

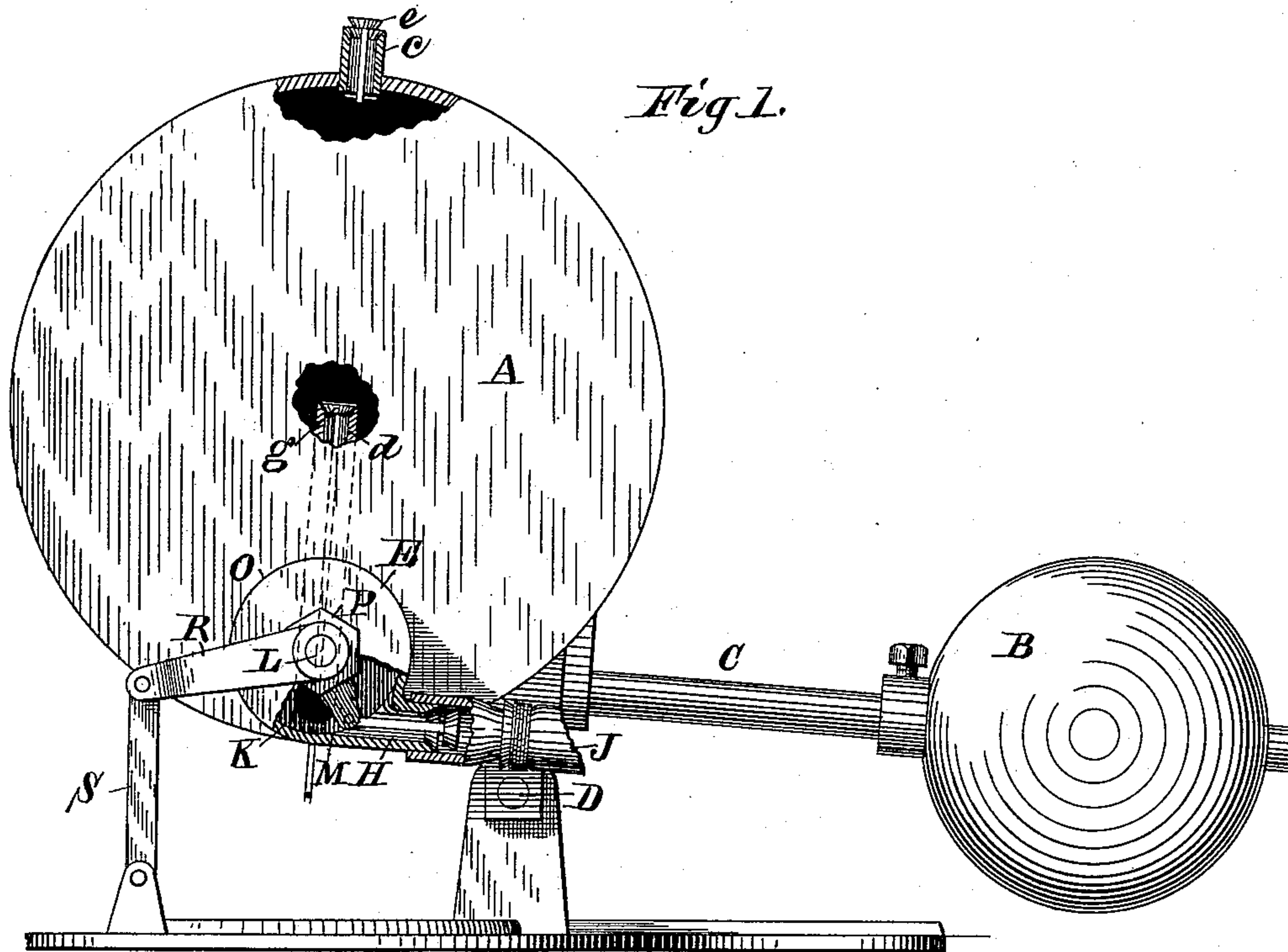
(No Model.)

