

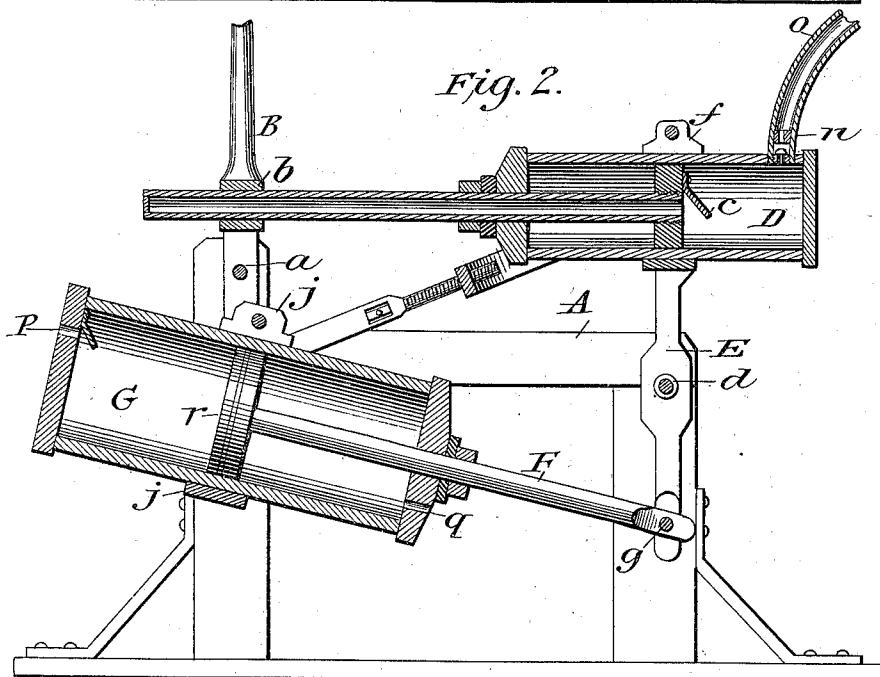
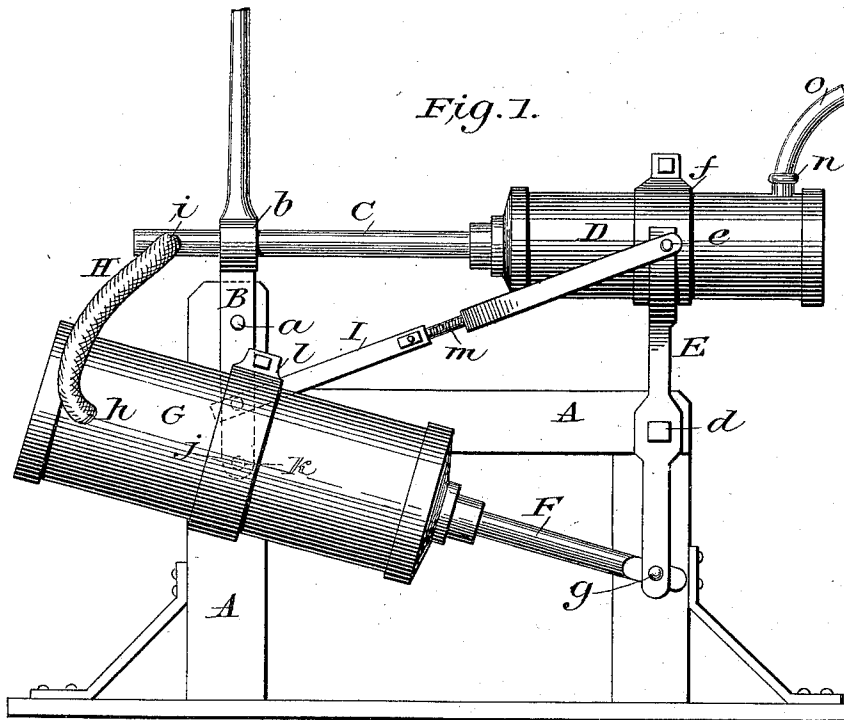
No. 624,998.

Patented May 16, 1899.

G. W. WALLICK.
COMPOUND AIR COMPRESSOR.

(Application filed Mar. 21, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

GEORGE W. WALLICK, OF STURGIS, MICHIGAN.

COMPOUND AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 624,998, dated May 16, 1899.

Application filed March 21, 1898. Serial No. 674,716. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WALLICK, a citizen of the United States, residing at Sturgis, in the county of St. Joseph and State of Michigan, have invented new and useful Improvements in Compound Air-Compressors, of which the following is a full and correct description.

This invention relates to improvements in air-compressors wherein the air-compressing pistons are reciprocally operated in their respective cylinders by the action of a lever.

