

No. 711,313.

Patented Oct. 14, 1902.

H. C. HINE.
GARMENT SUPPORTER.
(Application filed July 1, 1902.)

(No Model.)

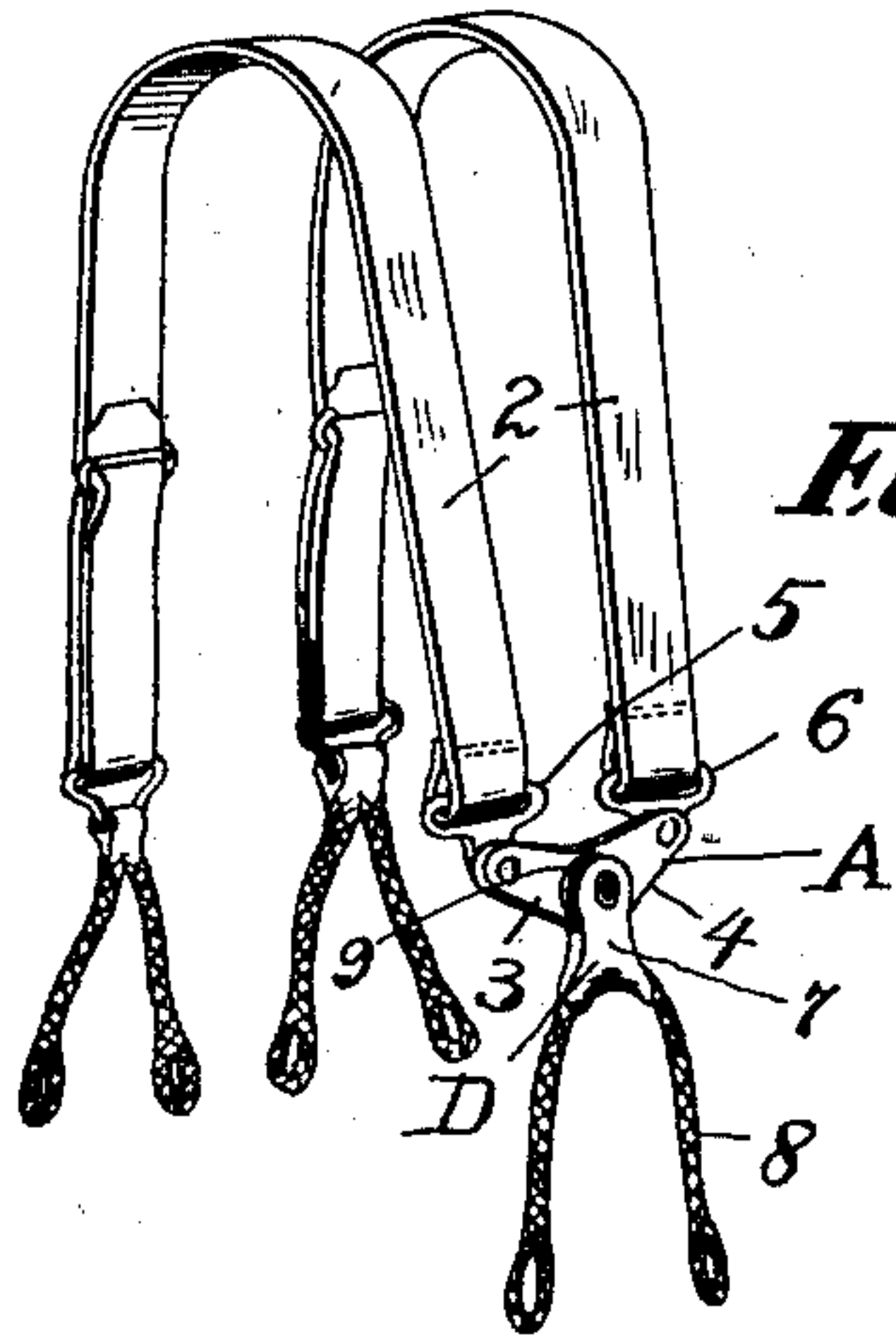


Fig. 1.

