

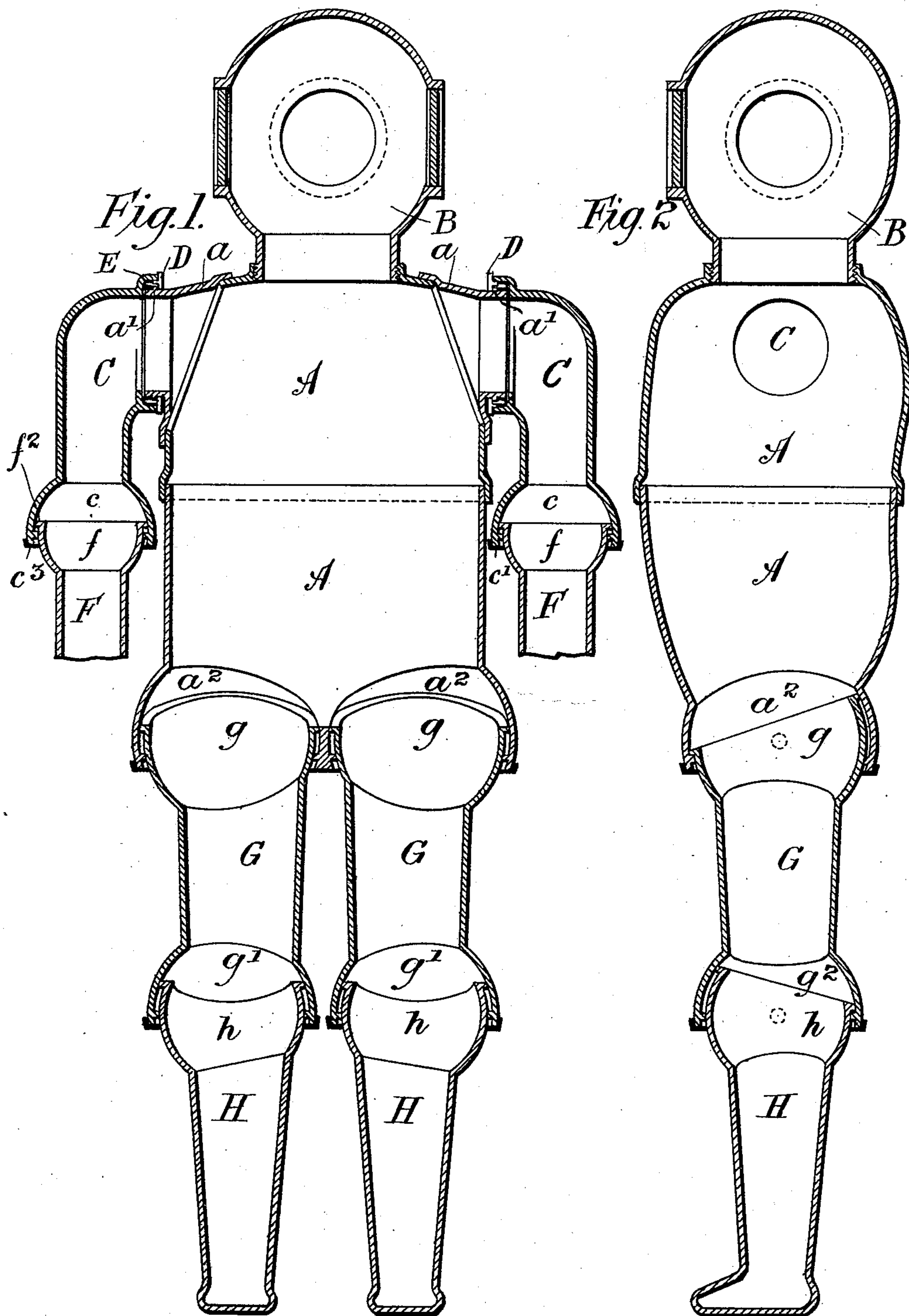
(No Model.)

