

No. 771,990.

PATENTED OCT. 11, 1904.

H. G. MACWILLIAM.
SUSPENDERS.

APPLICATION FILED DEC. 15, 1902.

NO MODEL.

4 SHEETS—SHEET 1.

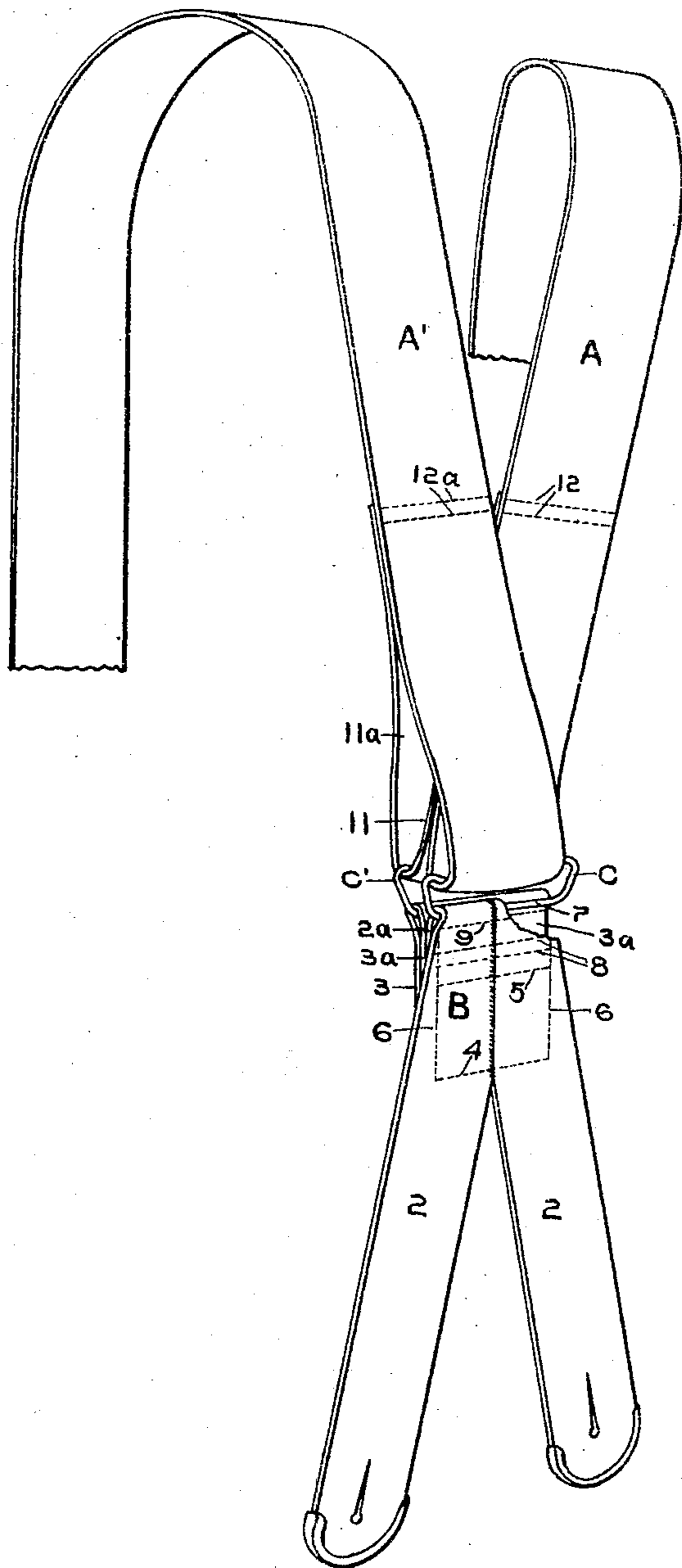


Fig. 1.

