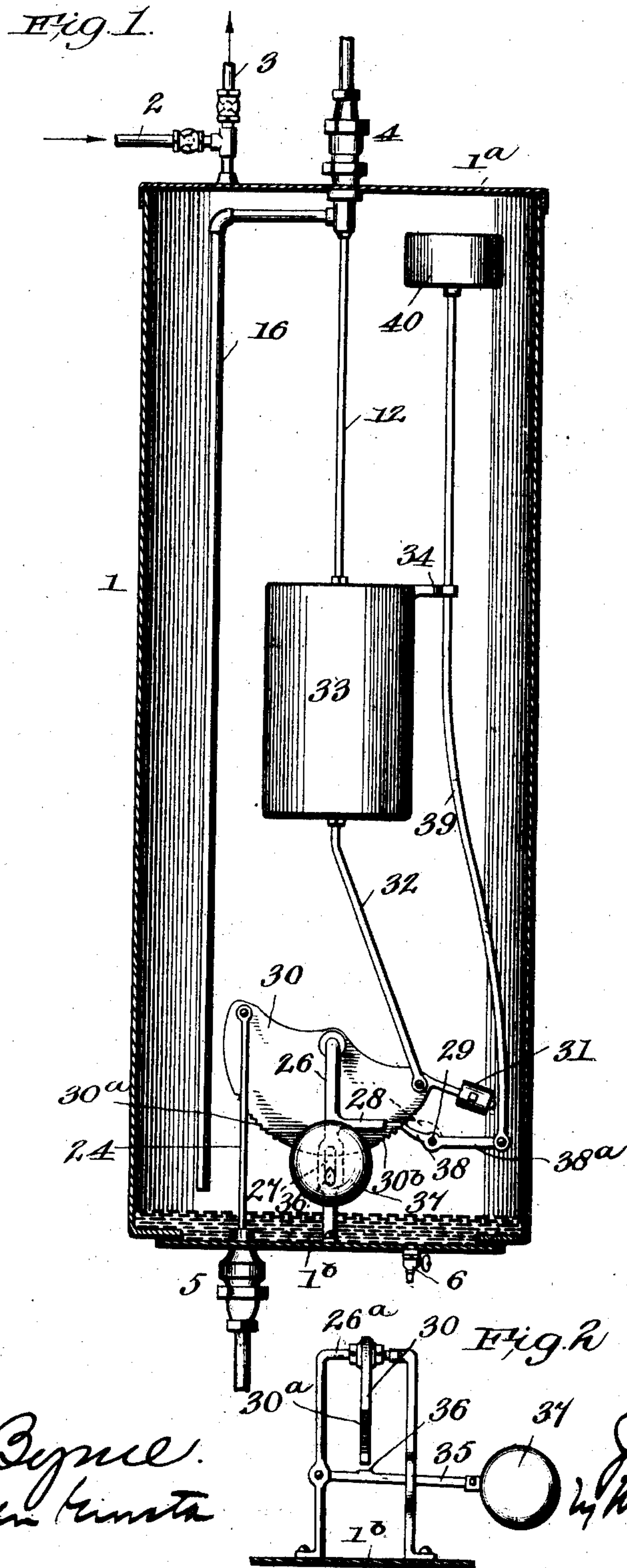


No. 864,677.

PATENTED AUG. 27, 1907.

