No. 754,901. PATENTED MAR. 15, 1904.

H. C. SERGEANT.

# COMPRESSOR FOR AIR OR OTHER GASEOUS BODIES.

APPLICATION FILED NOV. 20, 1903.

NO MODEL.

Fig. 2.

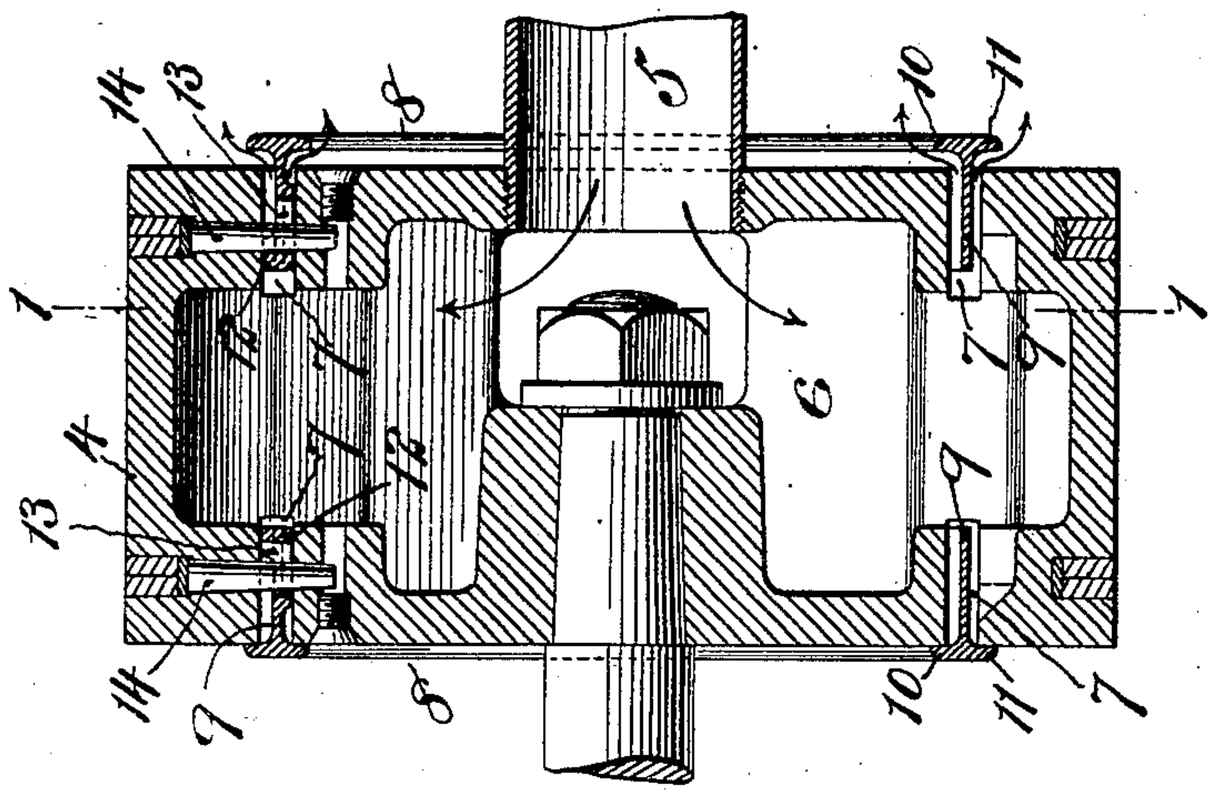
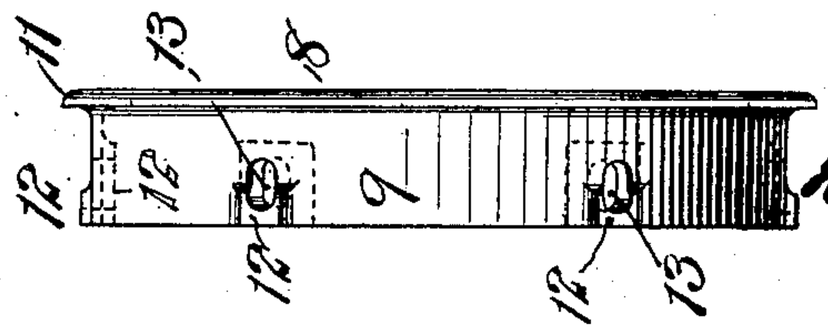



Fig. 1.




