

B. Arnold,
Water Filter.

N^o 32,815.

Patented July 16, 1861.

Fig. 2.

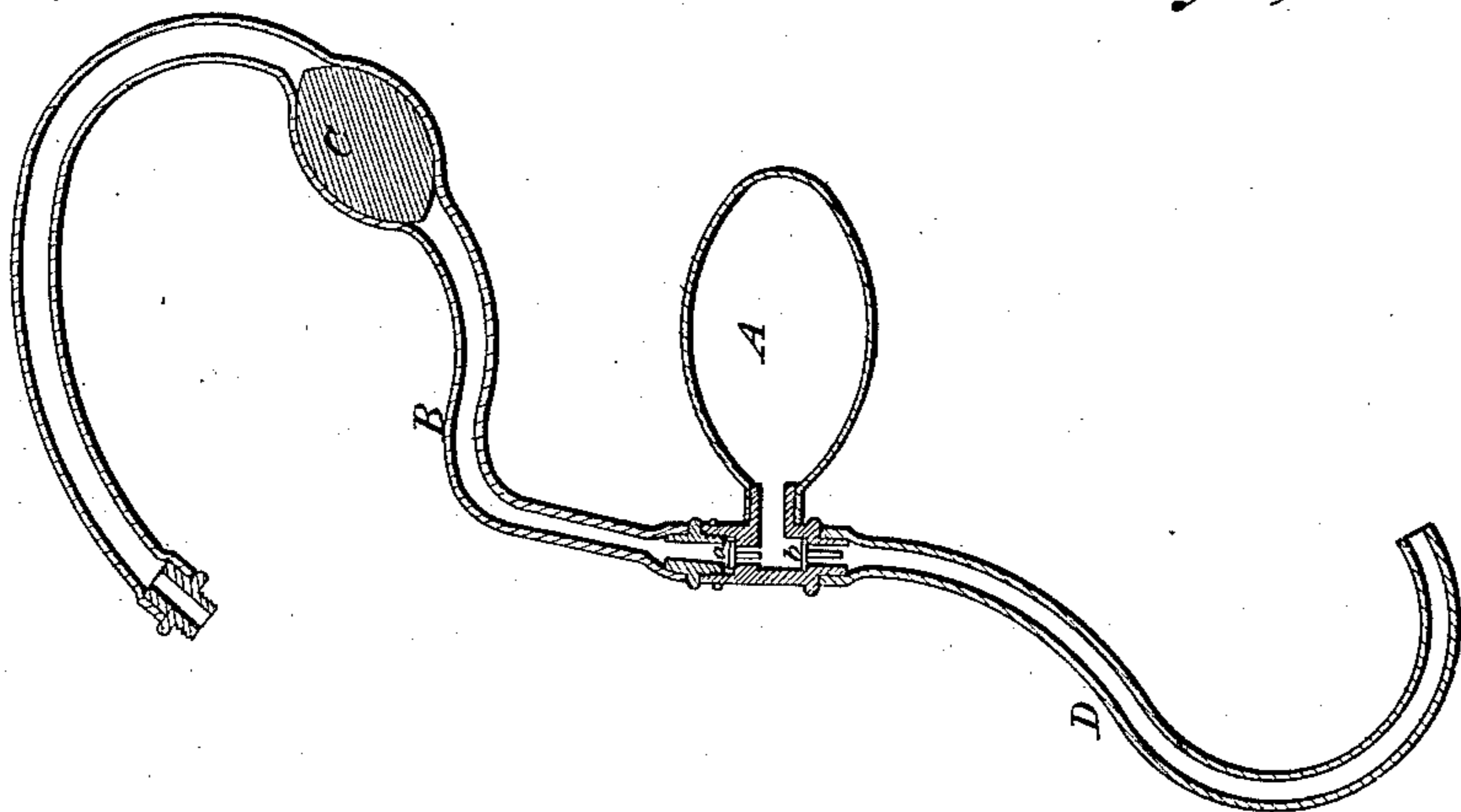
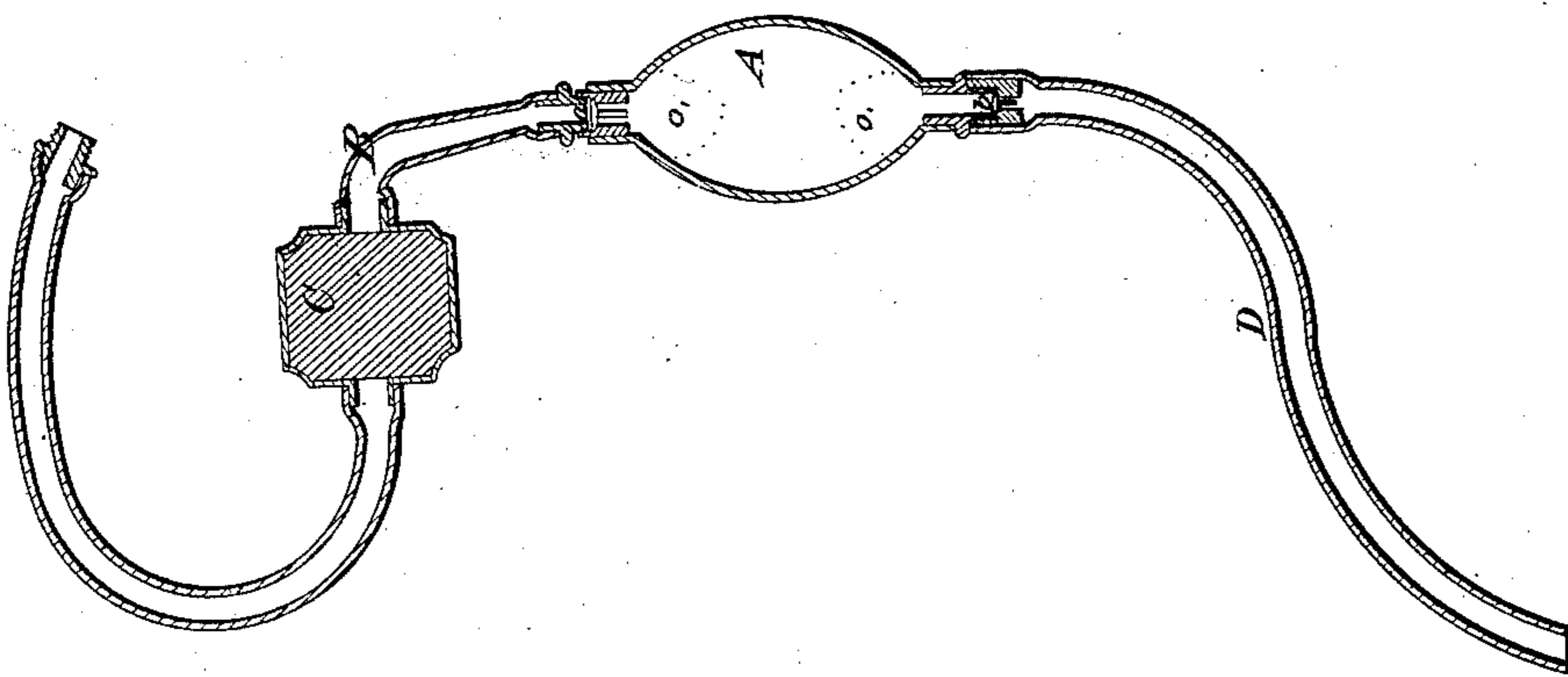