J. E. NASH.
HYDRAULIC AIR COMPRESSOR.
APPLICATION FILED APR. 18, 1906.

2 SHEETS—SHEET 1.



Witnesses
Geo. H. Byrnes.
Stephen Kimball

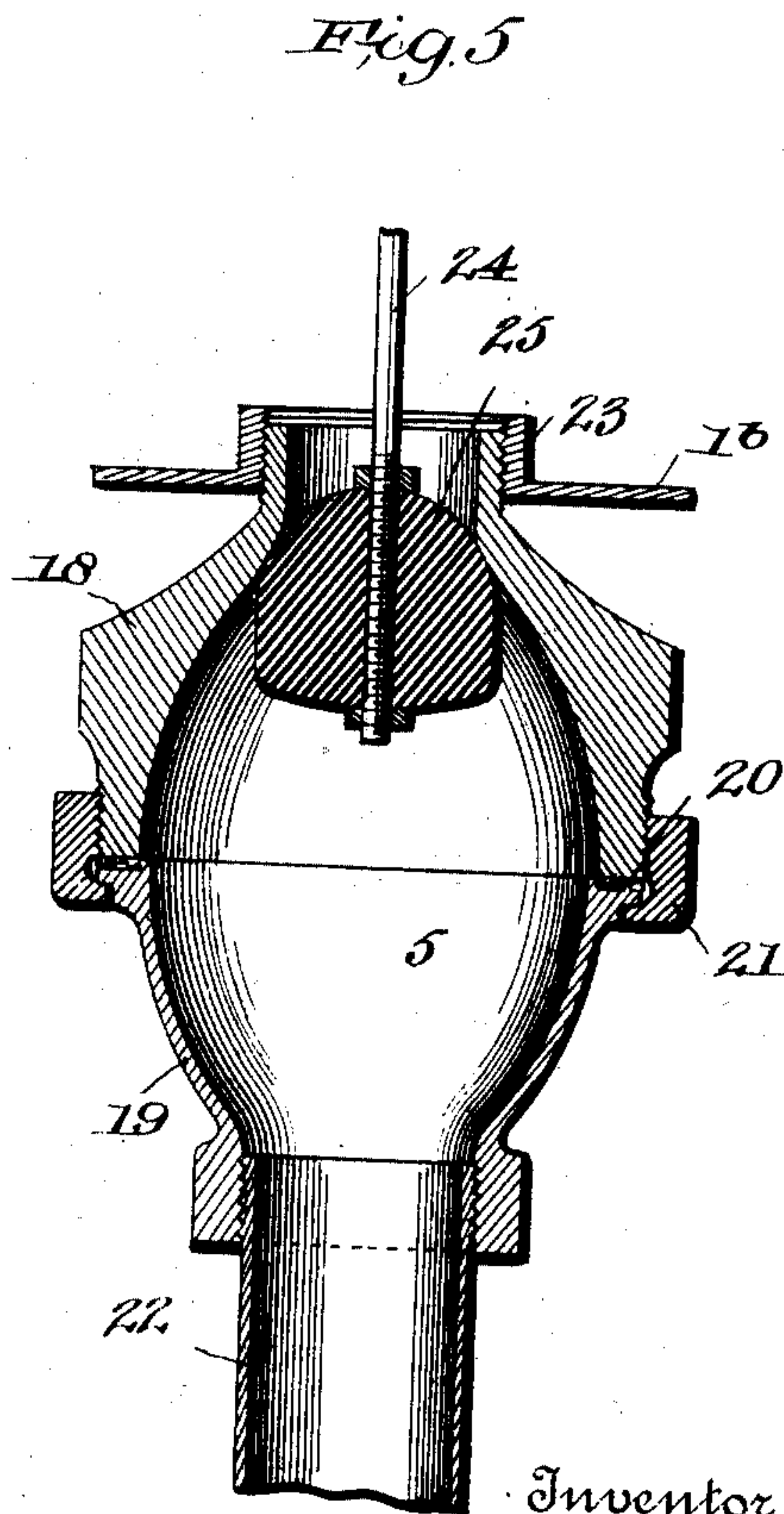
