(No Model.)

G. J. KEENAN.

AUTOMATIC AIR COMPRESSOR.

No. 384,529. Patented June 12, 1888.

FIG. 1.

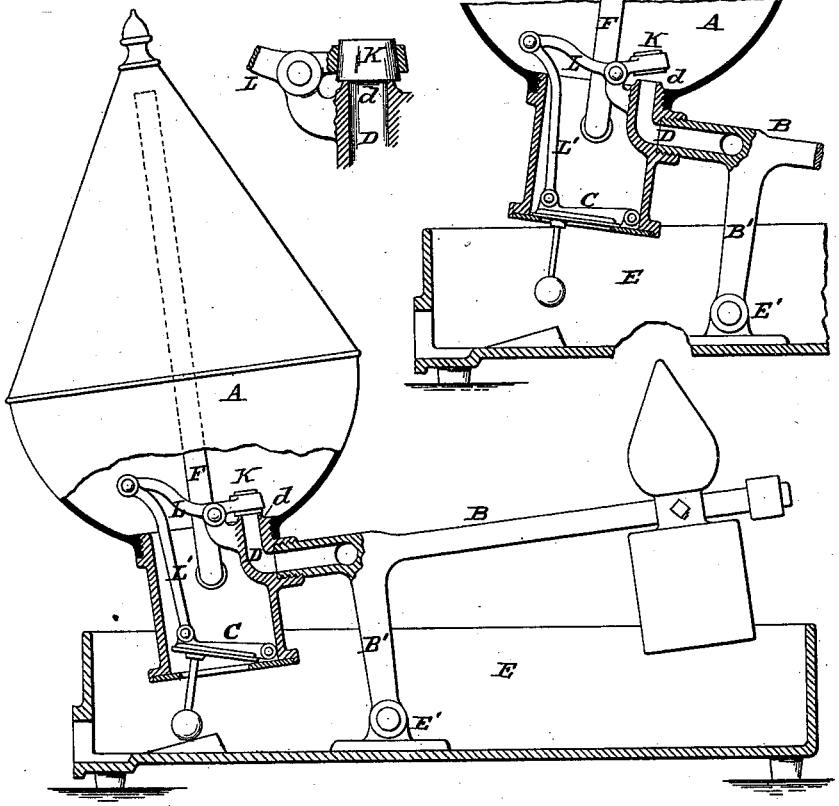


FIG. 5.

FIG. 2.

FIG. 3.

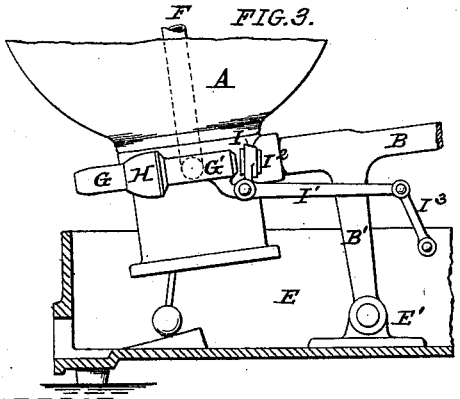
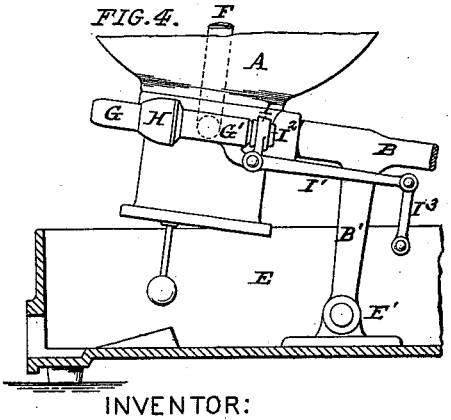


FIG. 4.



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GEORGE J. KEENAN, OF CHICAGO, ILLINOIS.

AUTOMATIC AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 384,529, dated June 12, 1888.