2 Sheets—Sheet 1.

W. R. FASEY.
DIVING APPARATUS.

No. 601,729.

Patented Apr. 5, 1898.



Witnesses.

William James Paulgin
Albert Edward Allen

Inventor

William Robert Fasey
By his Attorney
George Henry Rayner

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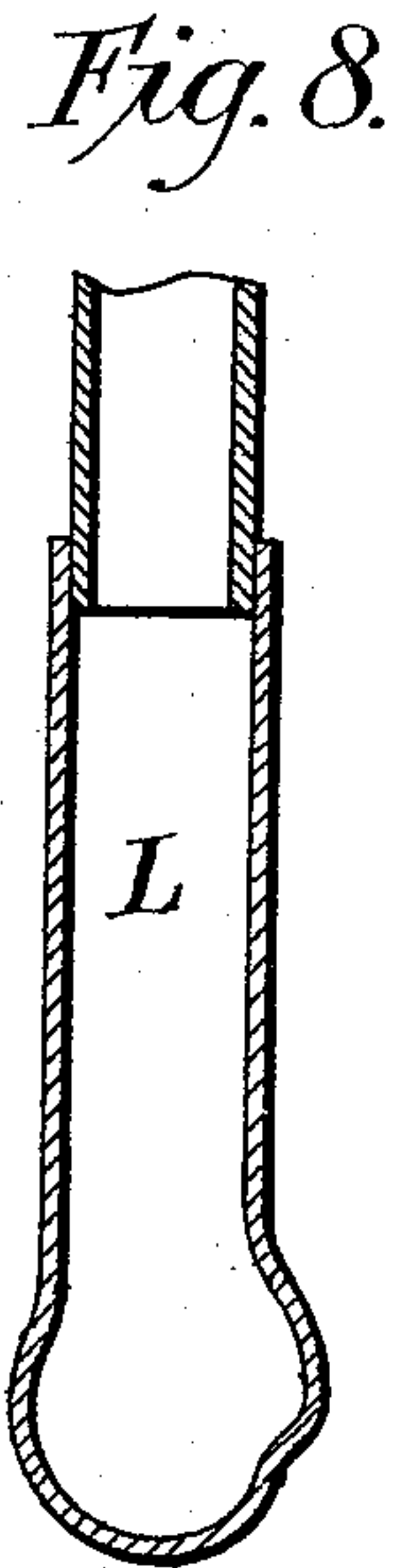
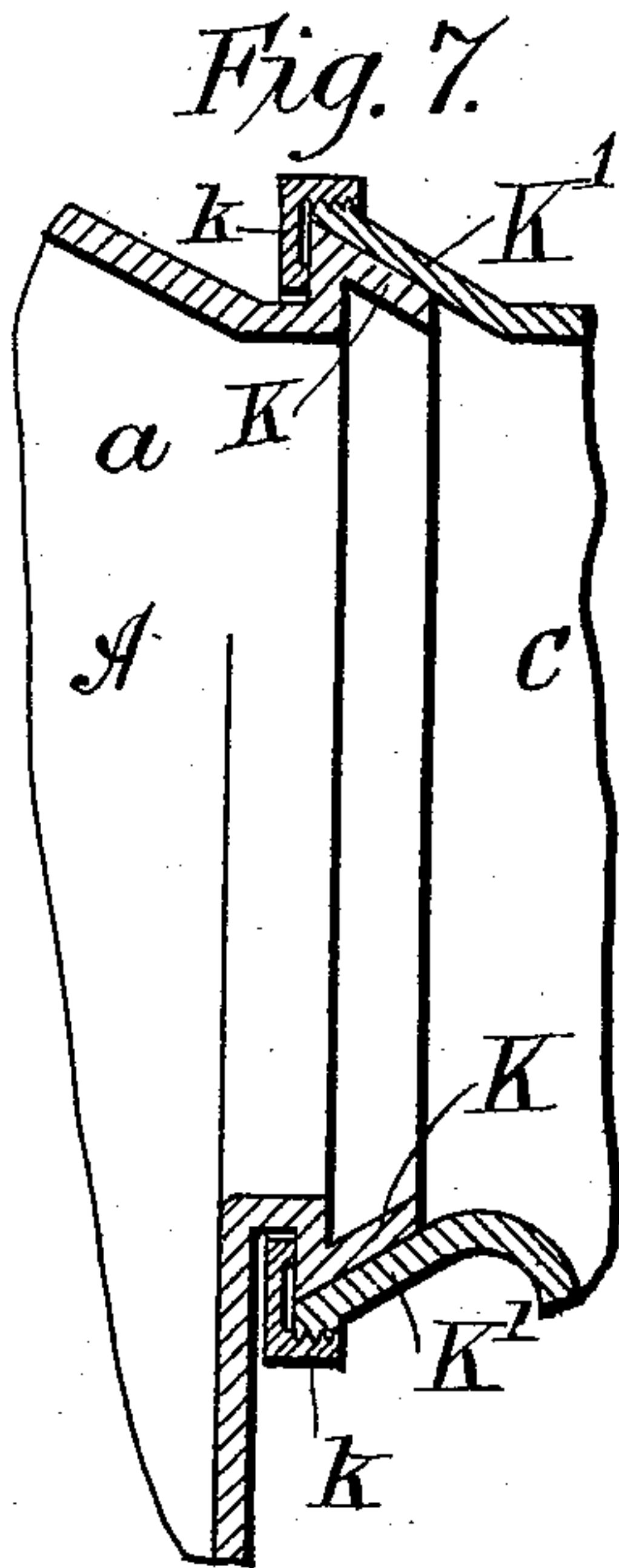
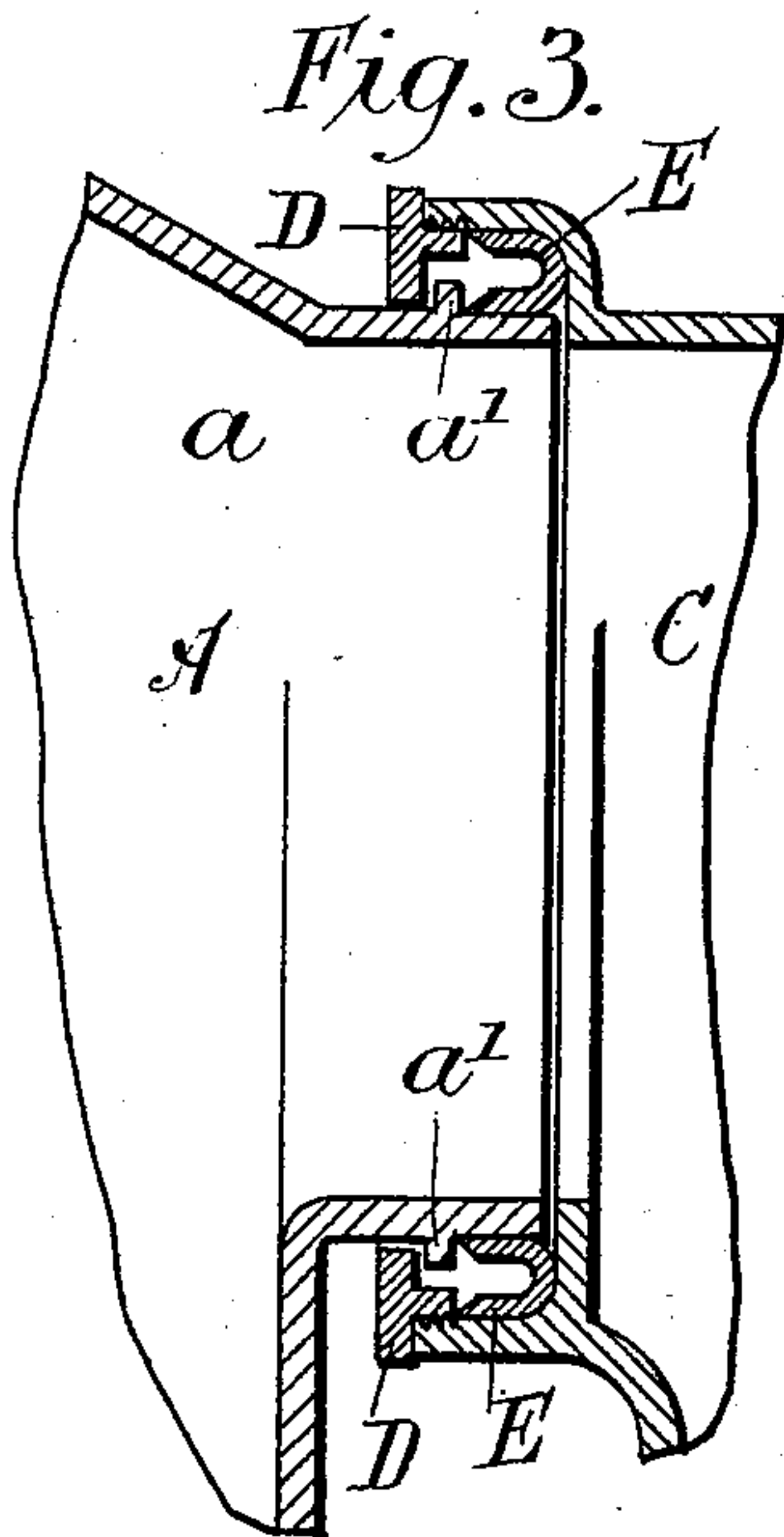


