

No. 708,963.

Patented Sept. 9, 1902.

H. C. HINE.
GARMENT SUPPORTER.

(Application filed July 16, 1902.)

(No Model.)

Fig. 1.

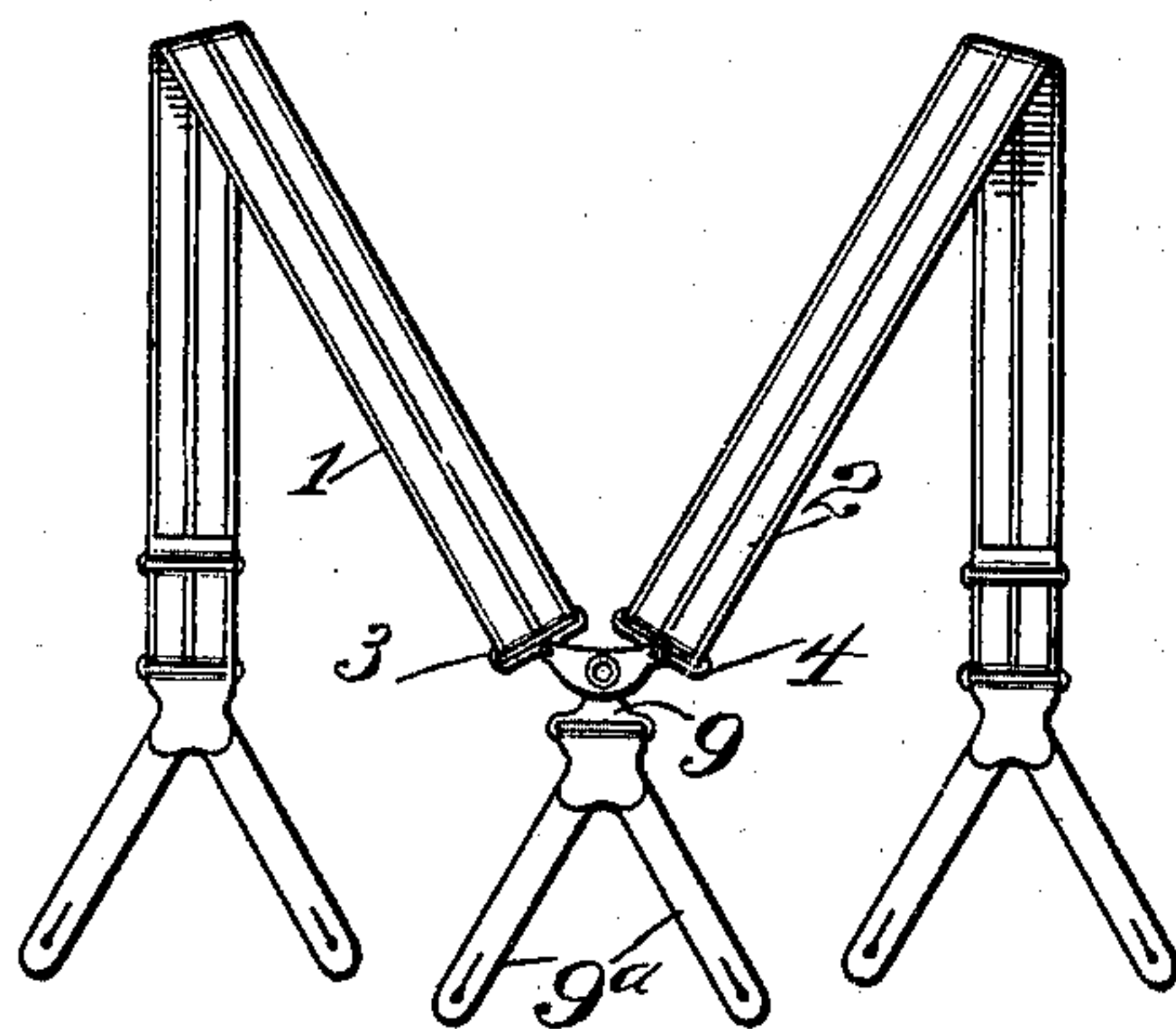


Fig. 2.