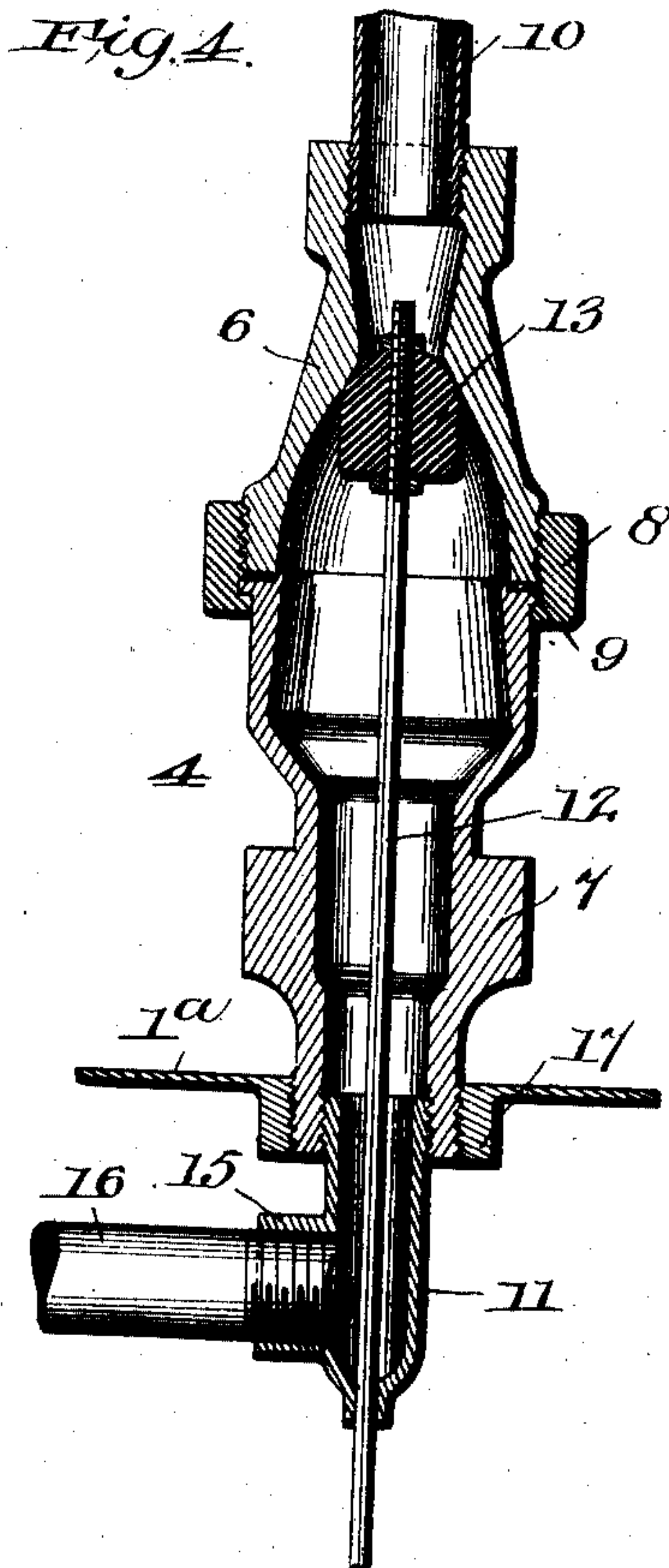
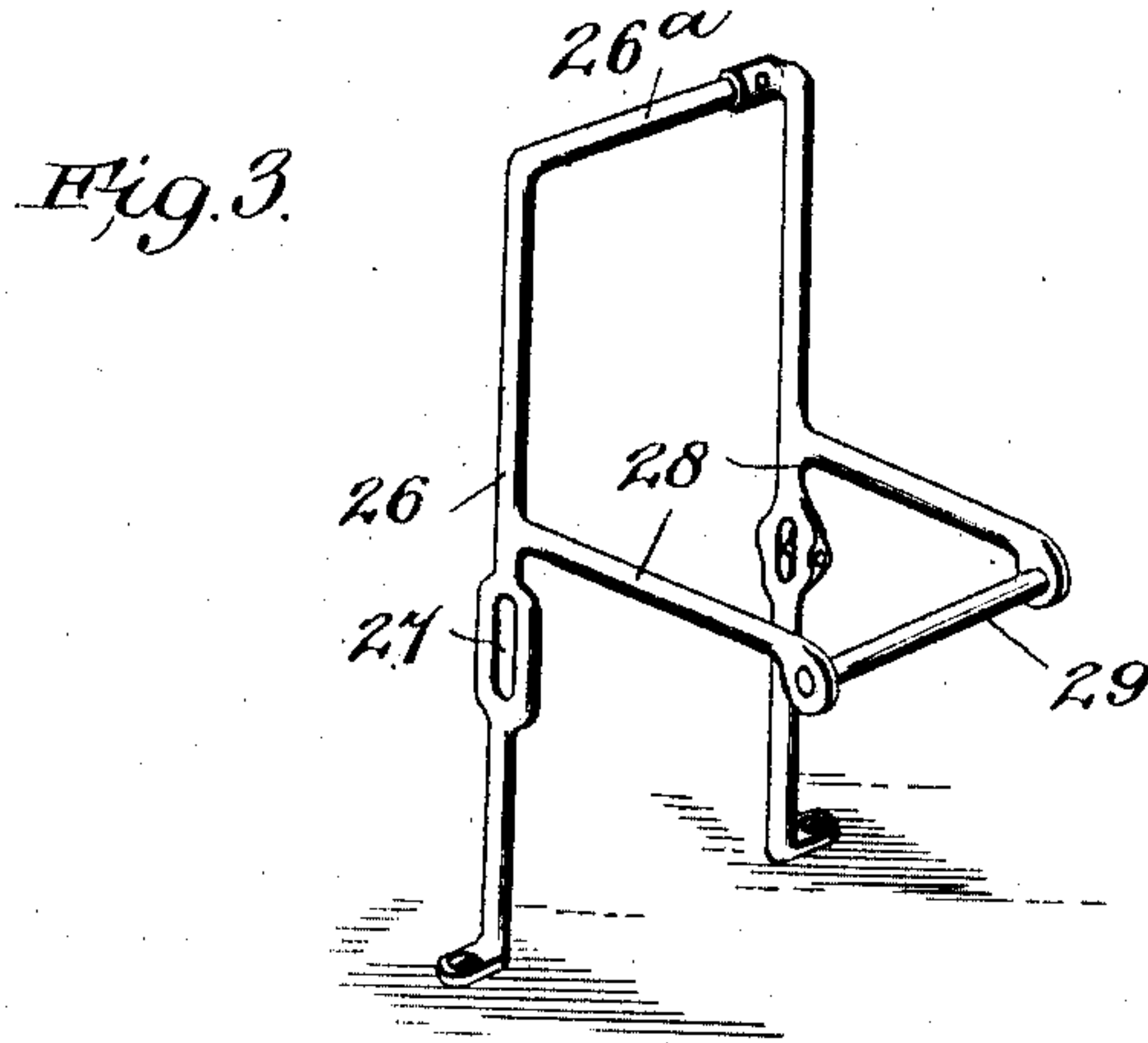
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APPLICATION FILED APR. 16, 1906.