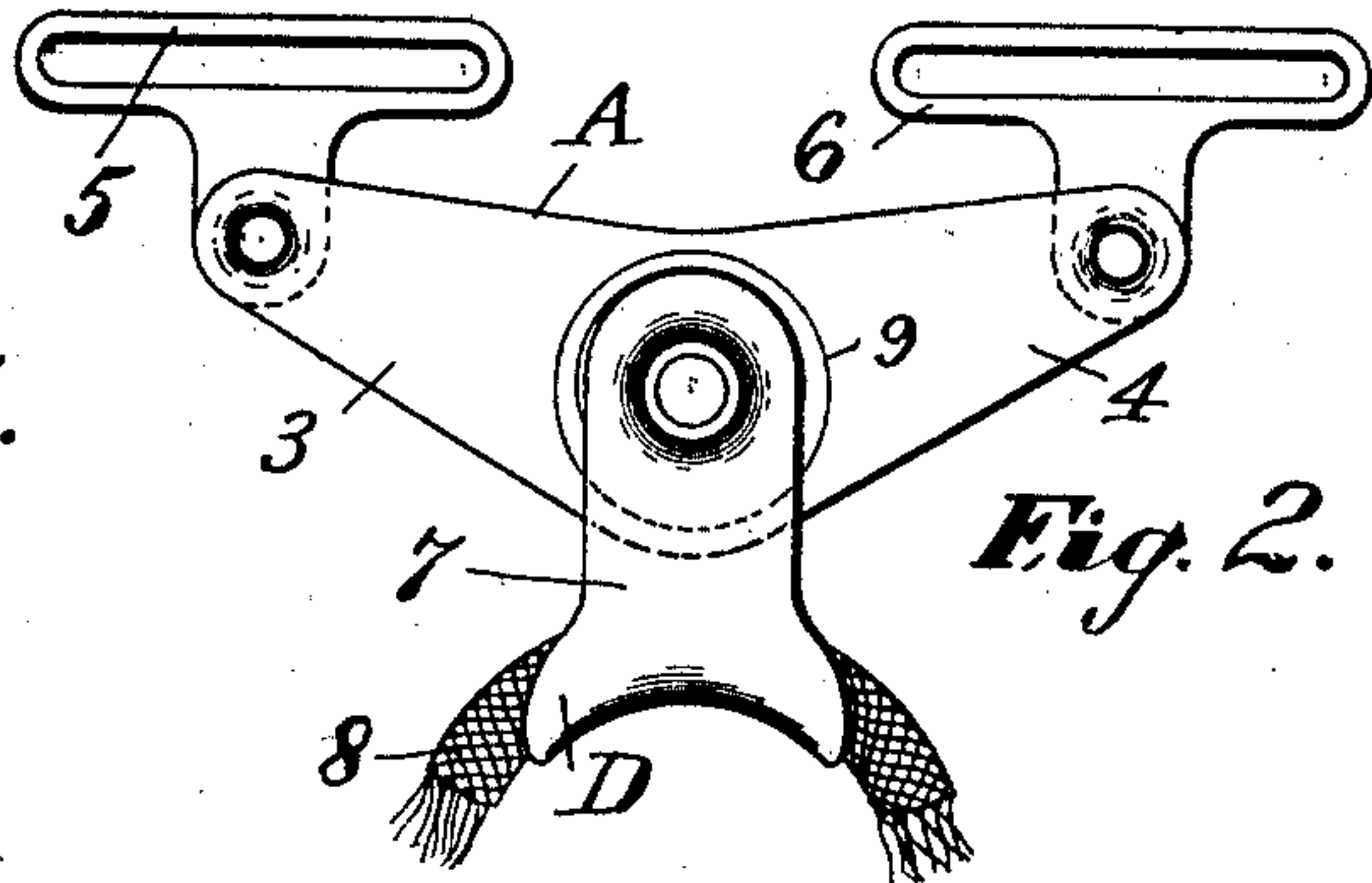


Fig. 2.

