

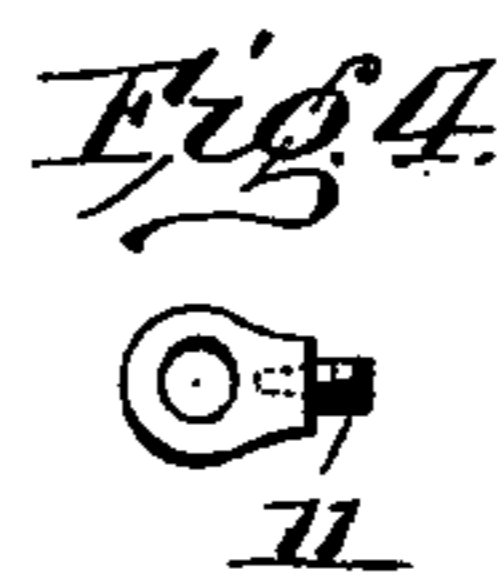
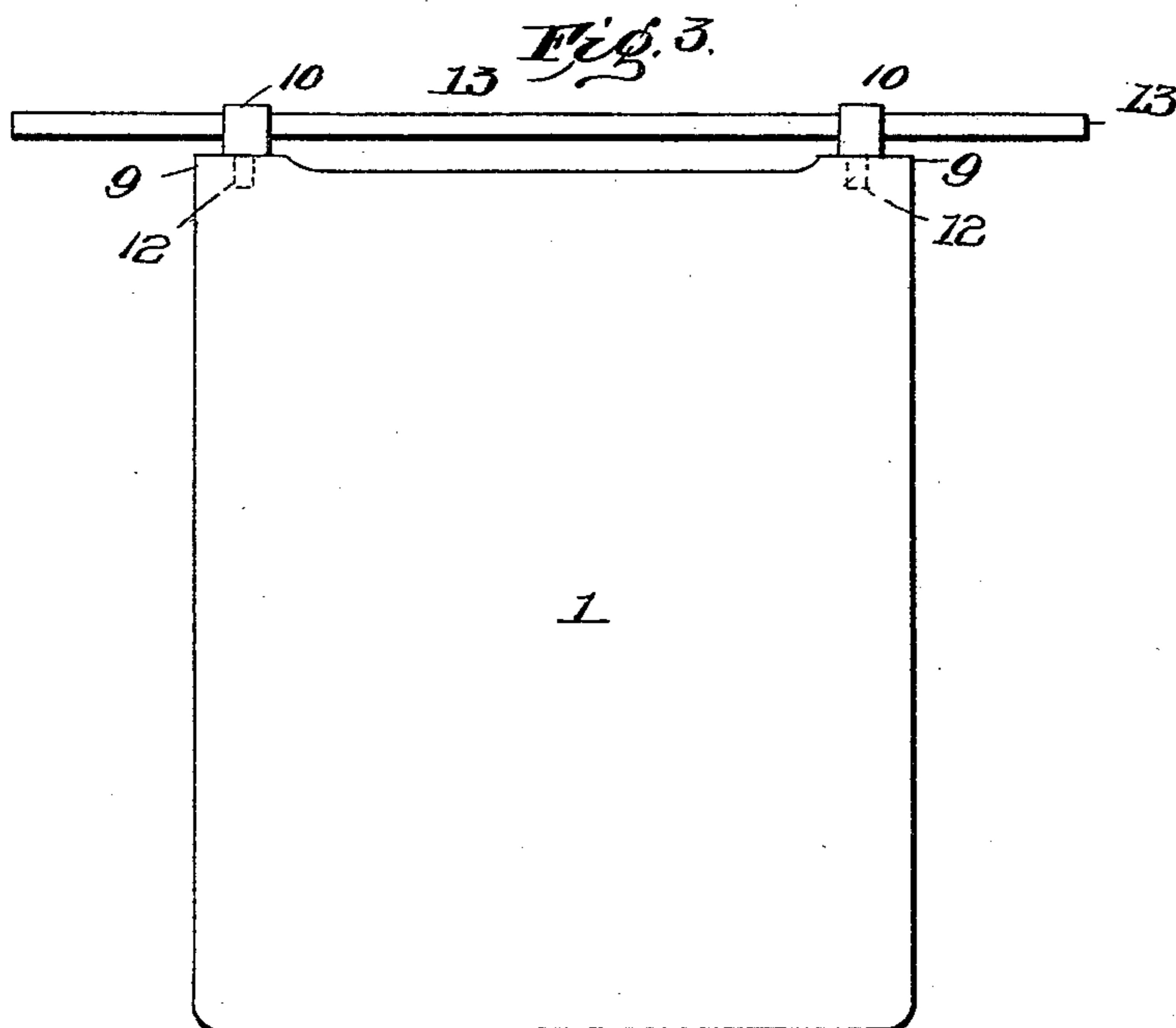
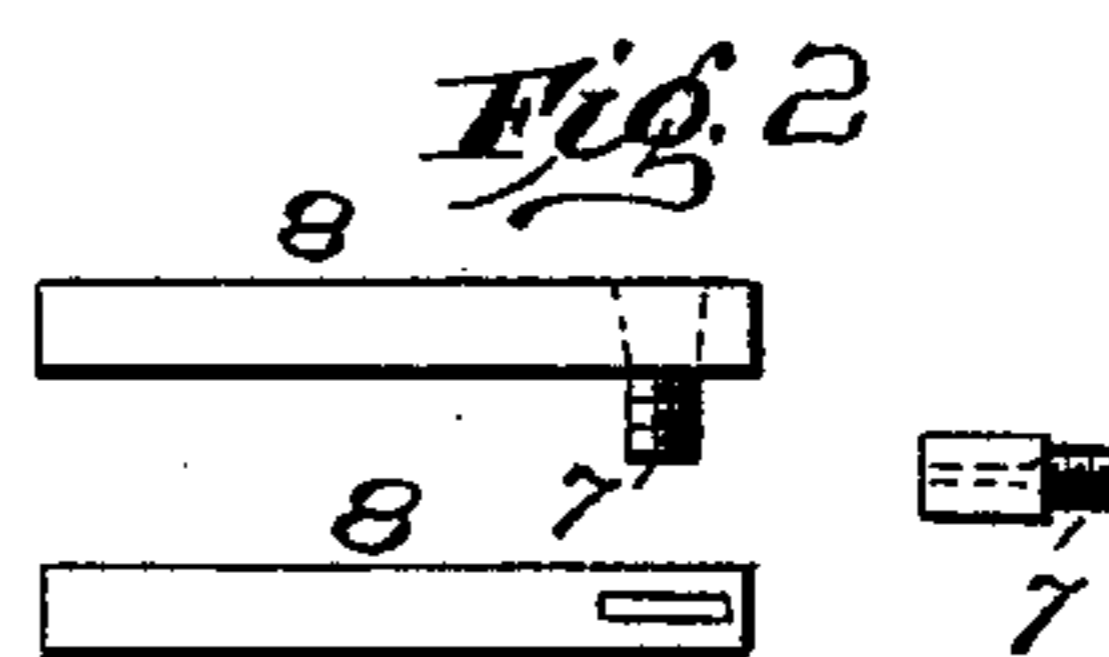
