W. D. SEAL.

Cock for Air-Compressors.

No. 197,414. Patented Nov. 20, 1877.

Fig. 1.

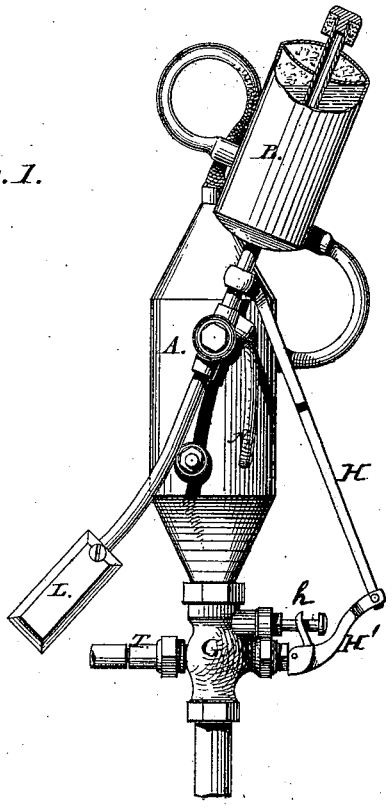
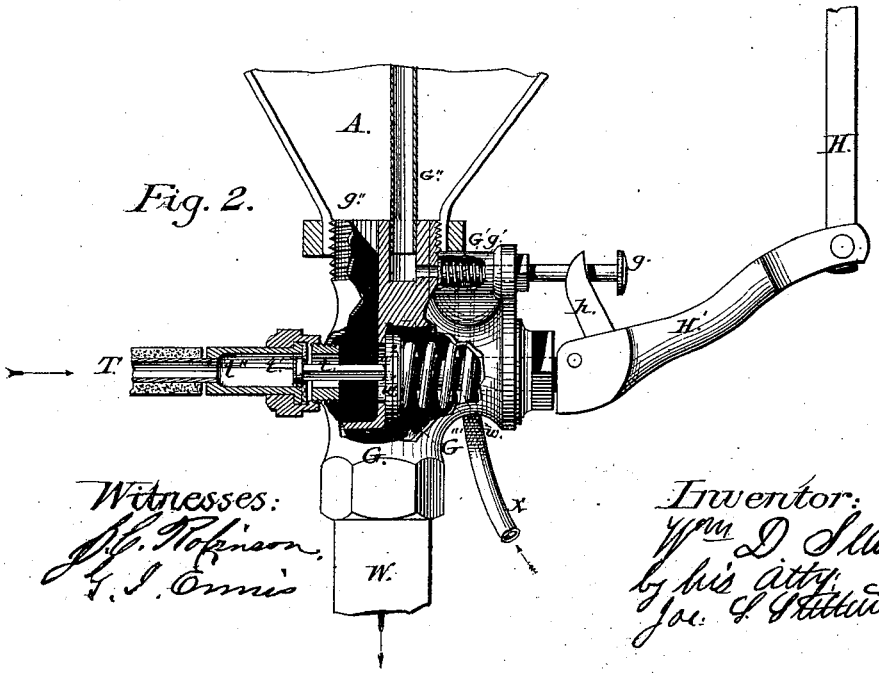


Fig. 2.



Witnesses:
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Inventor:
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by his Atty.
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UNITED STATES PATENT OFFICE.

WILLIAM D. SEAL, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO HIMSELF AND WASHINGTON T. NAILOR, OF SAME PLACE.

IMPROVEMENT IN COCKS FOR AIR-COMPRESSORS.

Specification forming part of Letters Patent No. **197,414**, dated November 20, 1877; application filed April 25, 1877.

To all whom it may concern:

Be it known that I, WILLIAM D. SEAL, of Washington city, in the District of Columbia, have invented a new and useful Improvement in Cocks for Air-Compressors, (the same being an improvement on one attached to my automatic air-compressor, patented September 19, 1876, and numbered 182,333,) of which the following is a specification:

Figure 1 is a side elevation of my air-compressor, looking from the support, with chamber B elevated and broken away to show air-space in said chamber, with my improved cock attached. Fig. 2 is a detailed view of the cock, with the shell broken away to show valves, &c.

G, casing of cock; T, supply-valve opening; w and g', springs in casing G; H′, lever attached to rod H; w^1, valve; w^2, opening; h, arm on lever H′; g, head of air-valve stem; g'' and G‴, water-passages; x, air-supply pipe; t, valve-stem; t', valve-head, and t'' valve-seat of supply-valve T; G″, air-pipe; G′, air-valve seat; W, water-waste.

The operation is as follows: I cause a stream of water to flow through opening in valve T; thence on and up through casing G, into chambers A and B, thereby compressing the air in both chambers. Water continues to rise and enters chamber B; when said chamber becomes nearly full, the increased weight of water starts chamber B from its perpendicular position, and as it moves downward it increases in momentum and velocity. This action overcomes the resistance of spring w in casing G, by means of rod H, connected with lever H′, which pulls out the stem of valve w', also arm h on lever H′. This arm catches head g of air-valve rod G′, which pulls out the stem of air-valve G′. The combined operation lets the water pass out through the wasteway W, thereby forming a vacuum in both chambers, and allows air to enter, through pipe x, into the casing G, and ascends through pipe G″ into chambers A and B. This action releases valve-stem t, thereby causing the flow of water from the fountain-head to be cut off by means of the pressure of water against valve-head t'. When chambers A and B have emptied, weight L causes chamber B to resume a perpendicular position, thereby releasing lever H′ and springs w and g', which sends back valves, closing the wasteway W and air-valve G′. The resistance of spring w overcomes the resistance of pressure from the fountain-head, thereby causing valve T to open, which allows the water to enter into the casing from the fountain-head, as before described. Valve t is operated by the stem t, running partly into valve-seat w^1, which serves as a guide and a stop. Valve-head t' also serves as a check-valve should water be drawn from an opening in the supply-pipe beyond the apparatus. The pressure in chambers A and B sends valve-head t' back to valve-seat t'', thereby retaining the pressure in both chambers. Waste, air, and supply valves are faced with sheet-rubber.

As the operations of the apparatus independent of the movements of the valves form no part of my present invention, and are fully described in my aforesaid patent, further description thereof is unnecessary.

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

1. The combination of the valve-casing G, provided with the passages g'' G‴, which communicate through an opening, w^2, the inlet-pipe T and its check-valve, communicating with the passage g'', and the valve w^1, closing the opening w^2, the stem of the check-valve bearing on the valve w^1, with the described appliances for operating the valve w^1, as set forth.

2. The valve w^1 and spring w, in combination with lever H′, and valve t t', arranged and operating as set forth.

3. Lever H′, arm h, valve-stem head g, spring g', air-valve G′, air-pipe G″, and air-inlet pipe x, arranged and operating as set forth.

In testimony whereof I have hereunto subscribed my name.

WM. D. SEAL.

Witnesses:
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