J. B. ERWIN.

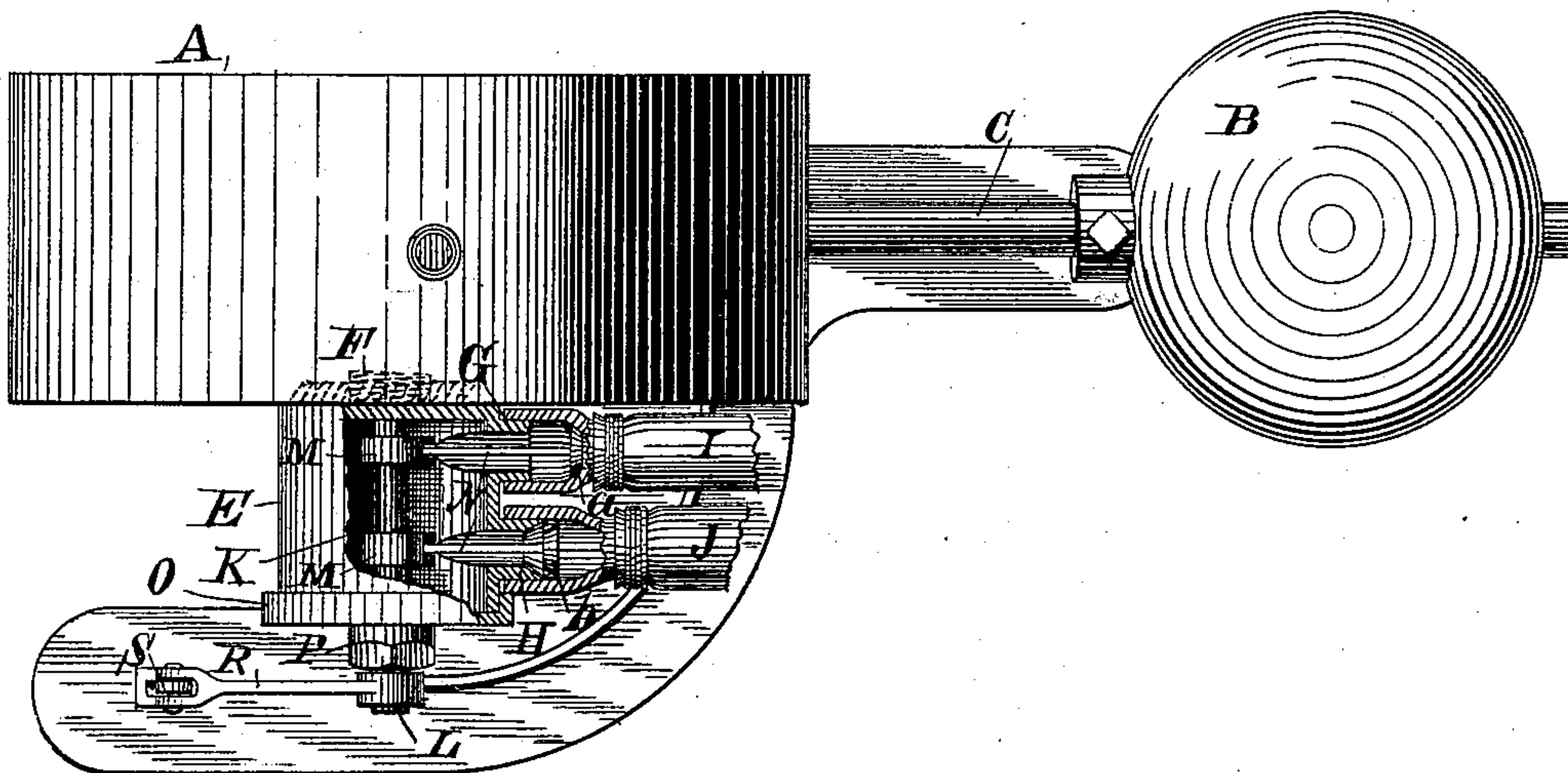
HYDRAULIC AIR COMPRESSOR.

