

(No Model.)

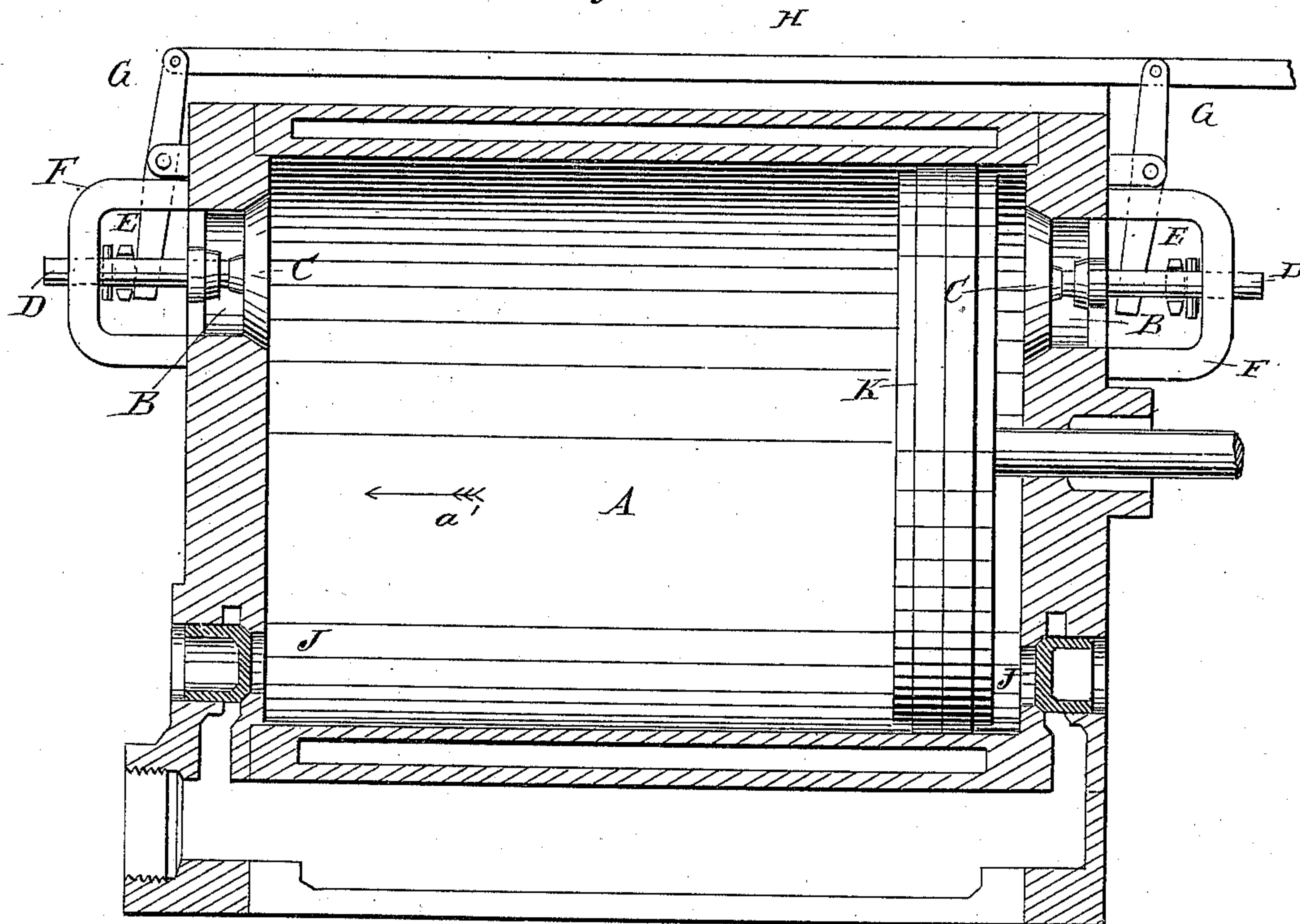
C. A. BENNETT.

DEVICE FOR OPERATING AIR COMPRESSOR VALVES.