Fig. 3.




Witnesses:-
F. George Barry,
Henry Shiine

Inventor:-
Henry C. Sergeant
by attorneys
Brown & Seward

No. 754,901. Patented March 15, 1904.

# UNITED STATES PATENT OFFICE.

HENRY C. SERGEANT, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO THE INGERSOLL-SERGEANT DRILL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA.

## COMPRESSOR FOR AIR OR OTHER GASEOUS BODIES.

SPECIFICATION forming part of Letters Patent No. 754,901, dated March 15, 1904.

Application filed November 20, 1903. Serial No. 181,912. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. SERGEANT, a citizen of the United States, and a resident of Westfield, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Compressors for Air or other Aeriform or Gaseous Bodies, of which the following is a specification.

This invention relates to compressors the pistons of which are fitted with valves which control the passage through them of the gaseous body, hereinafter referred to as air, to be compressed; and it consists in the improvement hereinafter described and claimed in such valves whereby I provide for their freer action and a freer transit of the air through the passages of the piston in which they are applied.

The accompanying drawings illustrate the improvement as applied to the piston and valves of what is known as a "piston-inlet compressor," such as is illustrated in United States Letters Patent No. 422,255.

Figure 1 represents a transverse section of the piston taken on the line 1 1 of Fig. 2, which represents a central section of the piston and its valves on the line 2 2 of Fig. 1; Fig. 3, an outside view of one of the valves.

4 designates the hollow piston, and 5 the hollow rod or tube, which is connected therewith and constitutes the inlet to the compressor, being in free communication with the internal cavity 6 of said piston. In each end of the piston is an annular passage or port 7 for the reception of one of the two ring-valves 8, which constitute my invention. These valves are substantially T-shaped in their transverse section, which gives them an annular stem 9 and a double-flanged head 10 11, the said stem entering its port 7, the flange 10 forming a valve-face inside of the said stem and the flange 11 forming a valve-face outside thereof, the two valve-faces closing against valve-seats, which are constituted by those portions of the end faces of the piston immediately within the inner circumference and outside of the outer circumference of the port 7. The inner and outer circumferences or walls of the port 7 are turned or otherwise made truly cylindrical to form guides for the valve-stem 9; but the said stem has, as shown in Fig. 1 and in the lower part of Fig. 2, the greater part of its outer circumference so much smaller than the circumference of the outer wall of the port 7 and the greater part of its inner circumference so much larger than the circumference of the inner wall of said port that there is a free passage for air provided on each side of the stem; but for the purpose of centering and guiding the valve there are provided on both the interior and exterior of the stem at suitable intervals bosses or projections 12, (shown in Fig. 1 and in the upper part of Fig. 2,) which fit easily within the inner and outer walls, respectively, of the port 7. By this construction I make the valve double-ported, ports being formed both inside and outside of the valve-stem instead of only outside thereof, as in my Patent No. 422,255 hereinbefore referred to, and I so provide a freer passage for the air.

It is obvious that it is not absolutely necessary that the guiding projections or bosses 12 should be provided both on the interior and exterior of the valve-stem; but I prefer to have them both inside and outside and to have the inside and outside ones opposite each other, as the opposite bosses provide sufficient thickness to contain the slots 13, which receive the valve-retaining pins 14.

What I claim as my invention is—

1. The combination with the piston of a compressor constructed with an annular passage and with two valve-seats one within the inner circumference of said passage and the other outside of the outer circumference of said passage, of a ring-valve having internal and external flanges which form valve-faces corresponding respectively with said seats and having an annular stem which enters said passage and between the inside and outside of which and the inner and outer walls of the said passage there are spaces constituting two ports to the valve.

2. The combination with the piston of a compressor constructed with an annular pas-

sage and with two valve-seats one within the inner circumference of said passage and the other outside of the outer circumference of said passage, of a ring-valve having internal and external flanges which form valve-faces corresponding respectively with said seats and having an annular stem which enters said passage and on the sides of which are projections fitting the walls of said passage.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 17th day of November, 1903.

HENRY C. SERGEANT.

Witnesses:
FREDK. HAYNES,
F. GEORGE BARRY.