The object of my invention is to provide a simple and effective air-compressor wherein by compound connections of the cylinders and pistons with the lever the power of the latter is multiplied and concentrated where necessary.

To these ends my invention consists in the construction and combination of parts hereinafter described, and indicated in the claims.

Reference is had to the accompanying drawings, forming a portion of this specification, and the letters of reference marked thereon.

Similar letters refer to similar parts in both drawings.

Figure 1 is a side elevation of the device. Fig. 2 is a longitudinal cross-section thereof, taken through the center of the cylinders.

A is a frame, which may be of any convenient form, to support the apparatus.

B is a lever operating the device, fulcrumed on the frame A by a bolt *a* and is pivotally secured to a sleeve *b*, fastened on the hollow piston-rod C, which operates a valvular piston *c* in a cylinder D.

E is a lever pivotally fulcrumed on a sleeve encircling a bolt *d*, which is furnished with a head and nut and passes through both sides of frame A, forming a substantial bearing for E. The upper part of the lever E terminates in a jaw, which pivotally supports the cylinder D by the pins *e*, projecting from the clamp *f*, encircling D and adjustable thereon. The lower end of E also terminates in a jaw, which is pivotally connected by the pin *g* to the solid piston-rod F, operating a solid piston *r* in cylinder G.

H is a flexible tube connecting the cylinder G by the outlet-tube *h* to the hollow piston-rod C by the inlet-tube *i*, secured thereto.

The clamp *j* encircles midway the cylinder

G and is pivoted on the lower end of the lever B by the pin *k*, permitting the free oscillation of G.

I is an adjustable bar, the upper part forming a jaw pivotally connected to the lever E by the pins *e*. The lower part is pivotally attached to the lever B below the fulcrum *a* by the pin *l*. The adjustment of I is effected by a screw-bolt *m*, connecting the upper and lower parts thereof.

n is an outlet-valve from the cylinder D to connect with a compressed-air receiver by a flexible pipe *o*. An inlet-valve *p* is placed in the upper end of G, and an opening *q* is provided in the lower end thereof for the egress of air.

In working the pumps C D and F G by operating the lever B backward the piston *r* is pushed to the forward end of cylinder G. The air is thereby forced through the pipe H, the hollow piston-rod C, and valve-piston thereon into the cylinder D by the movement of lever B pushing forward cylinder G and at the same time projecting therein the piston-rod F by the movement of lever E, attached thereto and actuated by the bar I. On the forward stroke of the lever B the hollow piston-rod C and the cylinder D are mutually drawn forward with multiplied force by the compound power of B, acting above and below its fulcrum at *a* on both C and D simultaneously and with increased force toward the end of the stroke, causing the air collected in cylinder D, as already described, to be readily forced through the stop-valve *n* into a suitable receiver. The forward movement of the lever B, just described, withdraws the piston *r* to the lower end of cylinder G, whereupon the air enters therein through the stop-valve *p* and leaves a supply for the next stroke.

The object of the greater dimensions of the lower cylinder is to supply a large volume of air which is partially compressed when left in the upper cylinder, ready to be forced therefrom by the powerful action of the lever B. The lever E is adjustable by means of the clamp *f*, encircling D and movable thereon. A corresponding change can be made in the bar I by the screw-bolt *m*. Adjustment of these parts may be necessary in different operations of the device.

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

1. In a compound air-compressor the combination with the cylinder G having solid piston *r* and rod F and inlet check-valve *p*, outlet-tube *h* and opening *q* the clamp *j* encircling cylinder G pivoted to lower end of lever B; a smaller cylinder D having hollow piston-rod C and valvular piston *c* and inlet-tube *i* and outlet check-valve *n*, the adjustable clamp *f* encircling cylinder D, of the lever E fulcrumed on frame A with the upper jaw connected to clamp *f* and supporting cylinder D, and the lower jaw pivotally secured to piston-rod F, a flexible pipe H connecting cylinder G to piston-rod C substantially as set forth.

2. In a compound air-compressor the combination of a cylinder G having solid piston

r and rod F, and clamp *j* encircling cylinder G pivoted to lower end of lever B, a smaller cylinder D with hollow piston-rod C and valvular piston *c* and outlet check-valve *n*, the adjustable clamp *f* encircling cylinder D the lever E fulcrumed on frame A connecting the cylinder D with piston-rod F, and flexible pipe H connecting the upper end of the cylinder G and the piston-rod C, with a lever B fulcrumed on the frame A by bolt *a* and pivotally connected to sleeve *b* encircling piston-rod C, the adjustable rod I pivotally connected beneath the fulcrum *a* to lever B and to the upper jaw of lever E whereby said lever E is operated, the several parts being arranged substantially as and for the purpose specified.

GEO. W. WALLICK.

Witnesses:

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