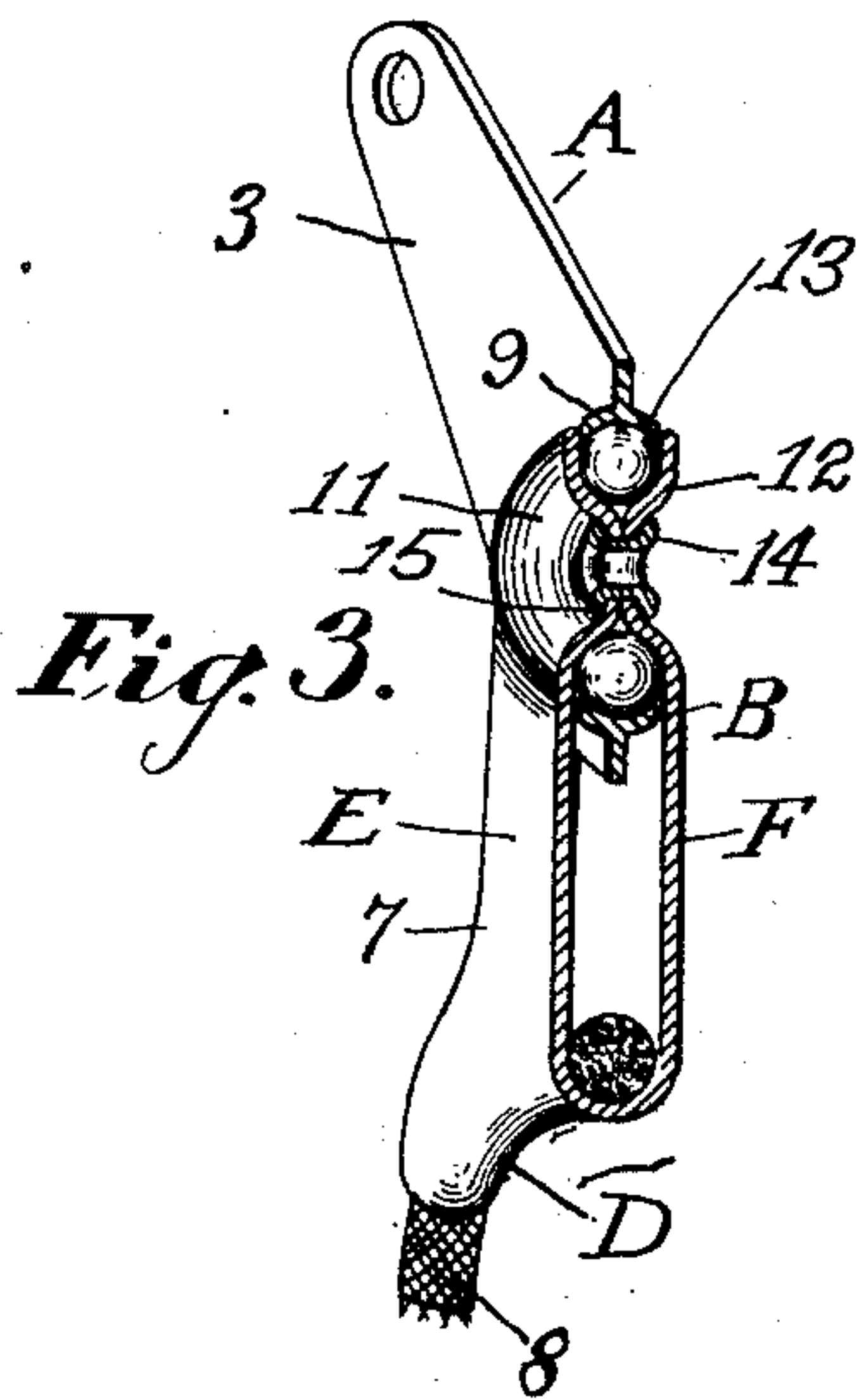


Fig. 3.

