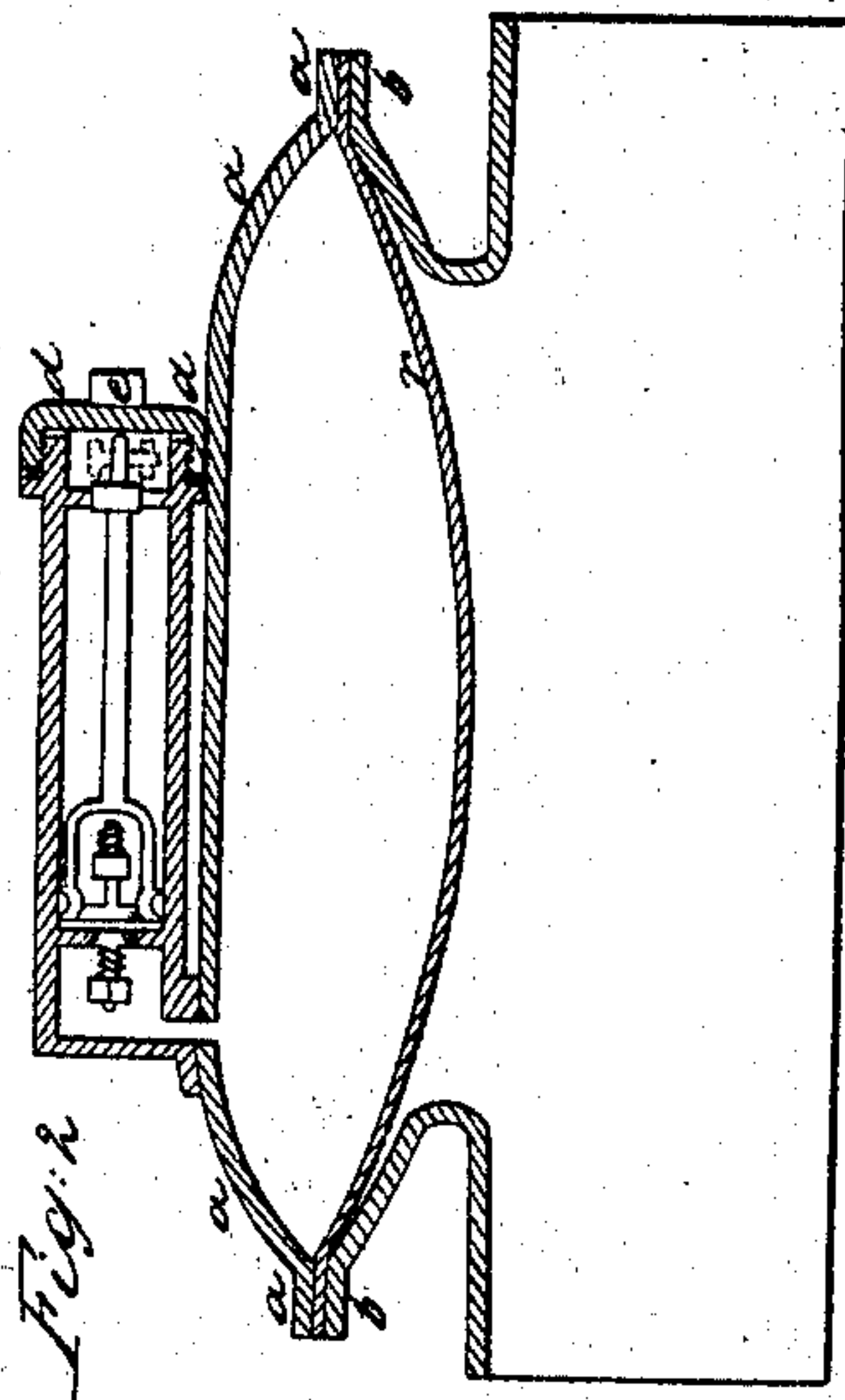