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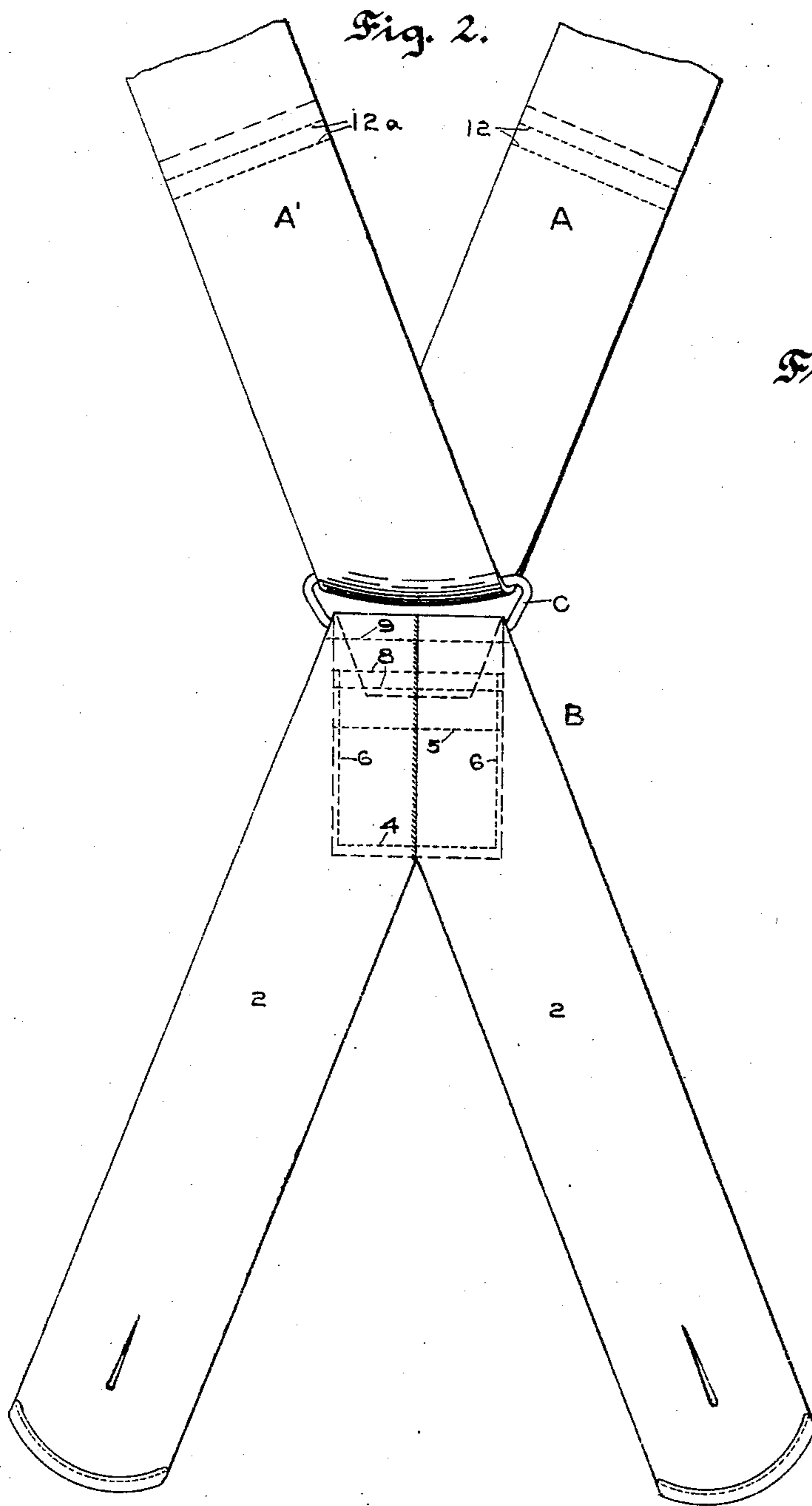
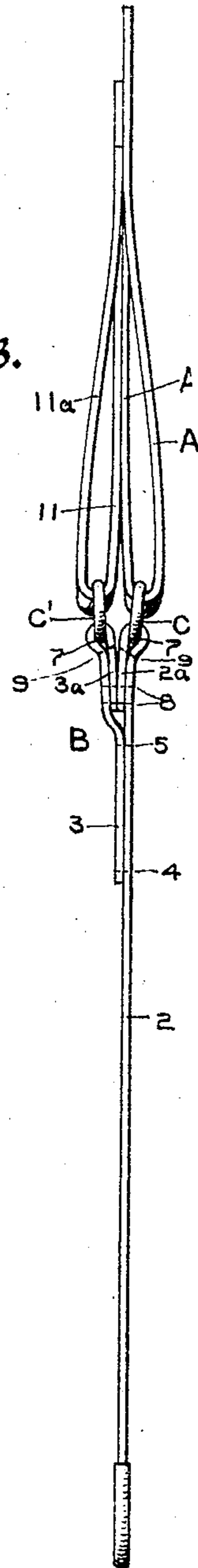


Fig. 3.