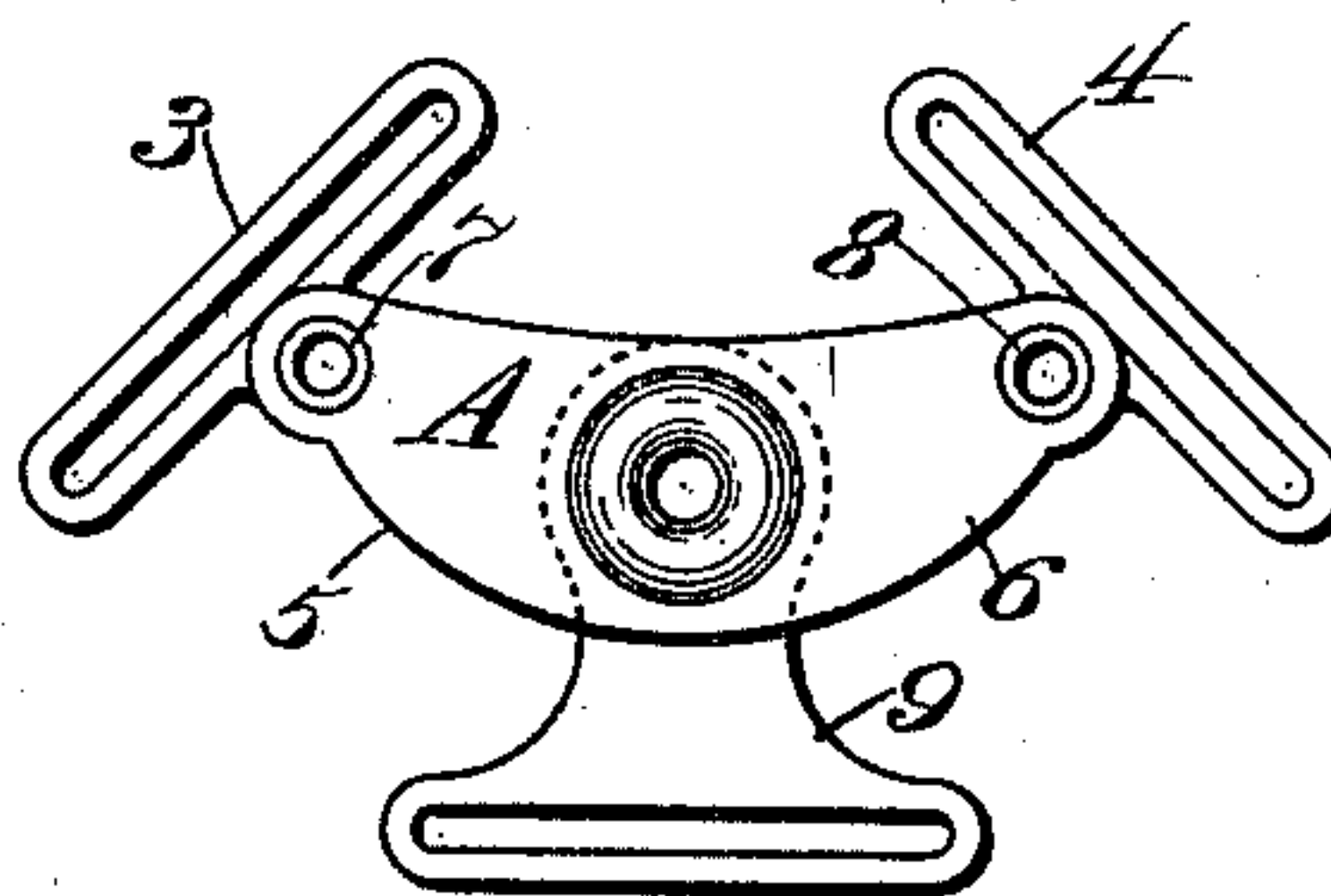


Fig. 3.