Fig. 4.

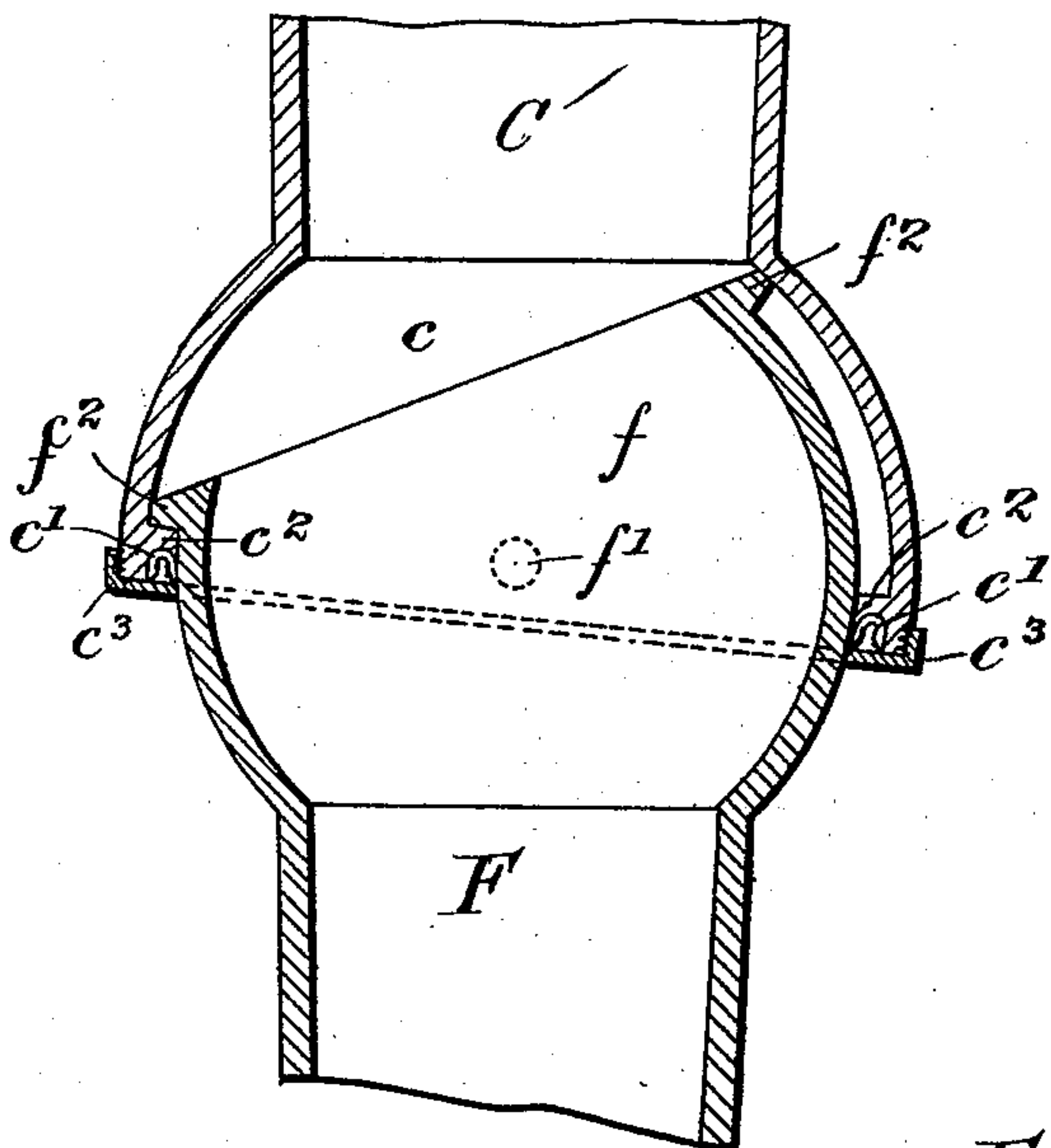


Fig. 5.