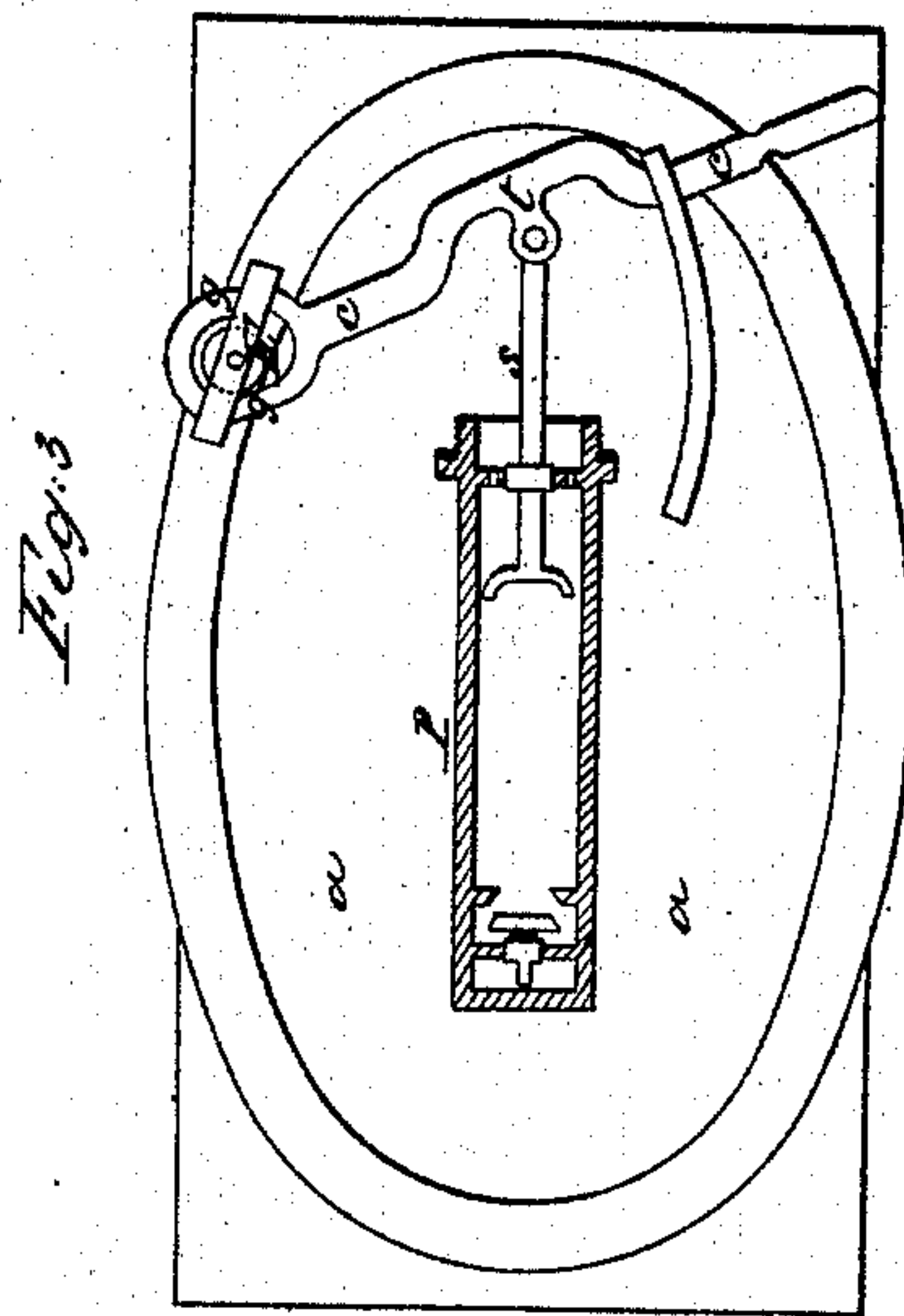