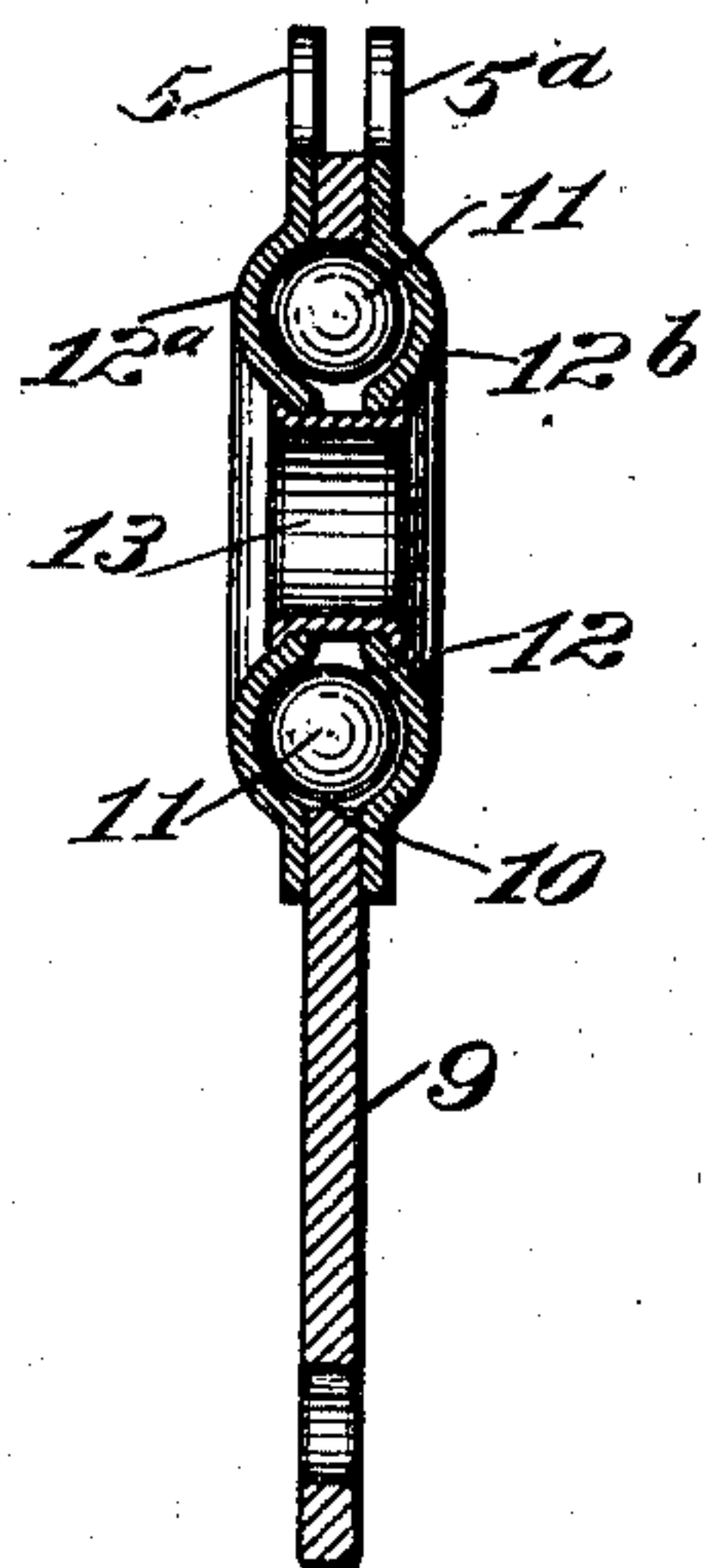