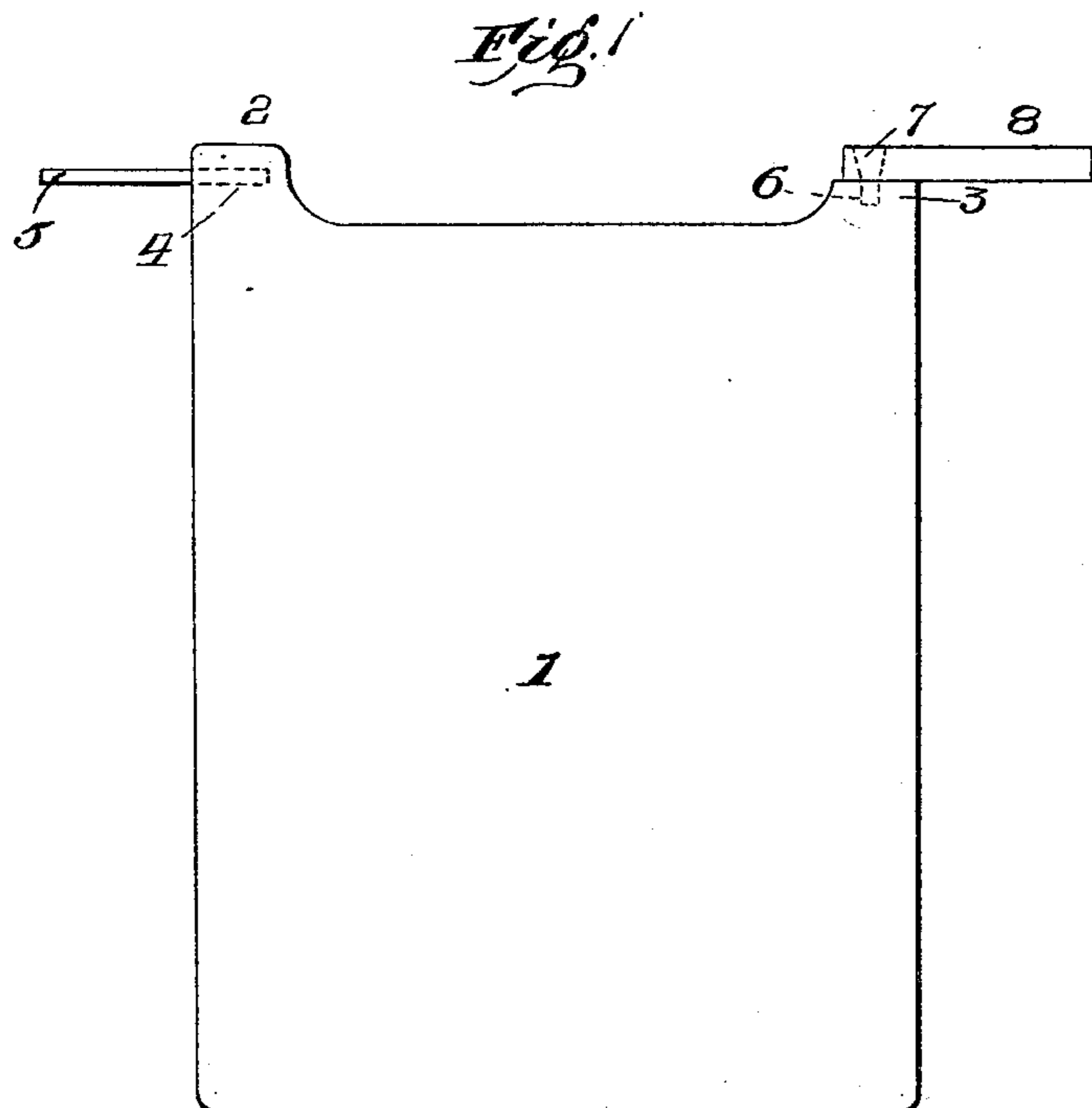
No. 633,056.

