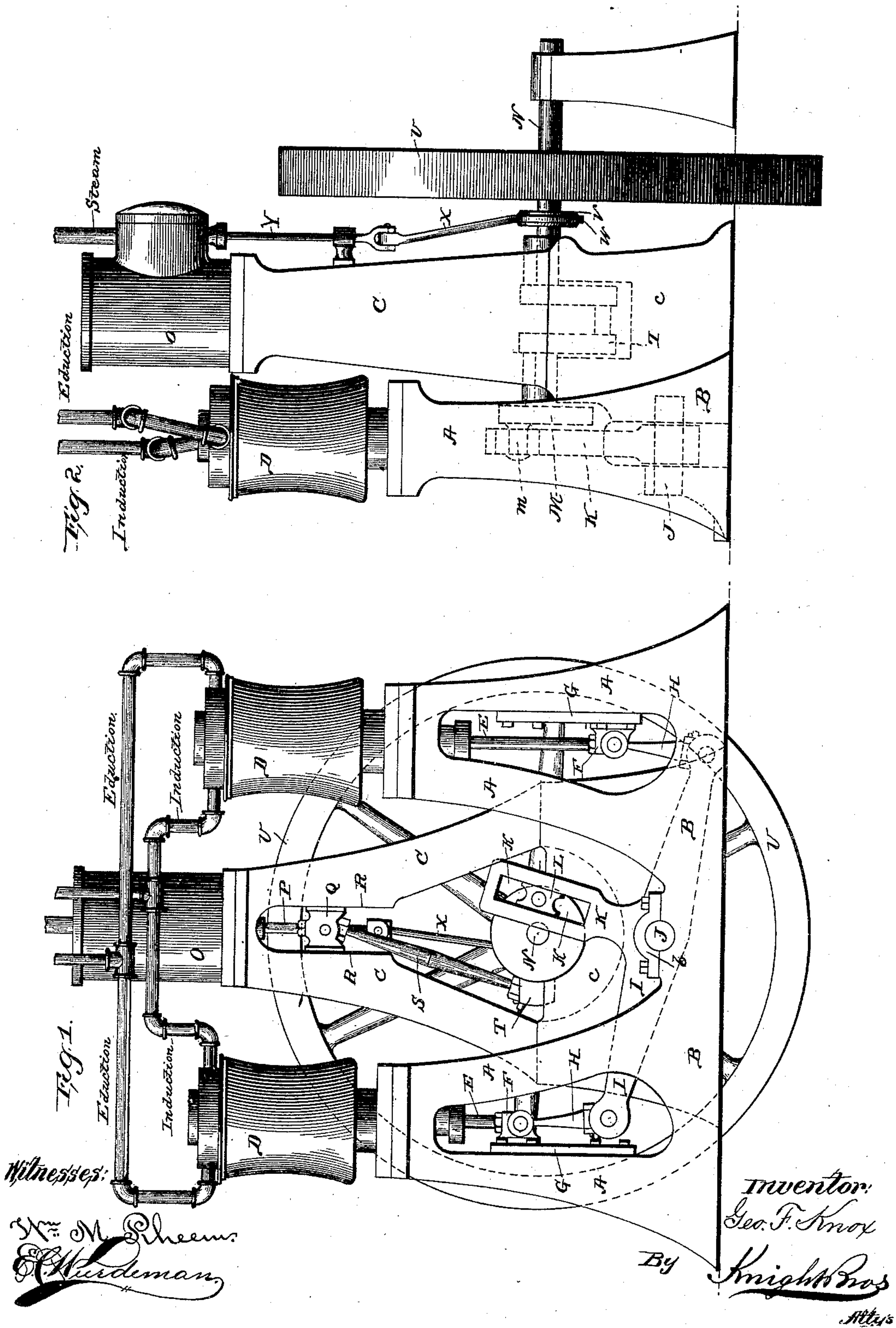


(No Model.)

G. F. KNOX.
GAS COMPRESSOR.

No. 466,791.

Patented Jan. 12, 1892.



UNITED STATES PATENT OFFICE.

GEORGE F. KNOX, OF CHICAGO, ILLINOIS.

GAS-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 466,791, dated January 12, 1892.

Application filed September 8, 1890. Serial No. 364,315. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. KNOX, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Compressors, of which the following is a specification.

The invention consists in certain features of novelty that are particularly pointed out in the claims hereinafter, a machine embodying it being first fully described with reference to the accompanying drawings, which form a part of this specification, and of which—

Figures 1 and 2 are respectively a front and a side elevation of said machine.