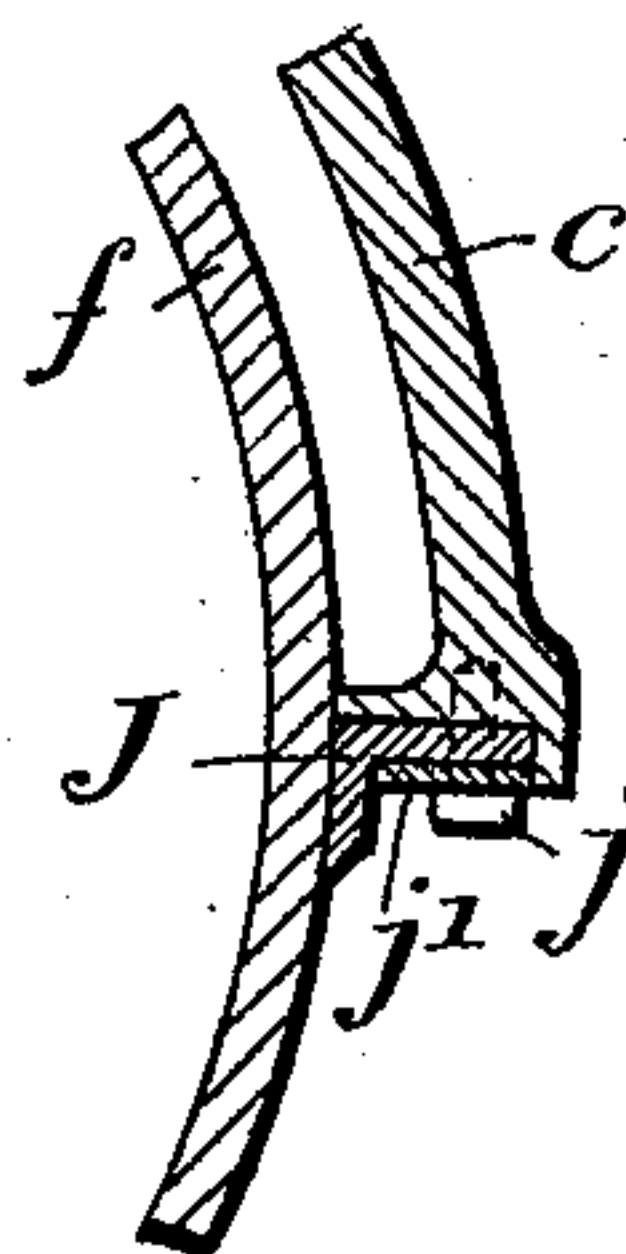