No. 333,208.

Patented Dec. 29, 1885.



*Fig. 2*



Witnesses  
G. M. Gridley  
M. J. Schirmer.

Inventor  
James B. Erwin



# UNITED STATES PATENT OFFICE.

JAMES B. ERWIN, OF MILWAUKEE, WISCONSIN.

## HYDRAULIC AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 333 208, dated December 29, 1885.

Application filed March 27, 1885. Serial No. 160,223. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES B. ERWIN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in a certain hydraulic air-compressor, for which application No. 152,072 was filed by me January 5, 1885, and which was allowed April 13, 1885, and the same is further explained by reference to the accompanying drawings.

Figure 1 represents a side view of my invention, part in section; and Fig. 2 represents a top view thereof, also part in section, disclosing parts of the internal mechanism.

Like parts are represented by the same reference-letters in both views.

The receiver A, adjustable counterpoise B, lever C, pivotal support D, inlet and outlet air-ducts *c* and *d*, with their valves *e* and *g*, link S, and the supporting-bracket are all substantially the same as shown in said application, except the receiver A, which, by my present device for controlling the admission and escape of water, I am enabled to cast in a single piece, and thus dispense with the bolts and packing otherwise required.

The water is controlled in its admission and escape to the receiver solely by a simple faucet, E, of peculiar construction, which is made independently of the cast-iron receiver, preferably of brass, and is attached to said receiver by a short sleeve or duct, F, which is screwed into an orifice formed in the side of the receiver.

The faucet E consists of the chamber K, provided with connection F, valve-shaft L, arms M M, rigidly affixed at one end to the shaft L, valve-rods N N, inlet and outlet valves *a* and *b*, ducts G and H, removable cap O, stuffing-nut P, and handle R. The handle R is connected to the supporting-bracket by the bar S.

It is obvious that as the empty chamber A ascends the inlet water-valve is opened, thus

permitting the chamber A to be filled with water, whereby the air therein is forced from the chamber through the air-duct *c*; also, that as the chamber is caused to descend by the gravity of its contents said water-valve is closed and the outlet water-valve is opened, whereby the water escapes, and in so doing a partial vacuum is formed in said chamber, which causes the exterior air to raise the valve *g* and enter the chamber. The chamber, being thus emptied of its water, ascends again by the gravity of the counter-weight, and thus continues to oscillate and force air into the air-receiver until the pressure of air is such as to exclude water from the receiver A, when it ceases to operate so long as the air-pressure remains the same; but as soon as the air-pressure is released the water will at once begin flowing into the chamber, causing it to oscillate again, and thus maintain a uniform pressure in the air-receiver.

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

1. In an air-compressor, the combination, with the oscillating receiver and the supporting base or bracket, of the two-way faucet E and link S, said faucet being attached to the side of said receiver by a coupling-sleeve or duct, through which the same water both enters and escapes from said receiver, said receiver being counterbalanced by a weight and supported above said base or bracket upon a pivot, substantially as and for the purpose specified.

2. The combination, with the oscillating counterbalanced receiver A, provided with inlet and outlet air ducts and valves, of the chamber K, connecting sleeve or duct F, valve-shaft L, arms M M, valve-rods N N, reversely arranged, inlet and outlet valves *a* and *b*, ducts G and H, cap O, stuffing-nut P, and handle R, said handle being connected by a link with the supporting brace or bracket of said receiver, whereby said valve-shaft is turned and said valves opened and closed as said receiver oscillates, substantially as and for the purpose specified.

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

JAMES B. ERWIN.

Witnesses:

M. J. SCHINNER,  
G. M. GRIDLEY.