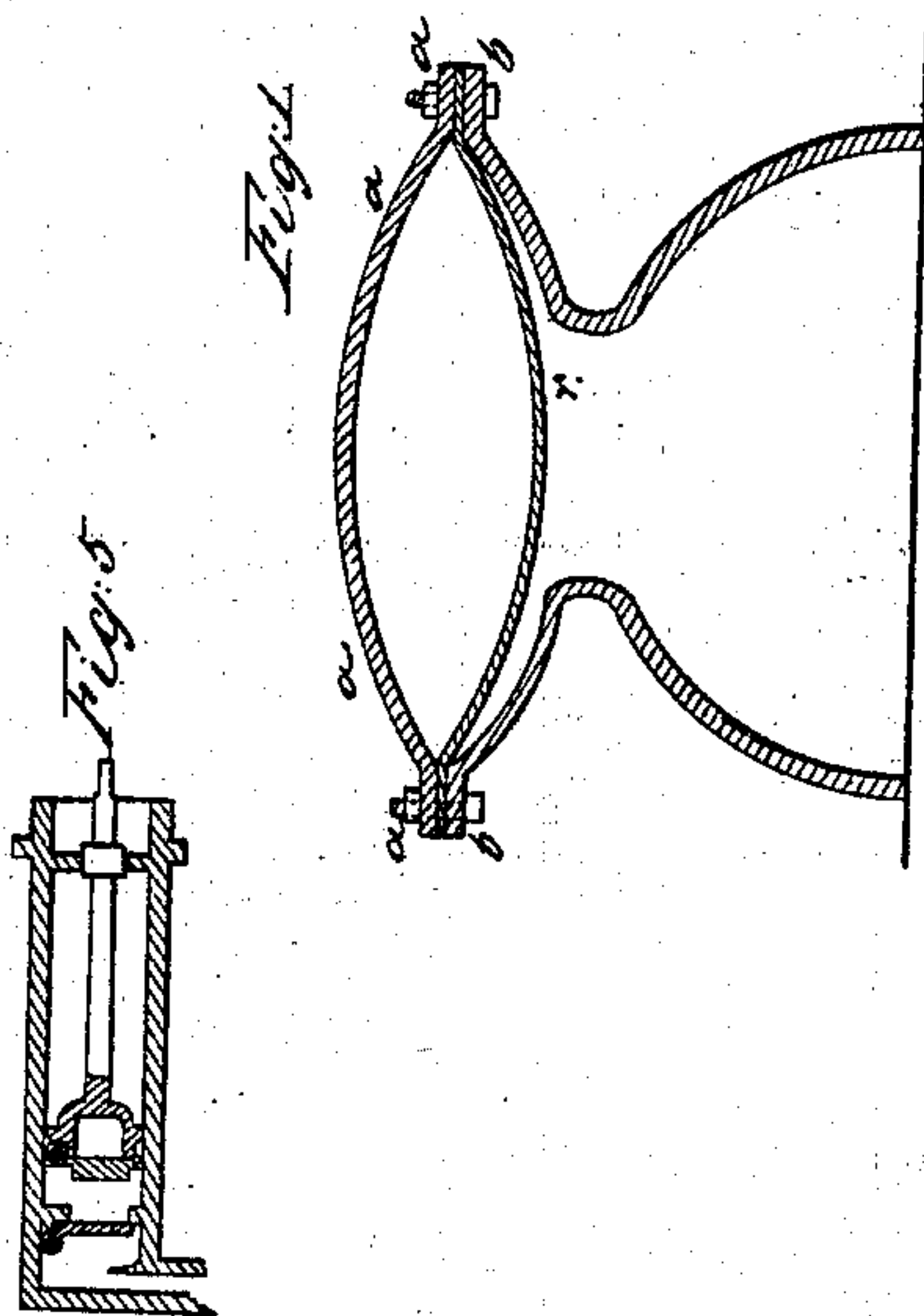