2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JETT E. NASH, OF CHEYENNE, WYOMING.

HYDRAULIC AIR-COMPRESSOR.

No. 864,677.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed April 16, 1906. Serial No. 312,012.

To all whom it may concern:

Be it known that I, JETT E. NASH, a citizen of the United States, residing at Cheyenne, in the county of Laramie and State of Wyoming, have invented certain
5 new and useful Improvements in Hydraulic Air-Compressors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to improvements in air compressors and is especially designed to provide automatic hydraulically operated means for compressing air into a suitable storage tank from whence the compressed air may be utilized in any desired way.

15 While the invention is not limited to the specific means illustrated and described, still for the purpose of disclosure reference is had to the accompanying drawings illustrating a practical embodiment of the invention, in which like letters indicate the same parts
20 in the several views and in which,

Figure 1 is a longitudinal section through a suitable receptacle, showing the operating parts of the invention in elevation, and a portion of the locking member support being broken away. Fig. 2 is a detail view
25 showing the locking member in end elevation and the means of suspending same. Fig. 3 is a perspective view of the frame supporting the locking member. Fig. 4 is a longitudinal section through the water inlet connection and illustrating a suitable method of securing same to the top of the receptacle, the valve being shown in its closed position, and Fig. 5 is a similar
30 view through the water outlet at the bottom of the receptacle.

1 designates the water receptacle provided with the
35 air inlet and outlets 2 and 3, with suitably seated check valves therein and also provided with the water inlet and outlets 4 and 5 and the drain cock 6.

The water inlet may be of any suitable construction, but I prefer the form illustrated in Fig. 4 wherein the
40 valve casing is formed of two sections 6 and 7 joined together by the union collar 8, a gasket 9 being interposed between the sections. The outer ends of the sections are internally screw-threaded, one to receive the water supply pipe 10, and the other to receive the
45 guiding nipple 11 apertured to receive the valve rod 12 of the valve 13 and also provided with an elbow 15 to receive the pipe 16 terminating and discharging at the bottom of the receptacle. The end of the lower section 7 is also externally screw threaded to fit within
50 the screw threaded internal boss 17 formed integral with the top 1^a of the casing. Similarly, the water outlet valve casing is formed of two sections 18 and 19 having the interposed gasket 20 and joined by the union ring 21, 22 designating the waste pipe screw-threaded into the lower section and 23 designating an
55 internal boss formed on the bottom 1^a of the receptacle

and screw-threaded to receive the reduced end of the section 18. 24 is the valve rod and 25 the valve.