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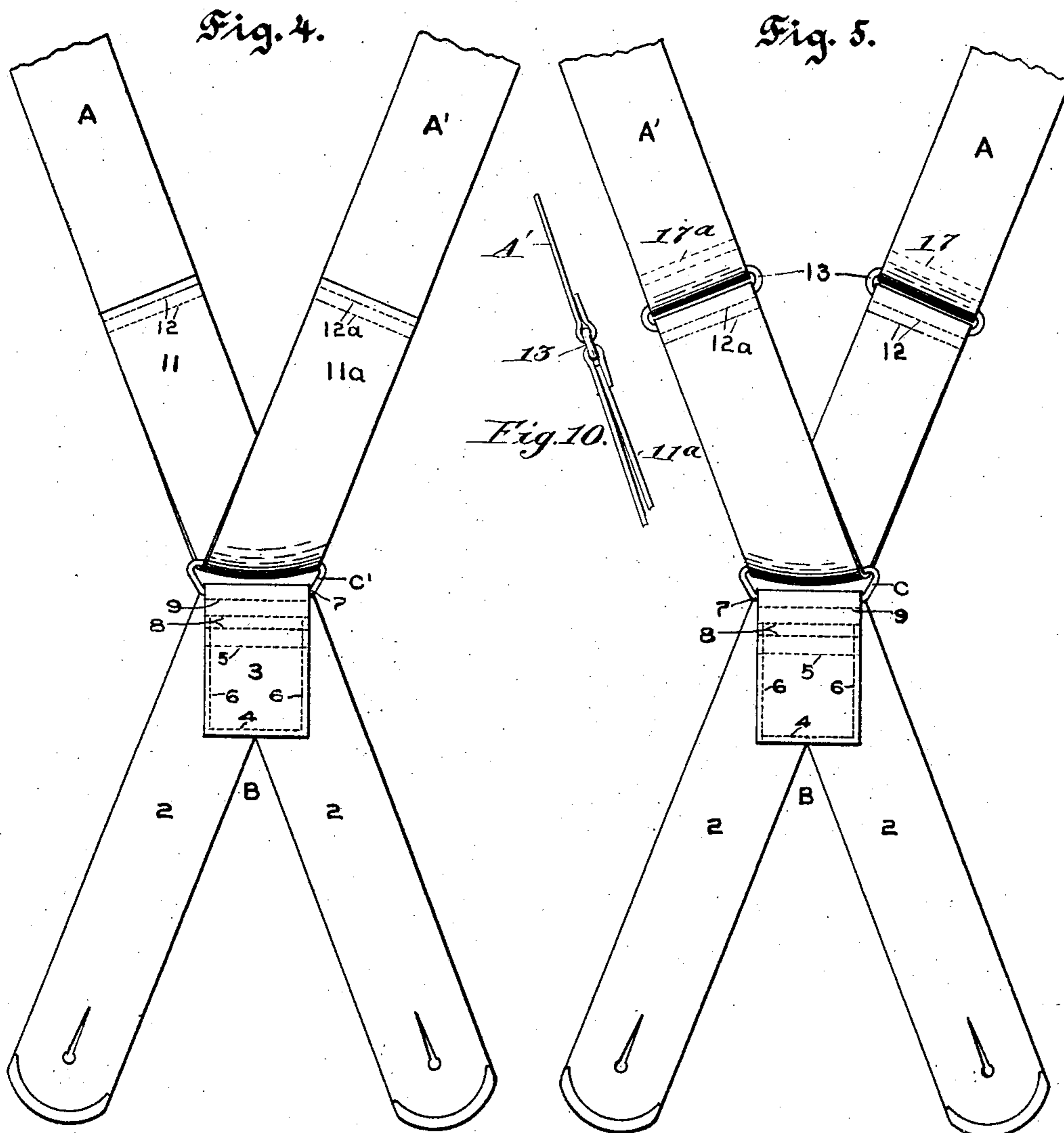
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4 SHEETS—SHEET 4.