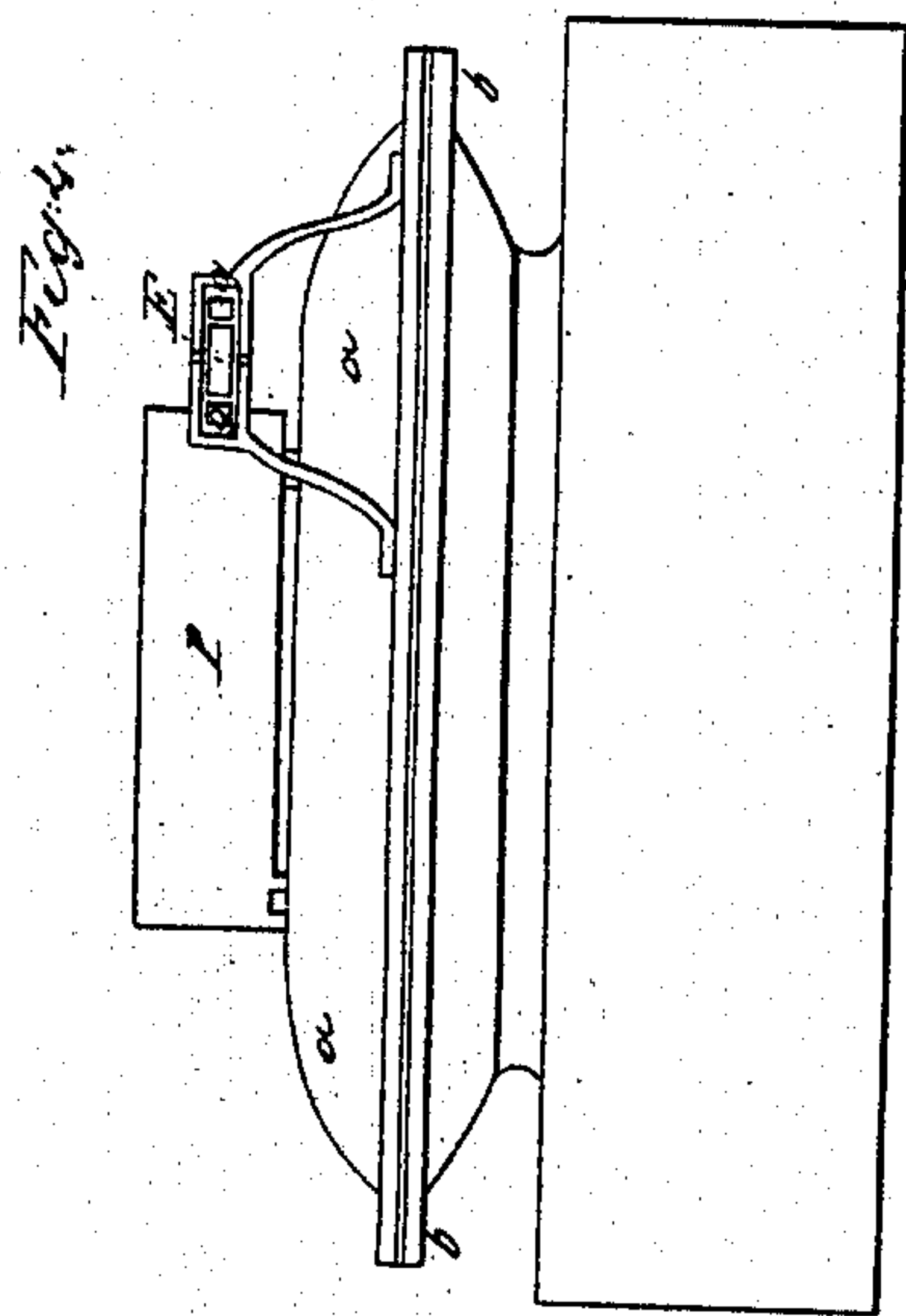