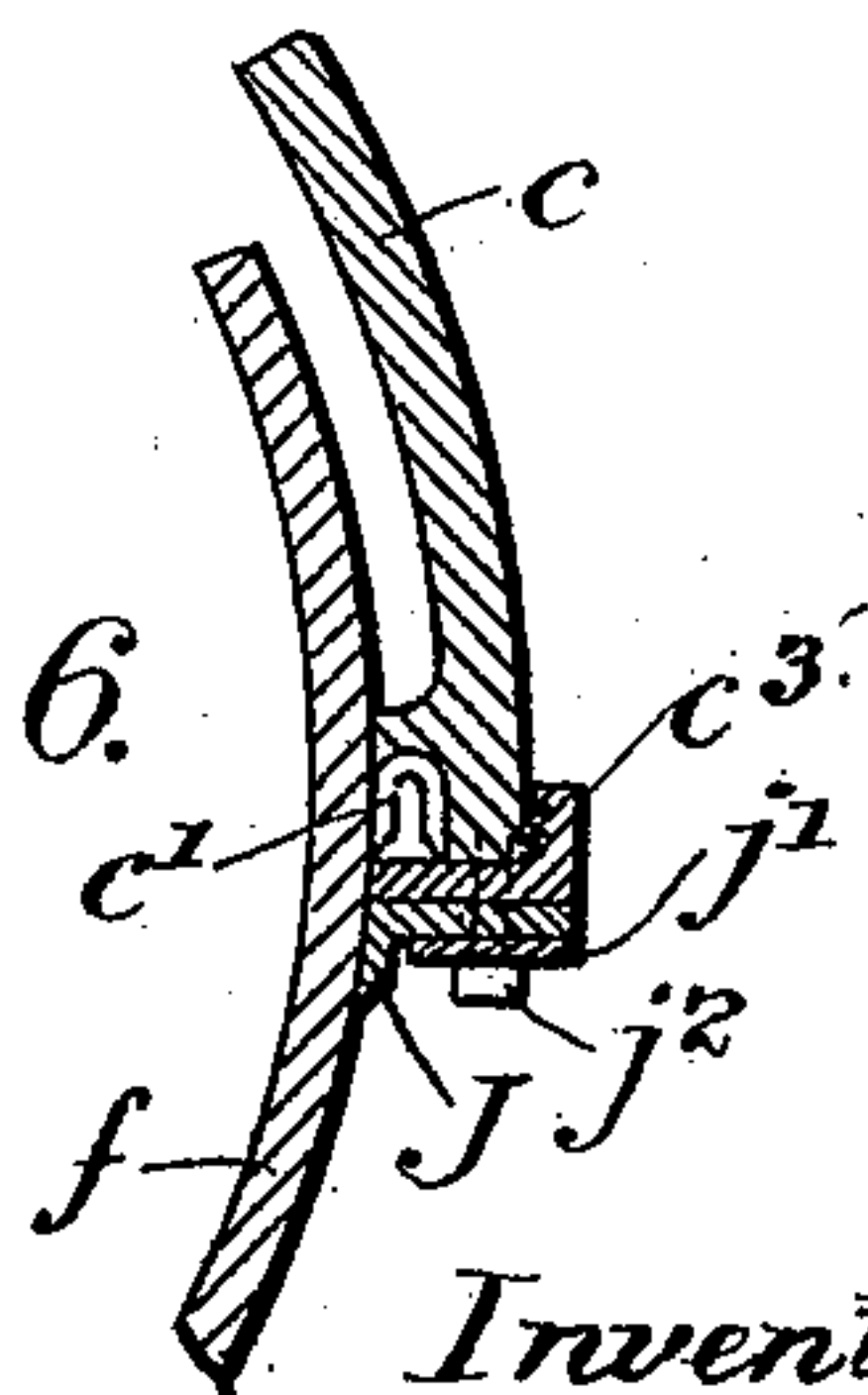