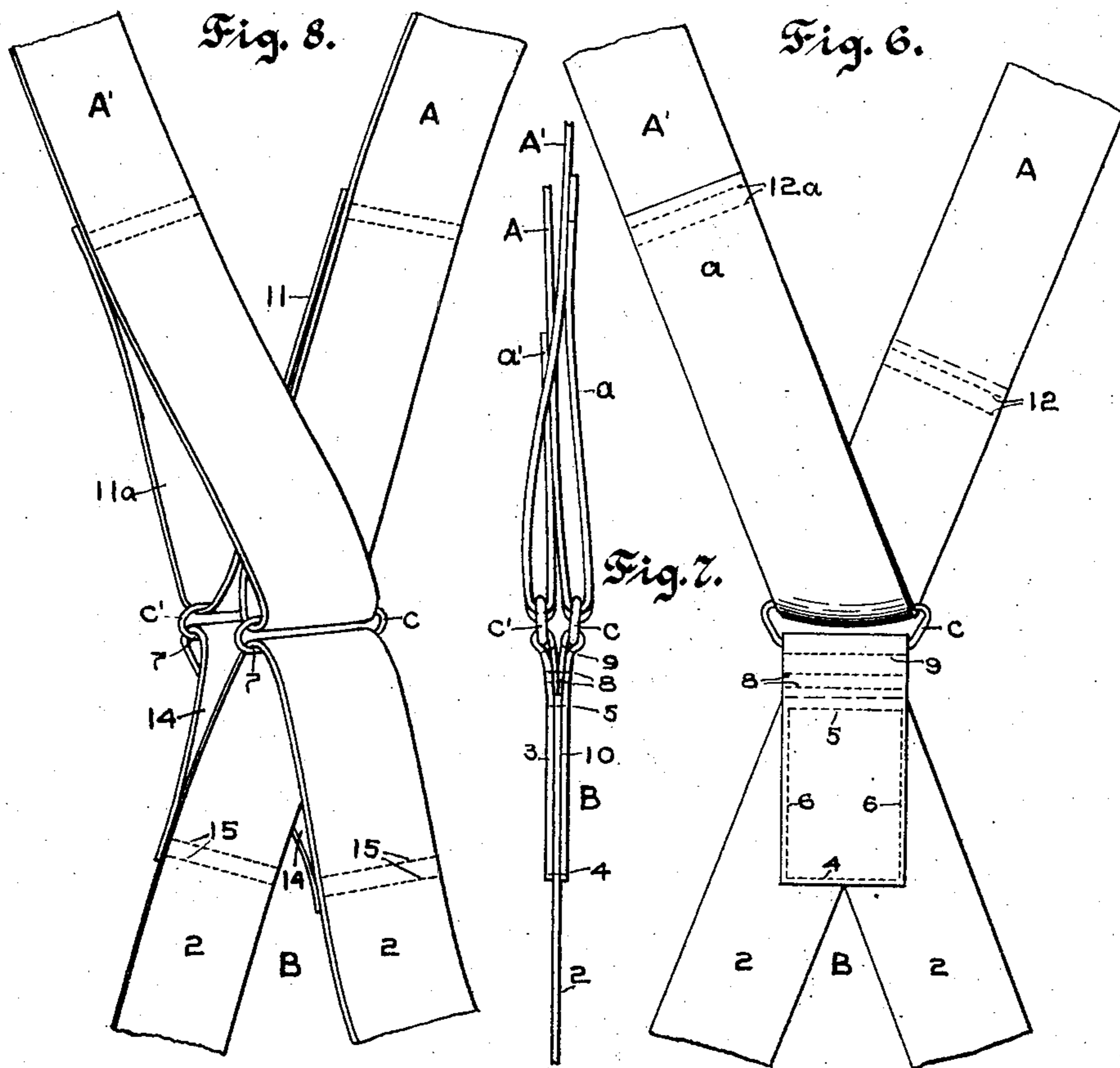
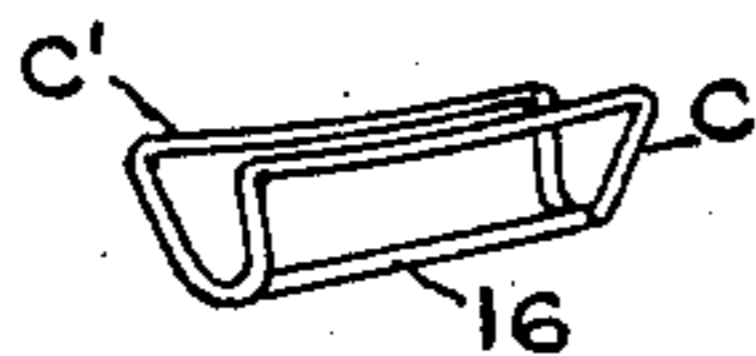