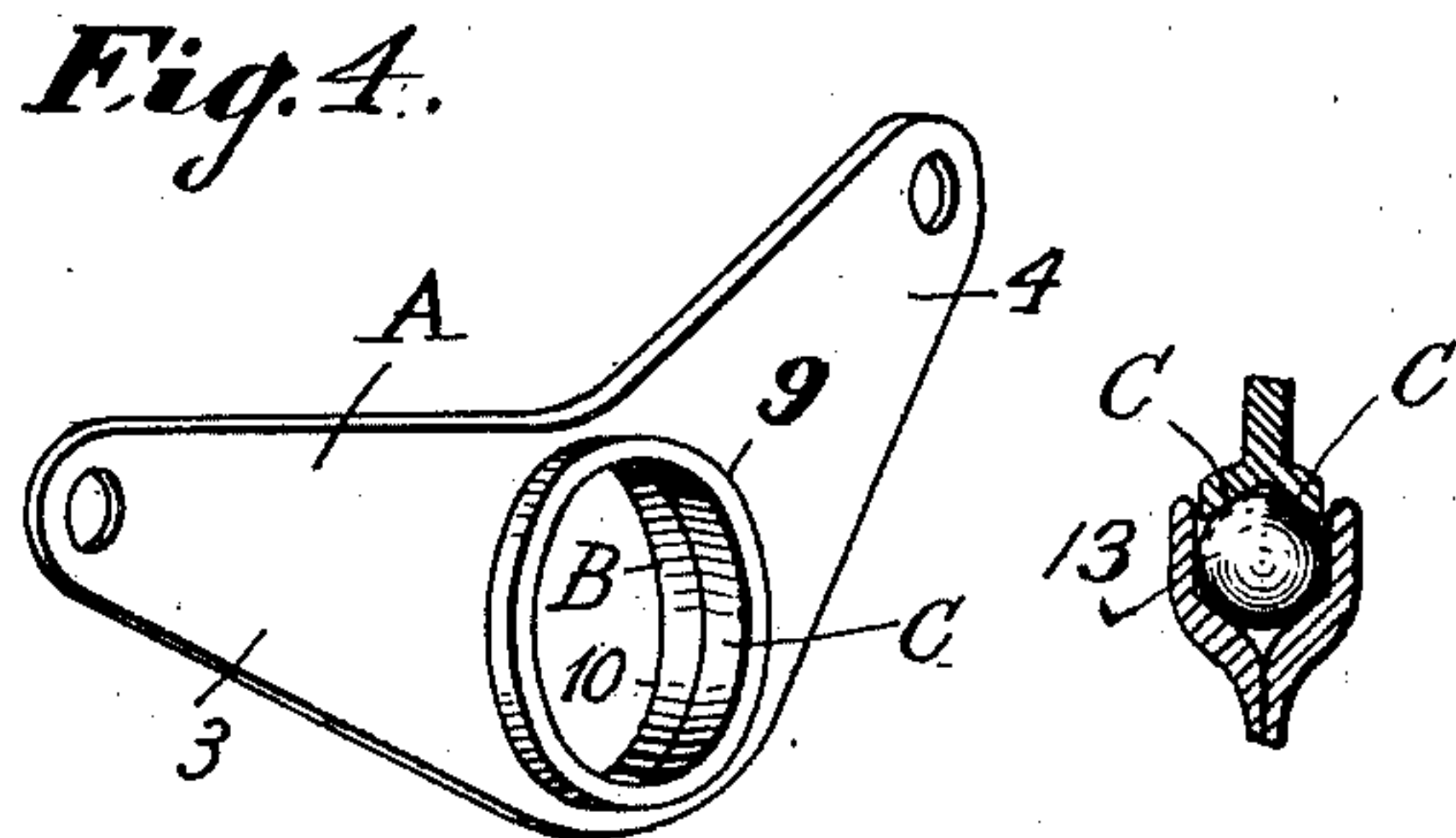


Fig. 4.