Application filed August 22, 1887. Serial No. 247,614. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. KEENAN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Air-Compressors; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to certain improvements on the subject-matter of Letters Patent No. 363,395, issued to me May 24, 1887, for automatic air pump or compressor; and the objects of the present improvements are, first, to provide a simple and effective means for holding the compression-chamber in its elevated and depressed positions until completely filled with water in the one case and in the other completely emptied of water; second, to furnish an improved construction of water-inlet valve, whereby the same will operate in unison with the foot or water-outlet valve, and at the same time prevent any liability of such inlet-valve becoming clogged up with sand or other mechanical impurity in the water, and, third, to afford a simple, effective, and lightly-operating controlling mechanism for the air vent and escape. I accomplish such objects by the construction and arrangement of parts, illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly sectionized, illustrating the general arrangement of my present improvements; Fig. 2, a detail section illustrating the water inlet and outlet valves in position opposite to that illustrated in Fig. 1; Figs. 3 and 4, detail side views illustrating the air-controlling valve or vent mechanism in its "open" and "closed" positions; Fig. 5, an enlarged detail section of the valve and seat used in connection with the water-inlet and air-vent.

Similar letters of reference indicate like parts in the several views.

The general form and arrangement of the parts in the present improvement will be essentially the same as in my former patent, No. 363,395, of May 24, 1887; and, as represented in the drawings, A is the compression-chamber; B, the counterbalanced lever, carrying on its shorter end the compression-chamber A; C, the hinged foot or water-outlet valve; D, the valved water-inlet passage; E, the waste-water tray; and F the air pipe or passage within the chamber A and having branches or bifurcations G G′ outside such chamber, the branch G, for conducting the compressed air away from the chamber A, being provided with a check-valve, H, of any ordinary construction, while the branch G′, that admits air into the chamber A to vent the same, will be provided with a valve, I, of the "lever" type, which is operated by mechanism hereinafter described.

In the present improvement I form the lever B of a T shape, the vertical member of which is formed with a pivot-eye at its lower end, by which it is pivoted to the journal-bracket E′ at a point very near the bottom of the tray E and considerably below the bottom of the compression-chamber and its counterpoise. With this construction the length and consequent weight of the depressed end of the lever will be increased in a great measure, while that of the elevated end will be decreased in a corresponding ratio, and as a consequence of such construction I find that the compression-chamber when up and filling with water will be held in such position until properly filled, and when in its down position will be similarly held until completely emptied.

The water-inlet valve is formed by the neck or inlet-mouth *d* from the inlet-passage D and a valve-head, K, that seats thereon to close such inlet-opening. The motion of this valve K is rendered automatic and in unison with the foot or water-outlet valve C by having connection thereto through the following mechanism:

L is a lever suitably pivoted within the chamber A and carrying at one end the valve-head K and at the other a link, L′, that connects it with the foot-valve, C, as shown, the construction being such that when one valve is open the other will be closed, and vice versa. With this construction the liability and danger of the valves clogging up and becoming inoperative by sand or other mechanical impurities are prevented. The vent-valve I, that controls the admission of air into the chamber A, is operated by the following means:

I′ is a bell-crank lever the short arm of which carries the valve head or plate I^2, while the

long end extends in the direction of the pivot-axis of the apparatus and has connection by link I^3 with the side of the waste-water tray, as indicated in Figs. 3 and 4. With this construction the noise and friction produced in the operation of the valve mechanism shown in my former patent is greatly reduced and the parts simplified.

I prefer to form the valve-heads I^2 and K of the water and air inlet valves in the shape of a tapering rubber cork or plug, as shown, which is introduced into a correspondingly-shaped opening or chamber in its carrying-lever. The advantages of such construction are that it forms a very cheap and lasting valve and can be readily renewed or replaced by an unskilled person.

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

1. The combination, with an air-compressor of the type herein described, of a rocking lever, E, having a T form, the vertical member of which extends down in close proximity to the bottom of the supporting-tray and carries the journal-pivot at its lower end, in manner and for the purpose set forth.

2. In an air-compressor of the type herein described, the combination of the water-inlet D, valve K, lever L, one end of which is connected to the link L′, while the other end carries the valve K, link L′, and foot or outlet valve C, the parts being connected together and operating in the manner and for the purpose set forth.

3. In an air-compressor of the type herein described, the combination, with the chamber A, of the air-pipe F, valved branches G G′, valve I, bell-crank I′, and link I^3, connected to the tray, the parts being arranged and operating in the manner and for the purpose set forth.

4. In an air-compressor of the type herein described, the water or air inlet valve heads, consisting of a tapering rubber cork or plug inserted in a counterpart hole or opening in its carrying-lever, as described, and for the purpose set forth.

In testimony whereof witness my hand this 13th day of August, 1887.

GEORGE J. KEENAN.

In presence of—

ROBERT BURNS,

M. H. HOLMES.