Fig. 9.



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UNITED STATES PATENT OFFICE.

HUGH GORDON MACWILLIAM, OF NEW ROCHELLE, NEW YORK.

SUSPENDERS.

SPECIFICATION forming part of Letters Patent No. 771,990, dated October 11, 1904.

Application filed December 15, 1902. Serial No. 135,189. (No model.)

To all whom it may concern:

Be it known that I, HUGH GORDON MACWILLIAM, a subject of the King of Great Britain and Ireland, residing at New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Suspenders, of which the following is a specification.

My invention relates to improvements in suspenders of the class wherein the shoulder-straps are connected with the rear suspender-end by means of a flat strap of webbing or other suitable material passing runningly through a loop or loops upon the shoulder-straps or suspender-end, whereby the strains are equalized. As in suspenders of this class the running-straps do not run from side to side in the same plane across the wearer's body, but pass through the loops from back to front or from front to back, thereby doubling upon themselves, the strain upon the loops is partially torsional and tends to twist the loops and the webbing to which they are attached, and the straps are apt to rub against each other and impede their free working.

It is the object of the invention to provide a suspender of the class described wherein this torsional effect shall be overcome, so that the loops and straps shall be maintained in flat position, wherein the downgoing and upcoming strap portions shall be held apart from one another to avoid, as far as possible, frictional contact between them, wherein the shoulder-straps may be made in a single continuous integral piece without joints and without longitudinal division or bifurcation, and wherein the straps shall run with the utmost freedom and be subjected to wear as little as possible and the metal trimmings and doubled parts be practically concealed from view when the suspender is in use.

To this end my invention consists in the features of construction, combination, and arrangement of parts hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a pair of suspenders embodying my invention, with the rear sus-

pender-end partly broken away to show the outer loop. Fig. 2 is a front elevation, on a somewhat larger scale, of the back of the suspenders, so much only of the shoulder-straps being shown as is necessary to illustrate the invention. Fig. 3 is a side view of the same. Fig. 4 is a rear view of the back of the suspenders. Fig. 5 is a view showing a modified form wherein the shoulder-straps are not made of a single length of material. Fig. 6 is a front elevation of the back of a pair of suspenders, showing another modification wherein the shoulder-straps are divided, showing one shoulder-strap raised and the other shoulder-strap lowered. Fig. 7 is a side view of the same, but showing one shoulder-strap pulled a little forward of the plane of the other strap in order the better to show the parts. Fig. 8 is a perspective view of a suspender-back, showing a modified form wherein the invention is applied both to the shoulder-straps and to the rear suspender-end. Fig. 9 is a detail showing a modified form of double loop, in which all of the parts are integral; and Fig. 10 is a side view of one of the shoulder-strap connections in Fig. 5, taken at right angles with the shoulder-strap.

As shown in the drawings, A and A' represent the right and left shoulder-straps, respectively, of a pair of suspenders. They may be provided at their front ends with any desired means of attachment to the front of the trousers and constitute, preferably, as shown in Figs. 1, 2, and 4 of the drawings, a single continuous length of webbing or other suitable material.

Carried by the rear suspender-end B at its upper end are two loops C and C', made, preferably, of wire or metal stamping and arranged one behind the other in approximately parallel planes, so that their openings or eyes substantially register. They are preferably made entirely separate from one another, as best shown in Figs. 3 and 7, and secured to the rear suspender-end in such a way as to be movable toward and away from each other. In order to secure such relative movability and also to secure independence of action between the loops, the rear suspender-end B is

preferably made with two plies of material at the top and the loop C secured to one ply and the loop C' to the other ply.