A A represent a pair of hollow pedestals, which are integral with a common foot B, and C represents a third and somewhat taller pedestal, the base *c* of which is integral with the foot B, while the upper portion is separate and secured in place by bolts. The pedestals A A are situated side by side, and the pedestal C is situated at the intersection of a plane passing behind pedestals A A parallel with them, and a second plane passing centrally between them and at right angles to the first, so that viewed from in front of the machine the pedestal C appears midway between pedestals A A and from the side it appears behind them.

Secured to the top of each of the pedestals A is a vertical compressor D—i. e., a compressor the piston of which works vertically. The construction of these compressors is not shown in detail, because the present invention is not limited to compressors of any particular construction. They may be like the one shown in my pending application, which was filed on the 3d day of May, 1890, Serial No. 353,289, or they may be of any other construction. Their piston-rods E E project downward and into the hollow pedestals A A, their lower ends being attached to cross-heads F F, which slide upon and are guided by ways G G, secured to or formed upon the interiors of said pedestals, respectively. The cross-heads are connected by pitmen H H with the respective ends of a walking-beam I, that is supported by a short shaft J, fulcrumed to the foot B midway between the vertical planes of the piston-rods E E. The lower halves of the journal-boxes *b*, in which this shaft oscillates, are formed directly in the top side of the foot

B, while the upper halves or caps are separate and secured in place by bolts in the customary manner.

Projecting upward from the center of the walking-beam I, at right angles to it, is a stout arm K, having a longitudinal slot *k*, the parallel sides of which constitute ways for guiding a cross-head or sliding block L, which occupies said slot. This cross-head is engaged by a pin *m*, projecting eccentrically from the front face of a disk M, that is carried by a shaft N, journaled to pedestal C. The lower halves of the boxes in which this shaft is journaled are formed directly in the top side of the base *c*, while the upper halves are separate and secured in place by bolts in customary manner.

Upon the top of pedestal C (the upper portion of which is of inverted-V shape, approximately) is secured a vertical engine O, which may be of any desired construction. Its piston-rod P projects downward and is secured to a cross-head Q, which is guided by vertical ways R R, formed upon or attached to the inner sides of the two legs of the pedestal. A pitman S is connected at its upper end to the cross-head Q and at its lower end to a crank T, formed in shaft N. The top side of the base *c* is provided with a depression of sufficient depth to permit the necessary movement of the crank, as suggested by dotted lines. The shaft is provided also with a fly-wheel U and an eccentric V, which latter operates the valve of the engine through the medium of a ring W, surrounding it, and a rod X, connected at one end to said ring and at the other end to the stem Y of the valve. It will be understood that the shaft N is rotated by the engine O and that the walking-beam I is oscillated by said shaft, the movement of the walking-beam being transmitted to the pistons of the compressors D D through the medium of the piston-rods E E and pitmen H H. The induction-pipes of the compressors are shown at Z Z and the eduction-pipes at *z z*. The steam and exhaust pipes of the engine are shown at *x* and *y*, respectively.

It will be seen that the disk M constitutes in effect a crank-arm, and such an arm may, if desired, be substituted for it. Furthermore, the disk M and all the parts subsequently described may be dispensed with, and

in their stead a horizontal direct-acting engine may be substituted. In this case the upper V-shaped portion of the pedestal C is left off and the engine is secured to the top 5 of the base c, its piston-rod being connected in any convenient manner either to the cross-head L or directly to the arm K.

The machine constructed in accordance with the invention under either of its modifications requires comparatively little floor- 10 space, and at the same time the working parts that most frequently require attention are situated within easy reach of the operator. Furthermore, the low frame affords great stability and prevents objectionable vibration. 15

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

In a gas-compressor, the combination of 20 two vertical compressing-cylinders, a single solid base-frame having two hollow pedestals

whereon said cylinders are mounted, piston-rods for said cylinders projecting downward into said pedestals and having cross-heads sliding thereon, a walking-beam having its 25 ends connected to said cross-heads pivoted to said base-frame between said pedestals and in the same plane with said piston-rods, an upwardly-projecting arm upon the center of said walking-beam and arranged to oscillate 30 in the same plane therewith, an engine and shaft driven therefrom mounted in said base-frame midway between said pedestals, and a disk on said shaft having pin and sliding-block connection with said upward-project- 35 ing arm on the walking-beam, all arranged and adapted to operate substantially as set forth.

GEO. F. KNOX.

Witnesses:

A. N. BEATTY,
WM. ROACH.