*R. Kreuzbaur,*

*Air Chamber,*

*N<sup>o</sup> 32,595,*

*Patented June 18, 1861.*



*Witnesses.*

*Jno P. Kirk  
& L. Jacob*

*Inventor:  
Robert Kreuzbaur*



# UNITED STATES PATENT OFFICE.

ROBERT CREUZBAUR, OF TRAVIS COUNTY, TEXAS.

## AIR-CHAMBER.

Specification of Letters Patent No. 32,595, dated June 18, 1861.

*To all whom it may concern:*

Be it known that I, ROBERT CREUZBAUR, of Travis county and State of Texas, have invented a new and useful Improvement in  
5 Air-Chambers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

10 Figure 1 represents a cross section of this improved air chamber. Fig. 2 represents a section of the same through its long diameter. Fig. 3 represents a top view of the same. Fig. 4 represents a side view of the  
15 same, and Fig. 5 represents a condensing pump, simpler and of easier construction than the one in Figs. 2 and 3.

Similar letters of reference indicate corresponding parts in the five figures.

20 The nature of my invention consists 1st in the combination of the diaphragmed air chamber, replenishing pump, jointed piston rod and screw cap substantially in the manner and for the purpose hereinafter de-  
25 scribed.

2nd it consists in a condensing or replenishing pump to an air chamber, so constructed that the piston rod can be detached from its driving apparatus and the pump  
30 cylinder with the piston in it, closed air tight by a cap or cover—substantially as hereinafter described.

To give the air thus confined by a diaphragm, great range of action, the air chamber is made in such a shape, that the diaphragm, *r* in its greatest reach in or out, will nearly touch the vessel or air chamber,—  
35 as shown in the drawing, Figs. 1 and 2. For greater convenience, the top part of the chamber, *a a*, is made in a separate piece as shown. Between this top piece *a a* (which ought to be of brass, copper, or plate iron—not of cast iron)—and flanges  
40 *b b* of the main vessel, the diaphragm is placed and firmly held by bolting together flanges *a a* and *b b*—as shown in Fig. 1. In this manner, the diaphragm is conven-

iently accessible for renewal; or for the purpose of filling it with air, if not provided with a pump for that purpose.

50 The small condensing pump *P* is either with flap valves as shown in Fig. 5,—or, as shown in Fig. 2, with puppet valves. The piston rod *s* is attached to lever *c c* by a bolt and tap *t*; this lever *c c* is therefore  
55 easily detached, for the purpose of screwing down a top *d* on the cylinder; the joints are made perfectly air tight by one or two india rubber rings, as shown in Figs. 2 and 3 in pink. This top *d* serves two purposes: 60  
1st, it does away with the necessity of fitting the valves with great accuracy. 2nd, it prevents unnecessary interference with, and working of the pump; in consequence of  
65 which the air might be too much condensed, to the injury of the machinery. The knob *e* of this top *d* is to form a hold by which to screw it down with some force.

The lever *c c* has its fulcrum on roller *E*, which freely turns on its axis. The oval  
70 open part *g g* of this lever, is wide enough, so that one side of it only can touch the roller. By this arrangement the lever *c c* can roll endwise, sufficiently to preserve the parallel course of the piston rod, and do  
75 away with the necessity of a parallel rod.

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

1. The combination and arrangement of the diaphragmed air chamber *a, b, r*, replenishing pump *P*, jointed piston rod *s, t*, and detached cap *d*, substantially in the manner and for the purpose described.

2. The manner substantially as herein described of constructing a condensing or replenishing pump of an air chamber so that  
85 the pump cylinder while the piston is within it can be closed air tight by a lid or cover *d*, for the purpose set forth.

ROBERT CREUZBAUR.

Witnesses:

JOHN P. KIRK,  
DENNIS CORWIN,  
PETER B. LOWE.