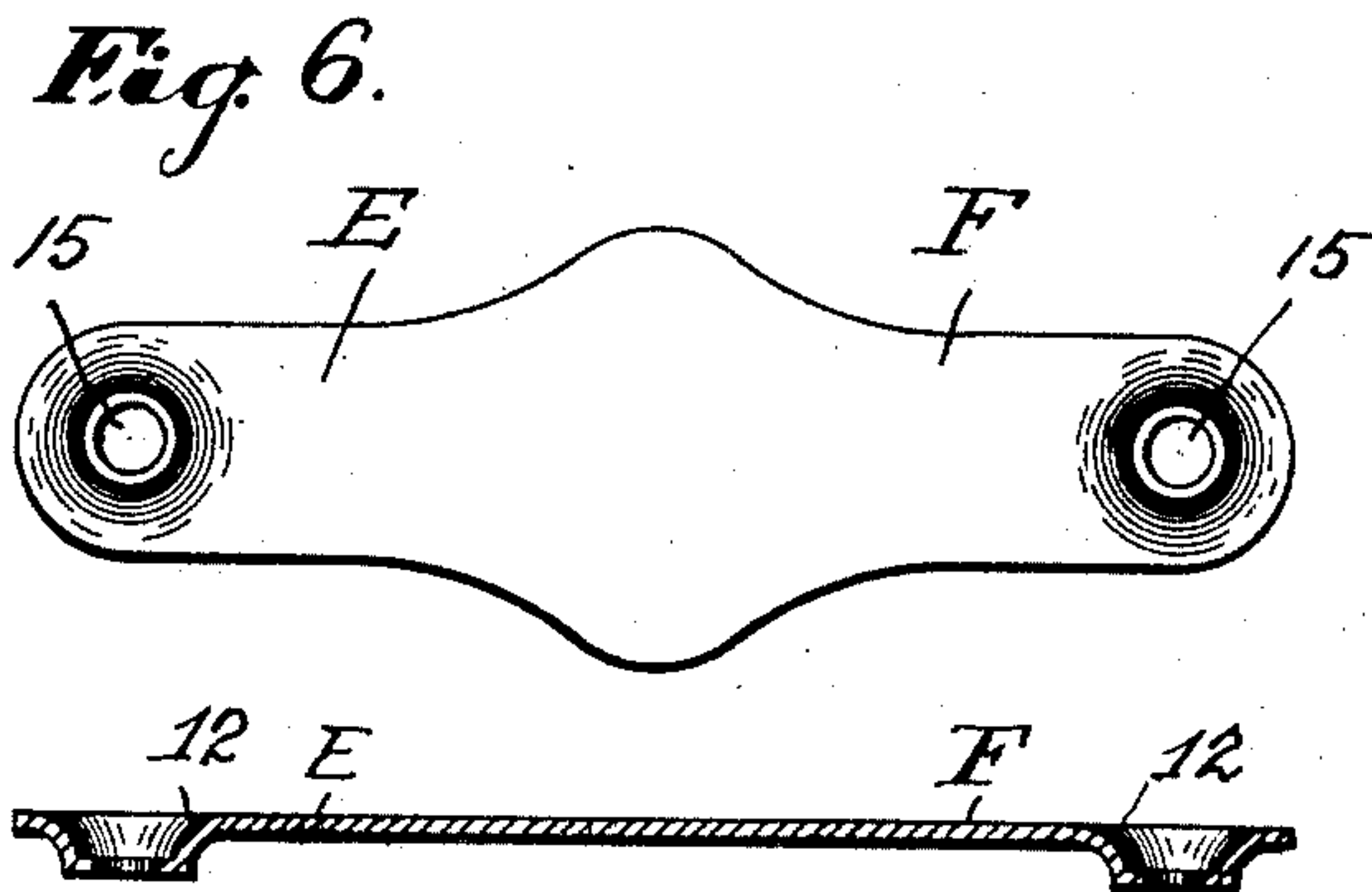


Fig. 5.