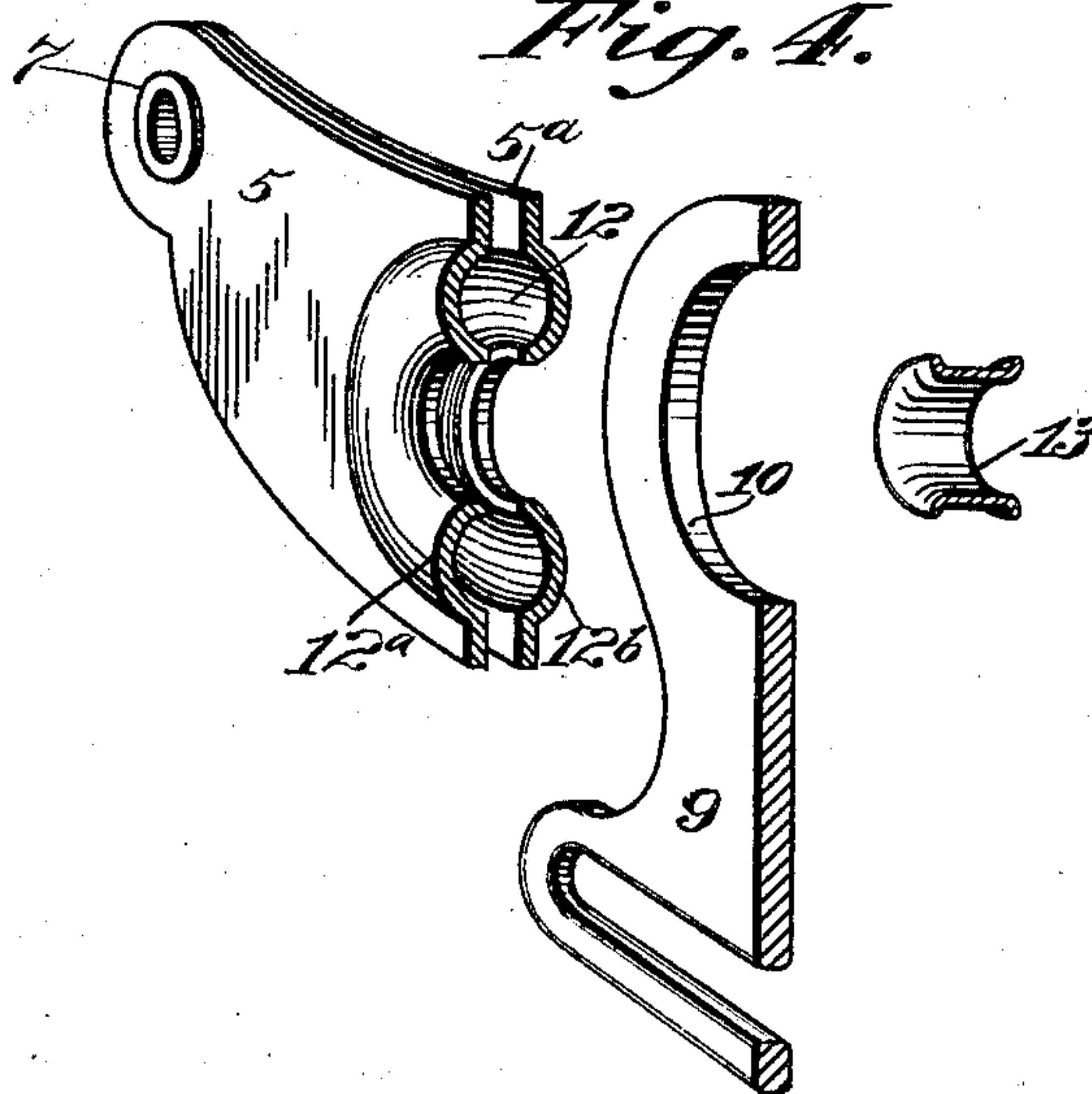