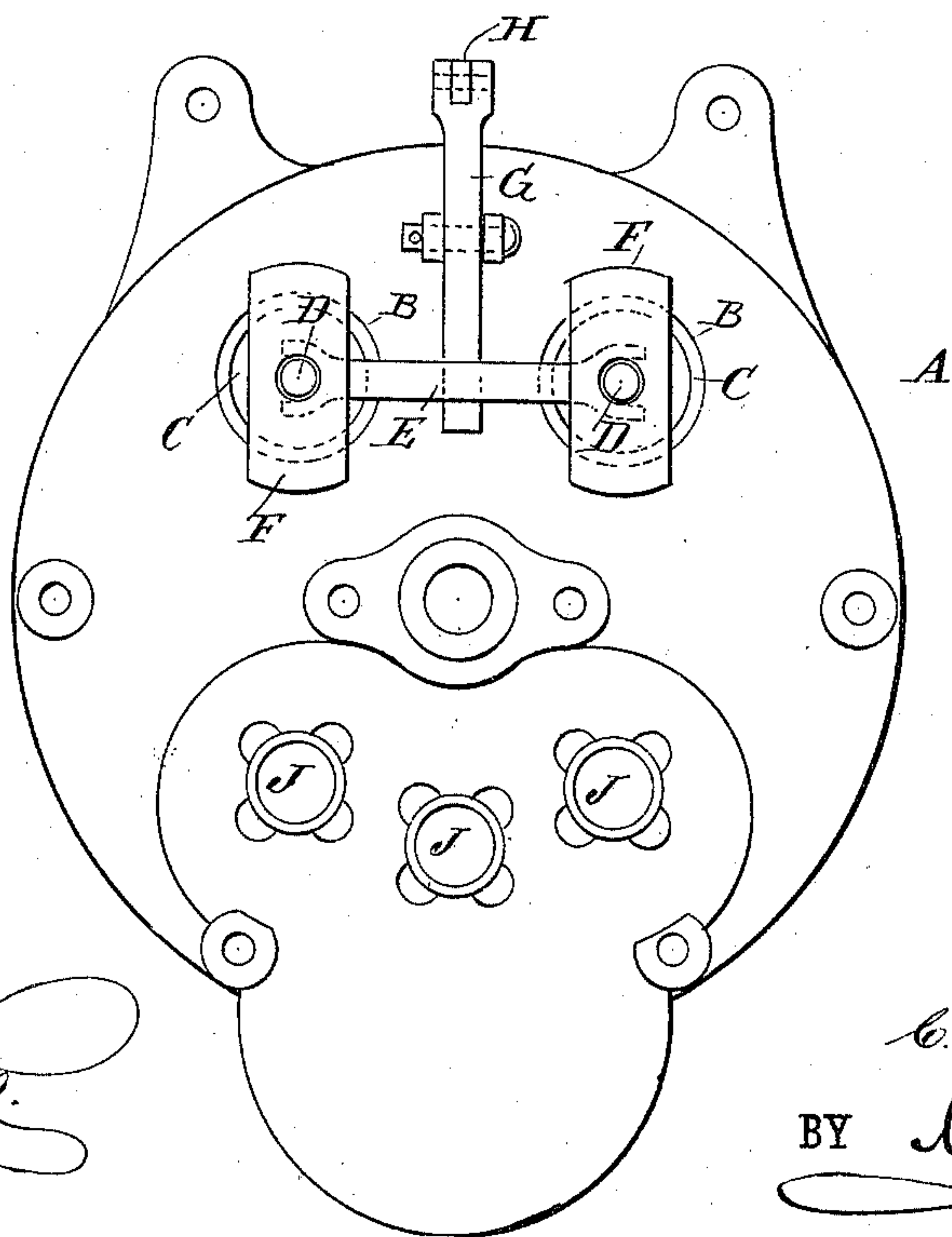
No. 283,955.

Patented Aug. 28, 1883.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*Chas. Nida.*  
*C. Sidgwick*

INVENTOR:

*C. A. Bennett*

BY

*Munn & Co*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

CHARLES A. BENNETT, OF DOVER, N. J., ASSIGNOR OF ONE-HALF TO THE MORRIS COUNTY MACHINE AND IRON COMPANY, OF SAME PLACE.

## DEVICE FOR OPERATING AIR-COMPRESSOR VALVES.

SPECIFICATION forming part of Letters Patent No. 283,955, dated August 28, 1883.