In the form shown in Figs. 2, 3, and 4 of the drawings the two button straps or tabs 2 of the rear suspender-end are united at the top and themselves constitute one ply, while the reinforcing-piece 3, secured upon the back of the tabs at their place of union by stitching 4, 5, and 6, constitutes the other ply. The loops C and C' are preferably secured to the respective plies by passing the plies inwardly toward each other through the loops C and C', respectively, and around the lower bars 7 thereof and folding the plies back upon themselves, so that the inturned portions 2^a and 3^a thereof lie back to back, as it were. They are secured in that position by stitching 8, passing through the plies a sufficient distance below the loops to allow the loops some freedom and independence of movement relatively to each other. To keep the loops in place at the top of the plies, the inturned portion of each ply is stitched to the main portion thereof by a line of stitching 9 just below the bar 7 of the loop. By this arrangement not only will each loop swing upon its lower bar as a pivot, but the entire upper portion of each ply above the stitching 8 will be free to move toward and away from the other ply.

In the form shown in Figs. 6 and 7 the two plies at the top of the rear suspender-end consist of the two reinforcing-pieces 10 and 3, secured by stitching 4, 5, and 6 upon the front and back, respectively, of the tabs 2 and extending up beyond the ends of the tabs. They are secured to the loops in the same manner as the plies in Figs. 2 and 3, the only difference being that a second reinforcing-strip 10 is here substituted for the tabs themselves as one of the plies.

In the forms shown in Figs. 1, 2, and 3 of the drawings a single length of webbing is passed through the loop C to form the shoulder-straps A and A'. A comparatively short strap, preferably of the same width as the shoulder-straps, is secured at one end by stitching 12 or other suitable means upon the back of the strap A and then passed down between the loops and outwardly through the loop C' in a direction opposite to the direction in which the strap A passes through the loop C. It is then carried up and secured at its other end by stitching 12^a upon the back of the strap A', thus forming auxiliary straps 11 and 11^a. These auxiliary straps with the corresponding portions of the shoulder-straps comprised between the lines of stitching 12 and 12^a thus constitute doubled straps or a doubled strap portion, the constituent straps of which are secured together at their ends only and have intermediate running engagement with the loops C and C', respectively.

By this arrangement of straps and loops the shoulder-strap A and the auxiliary strap 11, secured thereto, pass down back to back in substantial contiguity between the loops and then separate and pass outwardly in opposite directions through the loops and up on the outer or farther sides thereof to form the other shoulder-strap A' and auxiliary strap 11^a. It will be seen that the main and auxiliary straps A' and 11^a, respectively, passing down upon the outside of the loops C and C', respectively, are held apart from one another and from the main and auxiliary straps A and 11, which pass down in contiguity between them, so that when the shoulder-straps are subjected to unequal strains the straps running in one direction will not rub against the straps running between them in the other direction unless they are distorted out of their normal planes. This elimination of friction between the downgoing and upcoming straps permits the straps to run with great ease and freedom. Furthermore, by having the straps doubled and threaded oppositely through the loops the torsional effect upon one loop in one direction is counteracted by an equal torsional effect upon the other loop in the opposite direction, so that the loops and straps are kept flat. Furthermore, as the doubled loops and straps lie one exactly behind the other, as shown in Fig. 2, the doubling of the parts is concealed from view when the suspenders are in use.

In the form shown in Figs. 6 and 7 the shoulder-straps are divided and consist of two separate lengths of fabric, having their rear ends overlapped for a distance of about the length of the auxiliary straps 11 and 11^a, above described, the end portion *a* of the shoulder-strap A after passing through the loop being secured upon the face of the shoulder-strap A' by suitable means, such as the stitching 12^a, and the end portion *a'* of the shoulder-strap A' after passing through the loop being similarly secured by stitching 12 to the under side of the shoulder-strap A.

In the forms shown in Figs. 5 and 10 the shoulder-straps are severed above the point of attachment of the auxiliary straps 11 and 11^a and coupled together by links 13, to which the ends of the severed portions are secured in any suitable manner, such as by being passed through the links and doubled back and secured upon themselves by stitching 12 and 17 and 12^a and 17^a, respectively, as shown in the drawings. Except for the severing and coupling together of the shoulder-straps this form is precisely like that shown in Figs. 2, 3, and 4.