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY C. HINE, OF NEW BRITAIN, CONNECTICUT.

GARMENT-SUPPORTER.

SPECIFICATION forming part of Letters Patent No. 708,963, dated September 9, 1902.

Application filed July 16, 1902. Serial No. 115,801. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. HINE, a citizen of the United States, residing in New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Garment-Supporters, of which the following is a specification.

This invention relates to garment-supporters of the kind described in my copending application, filed June 20, 1902, Serial No. 112,404, in which is illustrated a pair of suspenders the shoulder-straps whereof are attached to a lever, the latter being pivoted to a hanger which carries the rear tabs. Said lever and hanger are formed from the sheet metal usually employed in this art and are suitably punched or struck up to form ball-tracks, in which work suitable bearing-balls.

The object of the present improvements is to simplify the construction, to reduce the number of the balls employed, and to minimize the cost to the end that the improved trimmings may be offered to the trade at a figure which will make them commercially practicable.

In the accompanying drawings, Figure 1 is a view of a pair of suspenders made in accordance with my present improvements. Fig. 2 illustrates a lever and its hanger, the former being provided with pivoted chapes for the shoulder-straps. Fig. 3 is an enlarged cross-section taken centrally of the ball-bearing joint; and Fig. 4 shows in perspective cross-section the lever, the hanger, and the central lever-rivet.

In the several views similar parts are designated by similar characters of reference.

The suspenders comprise the usual shoulder-straps 1 and 2, which are connected by chapes 3 and 4 to a lever A, the latter consisting of arms 5 and 6. The chapes are inserted between and pivoted to the free ends of said arms by rivets 7 and 8, and the lever is pivoted to a hanger 9, carrying rear tabs 9^a. The lever A preferably consists of a pair of plates, (designated as 5 and 5^a in Figs. 3 and 4,) said plates being connected at their ends by the rivets 7 and 8, and the hanger 9 consists, preferably, of a single plate inserted between the lever-plates, as at Fig. 3. The hanger has a large eye 10, which encircles a group of balls 11, working in a raceway 12,

which is formed partly by striking up opposite annular depressions or ribs 12^a and 12^b upon the lever-plates. The hanger 9 fits loosely between said plates, and the balls preferably run in said depressions, although the ball-race may be otherwise constituted within the scope of my present improvements. The lever-plates may also be connected by a central rivet 13, preferably tubular, although said plates may be otherwise connected at their middle portion and in some instances the connection may be omitted.

Heretofore it has not been found practicable in this art to use a shoulder-strap lever pivoted to a hanger, owing to the thinness and peculiar character of the sheet metal which it is necessary to employ in making the trimmings, said metal being only about one sixteenth of an inch in thickness, and hence offering practically a knife-edge at the bearing parts and, moreover, being of an easily-workable material which is extremely liable to "bite" at the joint if a simple pivot is employed, causing the metal to cut away rapidly, especially as the lever is subjected to considerable strain and in many cases is in constant motion.

By my invention the thin metal hanger 9 is provided with a large eye which rests upon the series of balls, and hence all possibility of cutting is eliminated, and instead of the suspender-webbing outlasting the trimmings, as heretofore, the reverse is the case. Moreover, I am enabled to place upon the market suspenders which by reason of the use of the lever are in action equal or superior to the best class of pulley-action suspenders and at about half the cost of the latter.

It will be seen that by reason of the small diameter of the race 12 the number of balls 11 is minimized, which is a matter of great importance in this class of devices, which are made in very great quantities and in which a slight saving in each set of trimmings amounts to a large sum in a season's business. It will also be seen that the lever-plates are preferably duplicates, thus effecting a further economy in manufacture. I prefer to employ the annular ribs 12^a and 12^b and also to make the lever of a pair of plates, because it enables the insertion of the shoulder-strap chapes, thus lowering the cost of manufacture and

improving the construction and action of the device. This improvement gives a central draft throughout, thus relieving the strain and wear and also enabling the entire structure to be made very thin, which is an important factor in this class of merchandise.