Fig. 1.



Witnesses

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BENJAMIN ARNOLD, OF EAST GREENWICH, RHODE ISLAND.

FILTER.

Specification of Letters Patent No. 32,815, dated July 16, 1861.

To all whom it may concern:

Be it known that I, BENJAMIN ARNOLD, of East Greenwich, in the county of Kent, in the State of Rhode Island, have invented
5 a new and useful Improvement in Filters; and I do hereby declare that the following is a full and correct description thereof, reference being had to the accompanying drawings and to letters of reference marked
10 thereon.

In the drawings similar letters refer to like parts.

The construction of my filter I will proceed to describe.

15 A, is a hollow spheroidal shaped elastic bulb or case.

a, *b*, are valves, one of which, *a*, is made to open toward the bulb B, while the other, *b*, opens from it.

20 B, is a tube attached to the upper end of the bulb A.

C is the filter which intersects the tube B, or, as in Figure 2, is put inside of it which may be done by using an elastic tube which
25 can be stretched so as to receive the filtering medium. The tube B is furnished at each end with a hollow screw *c*, that it may be attached to the bulb by either of its ends, so that the direction of the current through the
30 filter C, may be reversed for the purpose of freeing it from the dirt, that may be collected from the fluid filtered.

D is a tube extending from the lower end of the bulb A, for the purpose of conducting
35 the fluid to be filtered to the bulb. The filter C may be placed in this latter tube (D), instead of B, if preferred, but it makes the action of the apparatus less certain and slower to depend upon the suction of the
40 bulb, as we should in that case, to get the

water through the filtering medium, than it is when the filter is placed in tube B, and the water is forced through it, by pressure upon the bulb A. Both tubes B, and D, may be attached to the same end of the bulb
45 A as seen in Fig. 2 without altering the principle of operation, and the filtering medium may be placed in the ends of bulb A as shown by the dotted lines *o*, *o*, if preferred.
50

The mode of operation is as follows: The end of tube D being inserted into the fluid to be filtered, the bulb A is compressed by the hand and the air in it forced out through the tube B as the valve *b*, which opens in-
55 ward cuts off the passage through D. By allowing the bulb A to expand again the fluid is drawn up to fill the partial vacuum in the bulb, through the tube D, as the passage through B is closed by valve *a*, which
60 opens outward. By again compressing the bulb the fluid in it is forced out through the tube B, and filter C valve *b* closing the tube D as before.

The shape of the elastic bulb or case A, 65 may be varied as preferred without making a material alteration in the arrangement, and the substance of the medium of the filter C may also be varied.

Having thus described my improved filter 70 what I claim as my invention and desire to secure by Letters Patent is—

The arrangement of the elastic bulb A, with the valves *a*, *b*, filter C, and tubes B, D, substantially as described, and for the pur-
75 pose herein set forth.

BENJAMIN ARNOLD.

Witnesses:

MARY ARNOLD,
E. G. ARNOLD.