Fig. 8 shows an application of the invention to the rear suspender-end B. As here shown, the straps or tabs 2 are formed of a continuous length of fabric passed through the loop C in the same manner as the corresponding shoulder-strap A, but in an oppo-

site direction, and a shorter strap 14 is secured at its ends upon the back of the strap forming the tabs by stitching 15 or otherwise and passed intermediately through the loop C' in the same manner as the auxiliary strap 11, but in an opposite direction. In this form the loops C and C' are free from and unconnected with either the rear suspender-end or each other, except by the straps running freely through them.

While I prefer to make the loops separate and to connect them separately with the rear suspender-end, they may be made in one integral piece, as illustrated in Fig. 9, where a single lower bar 16 is common to both loops.

It will be evident that the invention is applicable as well to the front suspender-ends as to the rear suspender-ends, and various modifications may be made in the details of the parts without departing from the principle of my invention, the scope of which is defined in the claims.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pair of suspenders, strain-equalizing means comprising a supporting suspender part, two strap-receiving loops carried thereby, the loops being arranged in approximately parallel planes and formed with registering openings, and doubled straps running loosely therethrough, the double straps being unconnected except at their ends and passing intermediately in opposite directions, one through one loop, and the other through the other loop.

2. In a pair of suspenders, strain-equalizing means comprising a supporting suspender part, two strap-receiving loops carried thereby and arranged in approximately parallel planes with registering openings, and doubled straps threaded therethrough, the doubled straps being unconnected except at their ends and passing down in contiguity between the loops and outwardly in opposite directions through the loops and up on the outer sides thereof, for the purpose set forth.

3. In a pair of suspenders, a rear suspender-end, two loops carried thereby at the upper end thereof, the loops being arranged in different planes and having registering openings, and a pair of shoulder-straps having a doubled strap portion at the back, the constituent straps of the doubled portion being unconnected except at their ends and passing intermediately in opposite directions through the loops.

4. In a pair of suspenders, a rear suspender-end, two loops carried thereby at the upper end thereof, the loops being arranged in approximately parallel planes and having registering openings, and a pair of shoulder-straps having

a doubled strap portion at the back, the constituent straps of the doubled portion being unconnected except at their ends and passing down in contiguity between the loops and outwardly in opposite directions through the loops and up on the outer sides thereof, for the purpose set forth.

5. In a pair of suspenders, a rear suspender-end, two loops independently connected therewith at the upper end thereof, the loops being arranged in different planes and having registering openings, and a pair of shoulder-straps having a doubled strap portion at the back, the constituent straps of the doubled portion being unsecured except at their ends, and arranged one behind the other, and passing in contiguity between the loops and outwardly in opposite directions, one through one loop and the other through the other loop, and up on the outer sides thereof.

6. In a pair of suspenders, a rear suspender-end having at the top two plies of material, a loop carried by each of said plies, the loops being arranged in approximately parallel planes and having registering openings, and a pair of shoulder-straps having a doubled strap portion at the back, the constituent straps of the doubled portion being unconnected except at their ends and passing down between the loops and outwardly in opposite directions therethrough, and up on the outer sides thereof, for the purpose set forth.

7. In a pair of suspenders, a rear suspender-end, two loops carried thereby at the upper end thereof, the loops being arranged in different planes and having registering openings, shoulder-straps formed of a continuous length of material and passing runningly through one of said loops, and a shorter auxiliary strap secured at its ends upon the back of the length of material forming the shoulder-straps and passing intermediately and runningly through the other of said loops but in an opposite direction, for the purpose set forth.

8. A pair of suspenders comprising a rear suspender-end, two strap-receiving loops carried thereby, the loops being arranged in approximately parallel planes, and a pair of shoulder-straps having at the back a doubled strap portion, one of the constituent straps of the doubled portion passing through one loop in one direction, and the other of said straps passing through the other loop in the opposite direction, for the purpose set forth.

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

HUGH GORDON MACWILLIAM.

Witnesses:

WM. S. BEERS,

CHARLES F. STEHLIN.