C. WAINWRIGHT.

COMPRESSOR VALVE.

APPLICATION FILED JULY 30, 1915.

1,178,978. Patented Apr. 11, 1916.

Fig. 1.

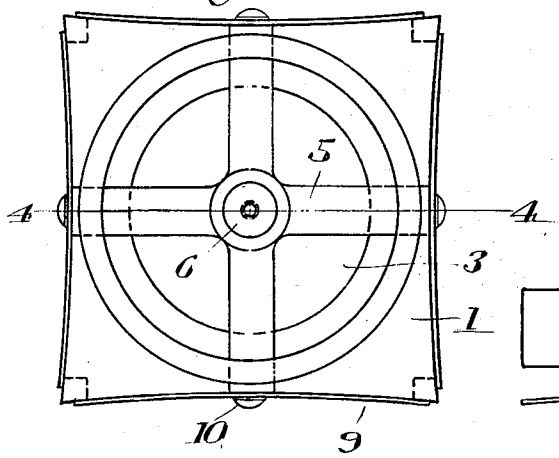


Fig. 5.

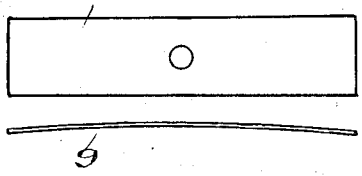


Fig. 6.

Fig. 2.

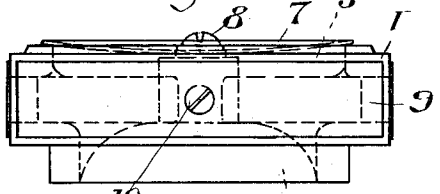


Fig. 3

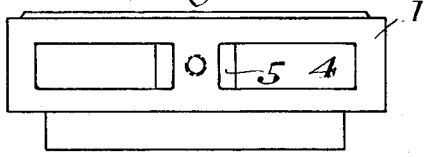


Fig. 4.

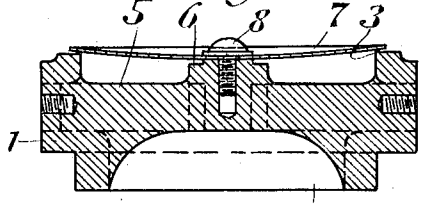


Fig. 7.

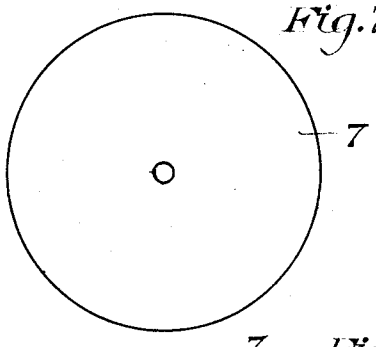


Fig. 8

WITNESS:

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CHARLES WAINWRIGHT, OF ERIE, PENNSYLVANIA.

COMPRESSOR-VALVE.

1,178,978. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed July 30, 1915. Serial No. 42,852.

To all whom it may concern:

Be it known that I, CHARLES WAINWRIGHT, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Compressor-Valves, of which the following is a specification.

This invention relates to valves especially adapted to be used in air and gas compressors and it consists in the novel features hereinafter described and claimed.

An object of the invention is to provide a valve of the character indicated of simple and durable structure, the parts being so arranged that the area of the portage way through the valve is equal to or greater than the area of the inlet through the valve structure.

With the above object in view the valve comprises a body having at one side an inlet port and at its opposite side an outlet port. Outlet ports are also provided at the edges of the body and steel plates are arranged to close the outlet ports. The said plates are concaved and are secured at central points to the body of the valve and they are normally held by their own flex or tension in position over the outlet openings. The parts of the valve are so arranged and proportioned that the outlet portage way at the free edges of the said plates when air or gas is forced through the valve body is equal to or greater than the area of the portage way at the inlet of the body.

In plate valve construction it is difficult to get full port opening at the outlet equal to or greater than the inlet port with small lift for the plates which control the outlet openings of the valve. This difficulty is overcome in the present invention as will be hereinafter explained.

In the accompanying drawing:—Figure 1 is a top plan view of the valve with parts removed. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation of the body of the valve. Fig. 4 is a transverse sectional view of the valve cut on the line 4—4 of Fig. 1. Fig. 5 is a plan view of one of the edge plates used upon the valve body. Fig. 6 is an edge elevation of the plates shown in Fig. 5. Fig. 7 is a plan view of a disk plate used upon the valve. Fig. 8 is an edge view of the disk shown in Fig. 7.

As illustrated in the accompanying drawing the valve includes a body 1 having at one side an inlet port 2 and at its opposite side an outlet port 3. The body 1 is further provided at its side edges with outlet ports 4. Cruciform arms 5 are provided in the body 1 between the ports 2 and 3 and a hub 6 is provided at the point of intersection of the arms 5. The upper end of the hub 6 is slightly lower than the edge of the port 3, as best shown in Fig. 4 of the drawing. A disk plate 7 is secured by means of a screw 8 or other suitable securing device to the top of the hub 6 and the edge portion of the said disk plate 7 normally lies against the edge of the port 3 of the body 1. The screw 8 holds the central portion of the disk plate 7 down in close contact with the end of the hub 6, consequently when the disk is in position it is concaved, as best shown in Fig. 4 of the drawing.

Oblong plates 9 are secured at points midway between their ends to the outer ends of the arms 5 by means of screws 10, or other suitable securing devices. The edges of the body 1 are concaved as best shown in Fig. 1 of the drawing, and inasmuch as screws 10 hold the intermediate portions of the plates 9 in close contact with the ends of the arms 5, the said plates are normally concaved longitudinally and lie over the outlet ports 4 of the body 1.

From the above description taken in conjunction with the accompanying drawing it will be seen that when air or gas is forced through the inlet port 2 of the body 1, it presses against the inner surfaces of the plates 7 and 9 and moves the edge portions of the said plates away from the edges of the respective ports that they cover. Therefore, the edge portions of the said plates are moved with relation to the body 1 and ample portage way is provided to permit the air or gas to pass freely through the outlet ports 3 and 4.

As hereinbefore stated the area of the outlet portage way, when the said plates are moved as just described, is equal to or greater than the transverse area of the inlet port 2, consequently there is sufficient space or room for the compressed air or gas to pass through the body 1. Therefore it will be seen that a valve structure of simple and durable arrangement of parts is provided and that the valve plates may be moved to open position with relation to their respective ports by minimum lift or force from the air or gas passing through the outlet ports.

The valve is devoid of complicated steel stampings and requires no springs, inasmuch as the structural arrangement avoids the necessity of such springs.

The valve is provided with a number of outlet port openings and these openings are located at one side of the valve and at the edges thereof.

Having described the invention what is claimed is:—

A valve comprising a body having at one side an inlet port and at its opposite side an outlet port, a hub provided upon the body and centrally positioned with relation to the said outlet port and having its end disposed below the edge of the said outlet port, a disk plate secured at its center to the end of the hub and having edge portions extending beyond the edge of the said outlet port, said body being provided with concaved side edges having outlet ports and plates secured at points midway between their ends to the side edges of the body and having end portions normally closing the last mentioned outlet ports.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES WAINWRIGHT.

Witnesses:
M. E. LAUGHLIN,
JOHN A. DONEGLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."