At the bottom of the receptacle is suitably secured the frame or support which as shown more clearly in
60 Fig. 3 comprises a pair of uprights 26 provided with elongated eyes or slots 27 and also provided with the laterally disposed arms 28 connected by the cross rod 29.

Pivotally suspended on the cross rod 26^a of said frame is a locking member 30 preferably provided
65 with the weighted arm 31 and pivotally connected at one side of its fulcrum with the valve rod 24 of the outlet and on the other side of its fulcrum pivotally connected to a rod 32 joined to the inlet valve rod 12 by the interposed float 33 having an apertured guiding
70 arm 34 thereon. This locking member preferably is in the form of a segmental plate provided on its curved edge with teeth or serrations 30^a and 30^b.

35 is a locking arm pivoted in one of the slots 27 and riding vertically in the other of said slots, said locking
75 arm being provided with a knife edge 36 adapted to cooperate with the serrations 30^a. The free end of the locking arm is provided with a float 37.

38 designates a locking pawl cooperating with the serrations 30^b and this pawl is provided with an ex-
80 tension 38^a connected by means of the rod 39, passing through the guiding arm 34 of the float 33 and terminating with a float 40 adjacent the top of the receptacle.

It will be seen that the locking pawl and its extension form a lever pivoted on the cross rod 29 of the
85 bracket or frame support referred to.

Assuming the parts to be in the position shown in Fig. 1 with the inlet valve just opened and the outlet valve closed, it being understood that the receptacle
90 1 is filled with air drawn in through the pipe 2 during the discharge of the water, in operation it will be seen that the rise of water in the receptacle will first elevate the float 37 until the knife edge 36 engages the segmental plate 30 between the serrations 30^a and 30^b,
95 after which the water will continue to rise, passing above the float 33, the latter being locked against movement by the pawl 38, until it reaches the float 40 when the pawl 38 is tripped by the rod 39 and the locking plate released, whereupon the float 33 will
100 immediately rise, closing the inlet through the valve rod 12 and valve 13 and oscillating the plate 30, forcing the valve rod 24 downwardly and simultaneously opening the outlet with the closing of the inlet. At the end of the oscillation of the plate 30, the serrations 30^a are engaged by the knife edge 36 and the
105 float 37 holds the plate in this interlocked position until the water level has fallen sufficiently to allow the float 37 to fall, when the knife edge 36 being disengaged from the serrations, the weight of the float 33 and the weighted arm 31 will oscillate the locking
110 member in the reverse direction, closing the outlet and opening the inlet, in which positions the parts

will be held by the pawl 38 having engaged the serrations 30^b when the operation is continued.

It will be understood that as the water is being withdrawn, air is sucked in through the inlet pipe 2 and as the receptacle is being filled up the air is forced through the outlet pipe 3 to the storage tank. It will also be understood that the pressure in the storage chamber may be regulated in any suitable way by interposing a water pressure regulator in the water supply pipe, but of course this feature forms no part of the present invention and is not illustrated or further described.

Having thus described the invention, what I claim is:—

- 15 1. In an automatic air compressor, the combination with a closed receptacle provided with air and water inlets and outlets and suitable valves therefor, of an oscillating locking member fulcrumed intermediate of its ends, connecting means between one end of said locking member and said
- 20 water outlet valve, connecting means between the other end of said locking member and said water inlet valve including an intermediate float, locking means coöperating

with said locking member and adapted to interlockingly engage same in its reversed position of oscillation, and floats located adjacent the top and bottom of said receptacle and connected with said locking means, substantially as described. 25

2. In an automatic air compressor, the combination with a closed receptacle provided with air and water inlets and outlets and suitable valves therefor, of an oscillating locking member fulcrumed intermediate of its ends and provided with a serrated curved edge, means connecting one end of said locking member with the valve of said water outlet, means for connecting the other end of said locking member with the valve of said water inlet and including an intermediate float, a float controlled locking arm located adjacent the bottom of said receptacle and coöperating with the serrations of said locking member, a locking pawl coöperating with the serrations of said locking member, a float disposed adjacent the top of said receptacle, and connecting means between said float and locking pawl, substantially as described. 30 35 40

In testimony whereof, I affix my signature, in presence of two witnesses.

JETT E. NASH.

Witnesses:

EDITH G. SNOW,
A. P. HANSON.