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM ROBERT FASEY, OF LONDON, ENGLAND.

DIVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 601,729, dated April 5, 1898.

Application filed March 11, 1897. Serial No. 627,070. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ROBERT FASEY, engineer, a subject of the Queen of Great Britain and Ireland, residing at Queens Road, Leytonstone, London, in the county of Essex, England, have invented certain new and useful Improvements in Diving Apparatus, of which the following is a specification.

This invention relates to improvements in diving apparatus or dress, and has for its object to provide an arrangement which will allow the diver to descend to a considerable distance in the water, at the same time enabling him to move freely.

In carrying out my invention I propose to form the complete diving-dress from metal made in sections, with joints at the necessary parts, allowing the limbs to bend or turn. The main parts of the dress are formed from sheet metal, separate parts being used for the body, legs, arms, and head. The joints I propose to employ are of the ball-and-socket type, the extremities of one part being made at their ends of hemispherical form, secured in a socket of corresponding form on the ends of the adjacent parts. Suitable packing is provided in the joints to render them water-tight, the packing being preferably formed from cupped or channeled leather, the water-pressure forcing the leather out to close the joint, and the parts are prevented from separating by means of a small flange and rings screwed or otherwise fitted to close the joint.

Owing to the construction of the dress from metal it is prevented from collapsing when the pressure of the water becomes great, thus allowing the diver to descend much deeper in the water than is the case with the ordinary arrangement.

In order that the invention may be more clearly understood, reference is had to the accompanying sheet of drawings, in which—

Figure 1 is a vertical section of the diving-dress. Fig. 2 is a vertical section taken at right angles to Fig. 1. Fig. 3 is a detail view of the shoulder-joint. Fig. 4 shows the knee of elbow-joint, and Figs. 5 to 8 are detail views of slightly-modified joints.

The body of the dress A is preferably formed in two or more parts which can be bolted or screwed together at suitable points, ordinary joints being employed which can be

easily opened or closed and which at the same time will be thoroughly water-tight. In the neck or top of the body the head B is screwed, the head being made from metal with the ordinary windows. To the shoulder parts a the upper sections C of the arm are fitted, the shoulder being formed in the arrangement shown in Figs. 1 and 3 with a small rib or flange a' . A ring D, the inner edge of which bears against this flange, serves to secure the arm in place. This ring is screwed into the end of the arm, which is enlarged to form a recess for the packing E. This packing consists of a ring of leather folded into channel form. The water passes through the outer part of the joint when the dress is in use and enters the channel of the leather ring, pressing the sides outward against the surface of the arm and shoulder pieces, forming a water-tight joint of the kind well known in hydraulic engineering.

The upper part of the arm-piece C is formed with the hemispherical socket c , serving to receive the upper hemispherical end f of the lower arm-piece F, the parts being pivoted at f' . The top of this piece is furnished with the small rib or flange f^2 , and the joint is formed by the leather ring c' , similar to that employed in connection with the shoulder-joint. A small flange c^2 (shown clearly in Fig. 4) limits the motion of the lower part of the arm, the flange f^2 meeting it when the arm is bent. The joint is completed by the small screwed ring c^3 , screwed over the end of the arm-piece C, this ring keeping the leather in place.