Application filed December 23, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. BENNETT, of Dover, in the county of Morris and State of New Jersey, have invented a new and Improved Device for Operating Air-Compressor Valves, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved device for automatically opening and closing the inlet-valves of an air-compressor, which device is operated by the machinery of the compressor.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a longitudinal sectional elevation of the cylinder of an air-compressor provided with my improved device for automatically operating the inlet-valves. Fig. 2 is an end elevation of the same.

The air-compressor cylinder A is provided with two inlet-ports, B, at each end, which ports are closed by puppet-valves C, opening inwardly. The stems D of the two valves on the same end of the cylinder are united or coupled by a cross-piece, E, and each valve-stem is guided by a separate stirrup, F, or other guide on the outer surface of the end of the cylinder. On each end of the cylinder a lever, G, is pivoted in such a manner that the inner end will be between the cross-piece E and the outer surface of the piston. The outer ends of the levers G are connected by a rod or bar, H, which is reciprocated by a cam on the fly-wheel shaft, by an arm of the piston, by a crank, eccentric, or by any other suitable device for transmitting motion from one part of a machine to another. If but a single valve, B, is provided at each end of the cylinder, the inner end of the corresponding lever, G, must pass through a longitudinal slot of the valve-stem, or between projections on the stem. The outlet-ports J are closed by valves in the usual manner.

The operation is as follows: If the piston K is in the position shown in Fig. 1, the valve C at the left-hand end of the cylinder will be held closed, and the end of the lever G at the

right-hand end of the cylinder will be held from the cross-piece. If the piston moves in the direction of the arrow *a'*, the air will be compressed between the left-hand end of the cylinder and the piston, and a vacuum will be formed between the right-hand end of the cylinder and the piston, thus permitting the pressure of the external air to open the valves C at the right-hand end of the cylinder in the direction of the arrow *a'*, so that air can enter the cylinder. When the piston has completed its stroke, the rod or bar H is moved in the direction of the arrow *a'*, whereby the lower end of the lever G, at the right-hand end of the cylinder, will strike against the corresponding cross-piece, E, and will move the valves in the inverse direction of the arrow *a'*, thereby closing them. The lower end of the lever G, at the left-hand end of the cylinder, will also be moved in the inverse direction of the arrow *a'*—that is, from the corresponding cross-piece, E—and will thus permit the valves C at the left-hand end of the cylinder to open inwardly—that is, in the inverse direction of the arrow *a'*—when the piston K moves in the inverse direction of the arrow *a'*. The valves C are thus opened and closed automatically by the machine. Heretofore spring puppet-valves have been used to close the inlet-ports of air-compressor cylinders; but if they are used the air-compressor cylinder is never properly filled, and the spring-valves are very apt to get out of order.

If desired, the outlet-valves may be opened in a like manner. I have fully shown and described one method of operating the inlet-valves, which may be puppet or swing valves; but I have only given this detailed description as an illustration, for I do not wish to limit myself to the construction shown and described, for I may use any device for automatically opening and closing the inlet-valves, and the said devices may be operated from the mechanism of the compressor in any desired manner—for instance, by arms, as shown, or by belts, cams, cog-wheels, friction-wheels, &c.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

5 In an air-compressor, the combination, with the cylinder A, having the opposite pairs of end valves, C, opening inwardly, and having stems D D, connected by cross-piece E, of the opposite levers, G G, connected by a reciprocating rod, H, whereby said valves will be

opened and closed, as described.

CHARLES A. BENNETT.

Witnesses:

FREEMAN WOOD,  
JOHN A. ABEL.



Correction in Letters Patent No. 283,955.

It is hereby certified that Letters Patent No. 283,955, granted August 28, 1883, upon the application of Charles A. Bennett, of Dover, New Jersey, for an improvement in "Devices for Operating Air-Compressor Valves," should have been issued to the said *Charles A. Bennett and The Morris County Machine and Iron Company*, of the same place, assignee of one-half interest in said invention; and that the grant should be read with this correction therein to make it conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 25th day of September, A. D. 1883.

[SEAL.]

H. M. TELLER,  
*Secretary of the Interior.*

Countersigned:

E. M. MARBLE,  
*Commissioner of Patents.*