 7, 1891.



Inventor:

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UNITED STATES PATENT OFFICE.

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SUSPENDERS.

SPECIFICATION forming part of Letters Patent No. 455,409, dated July 7, 1891.

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To all whom it may concern:

Be it known that I, ABRAM S. MANN, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Suspenders, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to certain improvements in suspenders, whereby their flexibility or capacity for self-adjustment to the positions of the body of the wearer is increased by means of a connection between the long webs or shoulder-straps and the short webs, formed by a lacing which permits the two sections consisting of the long and short members to make the requisite relative movements.

My improvements are fully described and illustrated in the following specification and the accompanying drawings, and the novel features thereof specified in the claims annexed to the said specification.

My improvements in suspenders are represented in the accompanying drawings, in which—

Figure 1 is a rear elevation. Fig. 2 is a section on the line 2 2, Fig. 1. Fig. 3 is a section representing a modification. Fig. 4 is a section through one of the rollers on an enlarged scale.

In the accompanying drawings, A A' represent the long webs or shoulder-straps, which are made of any suitable material of the requisite length, and which are provided at their front ends with any suitable attachments. The short webs or back-straps are represented at B B'.

C is the cord or lacing by which the long and short sections of the suspenders are connected together, so as to permit their self-adjustment in order to adapt themselves to the movements of the wearer. The lacing passes around a series of studs, which are preferably provided with rollers, said studs being inserted in the webs or in plates or flaps secured thereto.

In the construction shown in Figs. 1 and 2 D represents the studs, E the rollers, and F F' the plates attached to the suspender-sections. The lacing slides about or on the studs or rollers, so as to permit the relative self-adjustment of the plates in accordance with the movements of the person wearing the sus-

penders, as indicated by the dotted lines F'' F''' in Fig. 1. The ends of the lacing are fastened together by being lapped and compressed within a metallic clamp H, or they may be secured by any suitable knot. The clamp may be made small enough to pass around the studs or rollers, and the use of the knot for securing the ends of the lacing permits the ends of the sections to be adjusted so as to vary the length of the suspenders. The studs are secured in the webs and the flaps by being riveted at their ends, washers being provided on both the inner and outer surfaces of the fabric, as represented most clearly in Fig. 4. The studs may be applied by being inserted at one end in the web itself and at the other end in a flap or plate, such as R, Fig. 3, which plate is itself attached to the web, or the studs may be inserted in the two opposing flaps F P, Fig. 3.

In another form of construction the studs are inserted at one end in a flap F, Fig. 2, and at the other end in the plate J, which is secured to the flap. The flap is secured to the end of the web, which is re-enforced, if desired, by the additional plate L. The flaps or plates may be made of any suitable material—such as leather, paper, wood, cloth, or webbing—being covered or bound in any preferred manner. The stud D is provided with shoulders, against which the inner washers N', Fig. 4, bear, while the outer washers N are secured in place by riveting over the ends of the studs. The lacing will slide on the studs alone; but the use of the rollers increases the freedom of the self-adjusting movement and materially reduces the friction and wear.

My invention is applicable to shoulder-braces, as well as suspenders. It will be observed that the long webs A A' or shoulder-straps are connected together at their ends and secured permanently together at a suitable angle by means of the flap or other means employed for the attachment of the studs, and also that the short webs B B' are similarly attached together at the proper angle. The suspenders are thus divided into two sections, the opposing ends of which are connected together by the lacing, which permits them to adjust themselves relatively to each other in accordance with the movements of the wearer, thereby securing an increase of comfort and

durability. It is obvious, also, that the capacity for self-adjustment may be increased by dividing the plate or plates F, so that the ends of the straps A A' are permitted a certain amount of relative movement, the divided plate in such case being either connected together and to the plate on the ends of the short straps by the lacing only or by any suitable form of attachment which will allow the requisite freedom of movement.

I claim—

1. The combination, with the two long webs or shoulder-straps A A', of the two shorter webs B B', connected together by the lacing C, extending between suitable attachments on

the lower ends of the shoulder-straps and on the upper ends of the short straps, adapted to render therein, substantially as and for the purposes set forth.

2. The combination, with the straps A A' and B B', provided with plates F F' and studs D, of the lacing C, substantially as described.

3. The combination, with the straps A A' and B B', provided with plates F F', studs D, and rollers E, of the lacing C, substantially as described.

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Witnesses:

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