The hip-joint is of similar form to the elbow-joint, the lower part of the body being formed with a socket a^2 at each side, and the thigh-pieces G are provided with the rounded ends g , fitting in the socket and pivoted and otherwise secured in place by the arrangement above described. The thigh-pieces are provided at their lower ends with the sockets g' , in which the rounded ends h of the lower leg-pieces H fit, the joint being completed in the manner described with reference to the elbow-joint.

As clearly shown in Fig. 2, the elbow, hip, and knee joints allow the limbs to bend in the required direction to a considerable angle, thus giving free play to the body. Instead

of a single joint being employed at any of these points the same arrangement may be repeated, forming a more flexible joint, the construction, however, being the same.

5 Fig. 5 shows a modified form of joint suitable for use at the elbow, hip, or knee in which the channeled leather ring is dispensed with, a leather ring J, of L shape, being fitted to the joint by means of the screws j and
10 iron washers j' . The flange of the leather ring bears against the surface of the ball or hemispherical termination, and the pressure of the water causes this part to press tightly on the metal, forming a close joint. Fig. 6
15 shows another modification in which the channeled leather ring c' is employed together with the L-shaped ring J, small bolts j^2 and washers j' serving to fix the leather ring or packing J to the screwed ring c^3 . Fig. 7
20 shows a modified form of joint suitable for the shoulder, leather packing being dispensed with. The shoulder-piece is formed with the conical termination K, and the top of the arm-piece C is provided with the conical
25 socket K', the conical parts being ground together. The parts are secured together by the screwed ring k , which can be adjusted until the joint is thoroughly water-tight.

As shown in Fig. 8, a part or the whole of
30 the arm may be made from rubber or other flexible material, the lower part L being formed in this manner and connected with a water-tight joint to the metal part. The lower part of the legs may also be made in the
35 same manner. This arrangement is, however, only applicable in cases where the diver does not enter into very deep water.

What I claim as my invention, and desire to secure by Letters Patent, is—

40 1. In an improved diving-dress constructed from metal sections, joints connecting the various parts formed from a hemispherical socket on one part, and a hemispherical enlargement on the adjacent part fitting into
45 the socket closely, flanges limiting the motion of the parts and packing forming a water-tight joint substantially as and for the purposes specified.

2. In an improved diving-dress formed from metal sections connected together, the
50 combination with ball-and-socket joints at the elbows, hips and knees and leather packing in the said joints, of flanges on the shoulder-piece, an enlargement at the top of the upper arm-piece, channeled leather packing placed
55 in the groove formed by the enlarged part and a screwed ring completing the joint substantially as described and shown and for the purposes specified.

3. In an improved diving-dress constructed
60 from metal and made in sections connected together, joints for the elbows, hips and knees, formed from a hemispherical socket on one part, a hemispherical enlargement on the adjacent part pivoted to and fitting closely in
65 the socket, flanges on the inside of the socket and on the enlargement and limiting the motion, packing formed from a channeled leather ring placed in the joint and a screwed ring fixing the packing in place substantially
70 as and for the purposes specified.

4. In an improved diving-dress the combination with a metal body-piece, a head-piece screwed into the top of the body, upper and lower arm-pieces and upper and lower leg-
75 pieces all constructed from metal of ball-and-socket joints for the elbow, hips and knees formed from hemispherical enlargements on the ends of the parts pivoted together flanges on these enlargements channeled leather
80 packing-rings and screwed rings holding the packing in place, and shoulder-joints formed from flanges on the shoulder-pieces, enlargements on the upper ends of the arm-pieces leather packing-rings in the channel so formed
85 and screwed rings completing the joint, constructed substantially as described and shown in the accompanying drawings and for the purposes specified.

In witness whereof I have set my hand in
90 the presence of two witnesses.

WILLIAM ROBERT FASEY.

In presence of—

ALBERT EDWARD ELLEN,
WILLIAM JAMES BULGIN.