Having described my invention, I claim—

1. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end; said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, and one of said elements consisting of a pair of plates and the other thereof being inserted between said plates and having an eye; means cooperating with said eye to form a ball-race; a set of balls in said race; and means for retaining said lever, hanger and balls in cooperative relation.

2. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end; said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, and one of said elements consisting of a pair of plates and the other thereof being inserted between said plates and having an eye; a transverse fastener extending through said eye and connecting said plates, and the elements which compose said connecting device being so formed or stamped up and arranged as to form a ball-race, a part whereof consists of said eye; and a set of balls in said race.

3. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end, said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, and one of said elements consisting of a pair of plates and the other thereof being inserted between said plates and having an eye, and at least one of said plates having a struck-up annular depression which cooperates with said eye to form a ball-race; a set of balls in said race, and means for retaining said lever, hanger and balls in cooperative relation.

4. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end, said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, and one of said elements consisting of a pair of plates and the other there-

of being inserted between said plates and having an eye, and said plates having similar struck-up annular depressions, and said depressions cooperating with said eye to form a ball-race; and a set of balls in said race.

5. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end, said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, one of said elements consisting of a pair of plates and the other thereof being inserted between said plates and having an eye, said plates having similar struck-up annular depressions, and said depressions cooperating with said eye to form a ball-race; a set of balls in said race; and a rivet passing through said eye and connecting said plates.

6. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end, said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, one of said elements consisting of a pair of plates and the other thereof being inserted between said plates and having an eye, said plates having similar struck-up annular depressions, and said depressions cooperating with said eye to form a ball-race; a set of balls in said race; a rivet passing through said eye and connecting said plates; and rivets connecting said plates at their ends.

7. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end; said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, said lever consisting of a pair of plates, and said hanger being formed with an eye and being inserted between said plates; means cooperating with said eye to form a ball-race; a set of balls in said race; and means for retaining said lever, hanger and balls in cooperative relation.

8. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end; said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, said lever consisting of a pair of plates, said plates having similar opposite struck-up annular depressions, and said hanger being inserted between said plates

and having an eye which coöperates with said depressions to form a ball-race; a set of balls in said race; and means for connecting said plates.

5 9. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-end; said connecting device comprising a lever to whose opposite ends said shoulder-
10 straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin sheet metal, said lever consisting of a pair of plates, and said hanger being formed with an
15 eye and being inserted between said plates; means coöperating with said eye to form a ball-race; a set of balls in said race; means for retaining said lever, hanger and balls in coöperative relation; and a pair of chapes in-
20 serted between said plates at the ends of said lever and attached thereto.

10. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a device connecting said straps to said suspender-
25 end; said connecting device comprising a lever to whose opposite ends said shoulder-straps are connected, and a hanger to which said suspender-end is connected; said lever and hanger elements being formed of thin

sheet metal, and one of said elements consist- 30
ing of a pair of plates and the other thereof being inserted between said plates and hav-
ing an eye; means coöperating with said eye to form a ball-race; a set of balls in said race;
means for retaining said lever, hanger and 35
balls in coöperative relation; and a chape also inserted between said plates and pivoted thereto.

11. A pair of suspenders comprising a pair of shoulder-straps, a suspender-end, and a de- 40
vice connecting said straps to said suspender-end; said connecting device comprising a lever and a hanger, to the latter of which said suspender-end is connected; said lever and
hanger elements being formed of thin sheet 45
metal, said lever consisting of a pair of plates, and said hanger being formed with an eye and being inserted between said plates; means co-
operating with said eye to form a ball-race; a set of balls in said race; a pair of devices con- 50
necting said plates at their ends; and a pair of chapes attached to said shoulder-straps and inserted between said plates and pivoted upon said connecting devices.

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Witnesses:

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