Patented Sept. 12, 1899.

A. L. WALKER.  
ANODE.

(Application filed May 6, 1899.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

ARTHUR L. WALKER, OF PERTH AMBOY, NEW JERSEY.

## ANODE.

SPECIFICATION forming part of Letters Patent No. 633,056, dated September 12, 1899.

Application filed May 6, 1899. Serial No. 715,851. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR LUCIAN WALKER, a citizen of the United States, residing at Perth Amboy, in the county of Middlesex, State of New Jersey, have invented certain new and useful Improvements in Anodes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part thereof, and to the figures of reference marked thereon.

This invention relates to improvements in anodes for use in electrolytic separation and purification of metals, and has for its object to produce an improved supporting means for the anodes while in the bath.

To this end the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described and the features of novelty pointed out in the claims.

In the drawings, Figure 1 is a front elevation of an anode embodying my present improvements. Fig. 2 is a detail view of the conducting lug and support. Fig. 3 is a side elevation of an anode embodying a modified form of conducting-support. Fig. 4 is a detail view of one of the conducting-supports.

Similar figures of reference in the several views indicate the same parts.

In the drawings, Figure 1 represents an anode of metal, such as copper, cast with the ears 2 3 and formed in the process of casting with an opening or hole 4 to receive a pin 5, resting on the edge of the tank to support that side of the anode. The ear 3, it will be noted, does not extend upward as far as lug 2 and has a substantially flat top surface. A vertical hole 6 is formed in the ear 3 in the process of casting for the reception of a screw 7, carried by a conducting and supporting lug 8 and whereby said lug is rigidly and securely attached to the anode and constitutes the other support therefor, being adapted to rest on the main conducting-bar. (Not shown.)

The screw 7, preferably of steel or some conducting material harder than the metal of which the anode is composed, is of slightly-larger diameter than that of the opening 6. The screw may as a consequence be readily screwed into said hole without requiring a thread to be tapped therein (though a thread

may be tapped, if desired) and at the same time will afford ample strength for the purposes intended and afford a good electrical contact. By this construction it will be seen that after the body of the anode has been consumed the ears and any remaining part of the body may be removed and the conducting-lug separated therefrom ready to be used again. The anodes therefore may be of such shape that they can be readily cast of substantially regular form, and the amount of unconsumed material remaining after use is very greatly reduced and forms a small amount of scrap.

The conducting-lug 8 is preferably cast around the screw in a mold very simply arranged for that purpose, and the conducting-lug being adapted for use over and over again the material of which it is formed may be of purer quality than that of the anode, the conductivity of the metal resting on the main conductor-bar being therefore increased. In securing the lug to the anode the metal of the latter will yield sufficiently to insure accurate positioning, and the screw, forcing its way into the metal, together with the rubbing of the contacting surfaces of the lug and anode together, insures a perfect electrical contact.

In the modified construction of anode, Figs. 3 and 4, it is cast without the ears, as in the previously - described construction, or is squared off, as shown at 9 9. These squared portions receive screw-eyes 10, formed or provided with screw-shanks 11, adapted to enter the openings 12 12 in the anode. With this construction also the screw-shanks are of steel or other hard metal and are of a diameter slightly greater than that of the openings into which they are screwed, doing away, as in the former instance, with the necessity of tapping the openings. The eyes are cast about the screws in a separate mold from the anode, thus permitting them to be of purer metal, and they may be removed from the anode and used over and over again. With this form of lug or eye a supporting-rod 13 is employed, one end of which rests on the main conductor and the other on the side of the tank, as will be readily understood. With this modified construction there will be, if anything, even less waste or scrap left unconsumed in the bath than with the first-described construction; but in both cases there

is an exceedingly-small quantity of metal left to go into scrap and be remelted, and in both there is the great advantage of a supporting lug or lugs of superior conductivity, uniform shape, and lasting qualities. The anodes can also be more easily made in this shape than if they were cast with lugs and supports.

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

1. An anode for use in the purification of metals by electrolytic separation formed of crude metal with an upwardly-extending supporting-ear at the top, said ear having a recess therein and a contacting face around said recess, a support formed of refined metal having a downwardly-extending screw forming a part thereof and entering the recess in the ear and a contacting face surrounding the screw and contacting with the corresponding face on the upper surface of the ear; substantially as described.

2. An anode for use in the purification of metals by electrolytic separation formed of

crude metal with an upwardly-extending supporting-ear at the top, said ear having a recess therein and a contacting face around said recess, a laterally-extending support of refined metal having a screw forming a part thereof and entering the recess in the ear and a contacting face surrounding the screw and contacting with the corresponding face on the ear; substantially as described.

3. The herein-described anode-supporter consisting of the support formed of refined metal with a projecting screw of hard metal having its shank permanently embedded in fixed position in the support and a contacting surface surrounding said screw whereby when the support is applied to the anode, the said surface will be drawn into contact with the face of the anode to form the electrical connection; substantially as described.

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