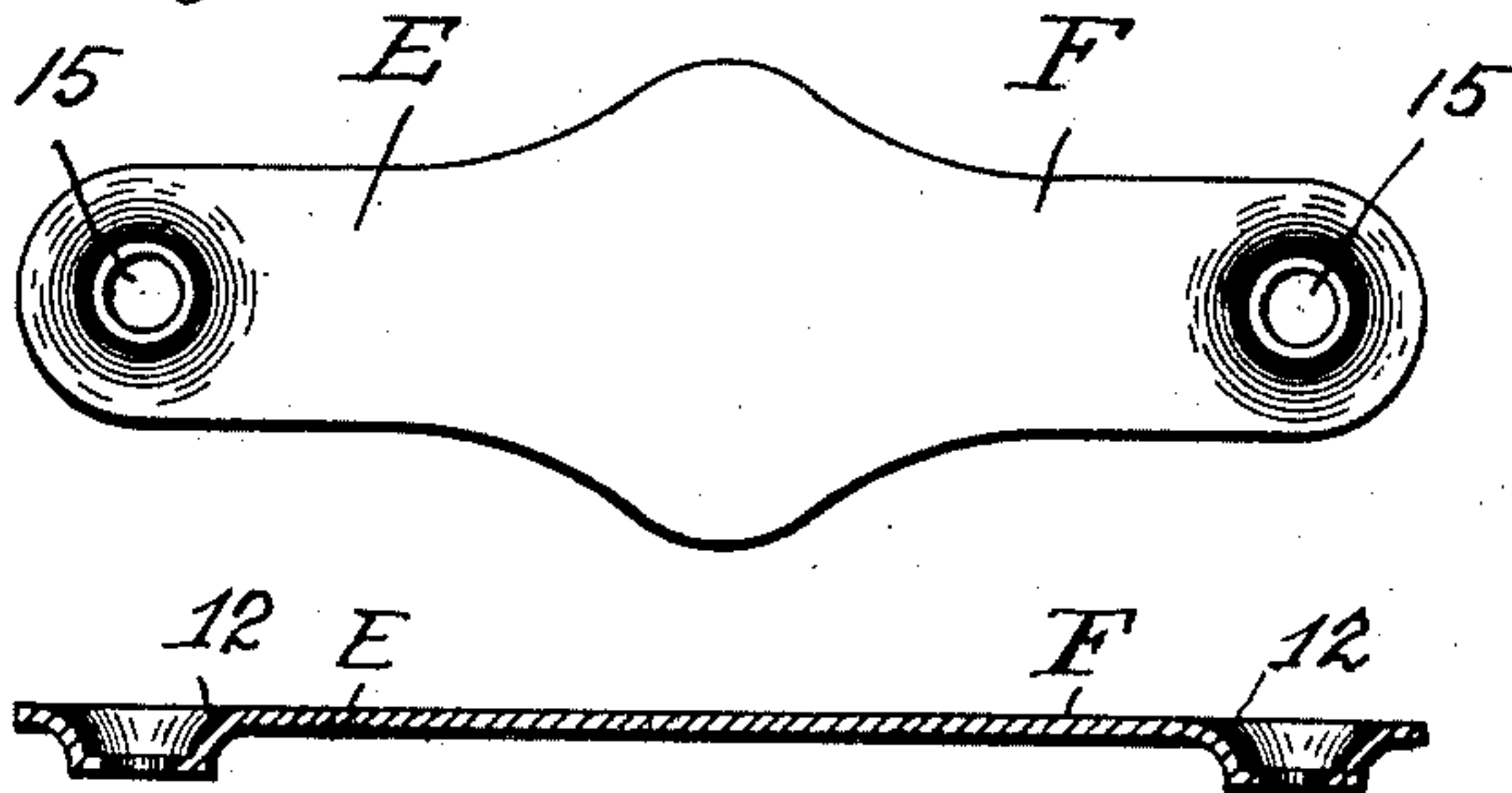


Fig. 6.

Witnesses:
Galderson G. Fuss.
B. C. Stickney.

Inventor:
Henry C. Hine.
By his Attorney,
F. H. Richards.

UNITED STATES PATENT OFFICE.

HENRY C. HINE, OF NEW BRITAIN, CONNECTICUT.

GARMENT-SUPPORTER.

SPECIFICATION forming part of Letters Patent No. 711,313, dated October 14, 1902.

Application filed July 1, 1902. Serial No. 113,985. (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 character made the subject-matter of my pending application, filed June 20, 1902, Serial No. 112,404, (patent No. 708,882, dated September 9, 1902,) in which a supporter having two main straps—as, for instance, the shoulder-straps of ordinary suspenders—is provided with an equalizing-lever for said straps, said lever being connected to a hanger which carries the remaining straps or cords of the garment-supporter and permitting free play of the several parts. In said application the joint of said lever to the hanger includes a series of bearing-balls, whereby the lever and hanger are firmly connected without liability of cutting the frail sheet metal of which the parts are usually formed and without liability of the joint either being cut or sticking by reason of rust or from other causes.

The object of the present invention is to simplify and improve the construction of the article, and particularly the joint between the equalizing-lever and the hanger.

In the accompanying drawings, Figure 1 is a perspective of a pair of suspenders made in accordance with my present improvements. Fig. 2 is an enlarged face view of an equalizing-lever and its appurtenances. Fig. 3 is a perspective sectional view taken on a vertical line passing through the axis of the ball-bearing joint. Fig. 4 is a perspective of the lever. Fig. 5 is a detail showing the correlation of the two parts of the ball-race. Fig. 6 shows a blank from which the stirrup may be struck up, and Fig. 7 is a sectional view of the Fig. 6 device.

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

The garment-supporter shown at Fig. 1 comprises shoulder-straps 1 and 2, an equalizing-lever A, consisting of arms 3 and 4 and connected to said straps by pivoted fittings 5 and 6, a hanger or stirrup 7, pivoted to the

middle of said equalizing-lever A, and an attaching-cord 8, working in the stirrup 7.

The equalizing-lever A is formed at its middle portion with an eye B, the lever being provided at said eye with a double rim 9 10, projecting at each side of the lever and being concaved or V-shaped at C on its interior, so as to form part of a ball-race, as seen clearly at Fig. 5. The flanges 9 and 10 may be attached to the lever A separately, or they may be formed in a single piece and attached, or one part of said flange may be struck up from said lever and the other part thereof may be attached, or the double flange may be struck up from the lever, especially if the latter is made of two plates of metal or of a single folded plate, or said flange may be arranged wholly on one side of said lever either by attachment thereto or by striking up a single or double plated lever, within the scope of my present improvements.

The stirrup or hanger 7 is preferably folded and may be provided at the fold portion with a curved groove portion D, in which the attaching-cord 8 may run. The arms of said hanger (designated, respectively, as E and F) are at their upper ends provided with struck-up annular beads or ribs 11 and 12, which match each other and coöperate with the V-groove C in the lever-eye, forming a raceway G, in which runs a circular row or series of bearing-balls 13. The hanger-arms may be held together by a transverse connector or fastener 14, preferably in the form of a tubular rivet, as illustrated. The struck-up portions 11 and 12 may be formed before the hanger is folded, as seen at Figs. 6 and 7, each leg of the hanger being perforated at 15 for the rivet 14.

As will be noted at Figs. 2 and 3, the arms E and F of the hanger embrace or fork the lever A and inclose a portion of the eye B, provided upon said lever.

It will thus be seen that by means of a single row of balls the hanger or stirrup is firmly supported upon the lever, that the construction is simple, durable, and inexpensive, and that thin light metal, such as is necessary in making suspender-fittings, may be employed without liability of either destructive cutting or sticking at the joint.

Many variations may be resorted to within the scope of my invention.

Having described my invention, I claim—

1. A joint for a garment-supporter comprising a lever and a hanger, one of said parts having an eye forming a part of a ball-race, and the other of said parts having a groove portion within said eye and forming the remainder of said ball-race, and a series of balls in said race.

2. A joint for a garment-supporter comprising a lever and a hanger, said lever having an eye forming a part of a ball-race, and said hanger having a groove portion within said eye and forming the remainder of said ball-race, and a series of balls in said race.

3. A joint for a garment-supporter comprising a lever and a hanger, one of said parts having an eye which forms one portion of a ball-race, and the other of said parts being folded and inclosing a portion of said eye and having a groove portion which forms the remainder of said ball-race, and a series of balls in said race.

4. A joint for a garment-supporter comprising a lever and a hanger, one of said parts having an eye which forms one portion of a ball-race, and the other of said parts being folded and inclosing a portion of said eye, and having a groove portion which forms the remainder of said ball-race, a series of balls in said race, and a transverse connector for the parts of said folded member.

5. A joint for garment-supporters comprising a lever, an eye therein having a projecting rim forming a part of a ball-race, a folded hanger inclosing a portion of said lever and having arms with struck-up opposite annu-

lar portions which form the remainder of said ball-race, a transverse connector for said arms, and a series of balls in said ball-race.

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, said hanger consisting of a pair of plates, and said lever 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.

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 hanger consisting of a pair of plates, said plates having similar opposite struck-up annular depressions, and said lever being inserted between said plates and having an eye which cooperates with said depressions to form a ball-race; a set of balls in said race; and means for connecting said plates.

HENRY C. HINE.

Witnesses:

B. C. STICKNEY,
JOHN O. SEIFERT.