

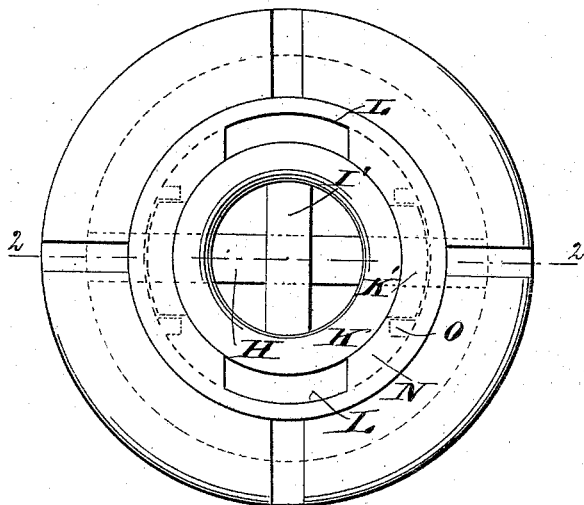
(No Model.)

W. H. BRENNER, Sr.  
SUCTION VALVE.

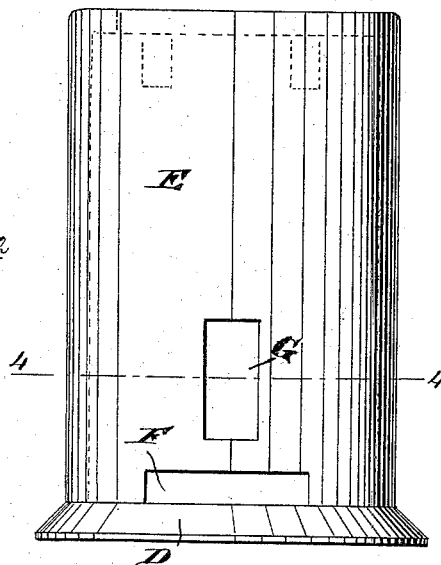
No. 493,968.

Patented Mar. 21, 1893.

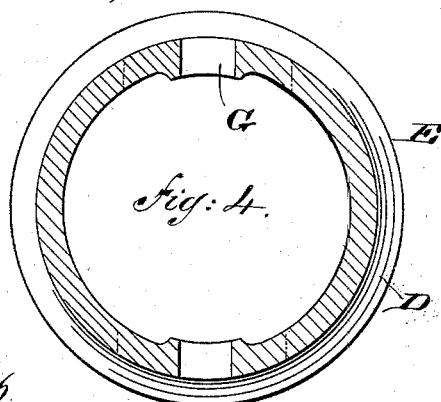
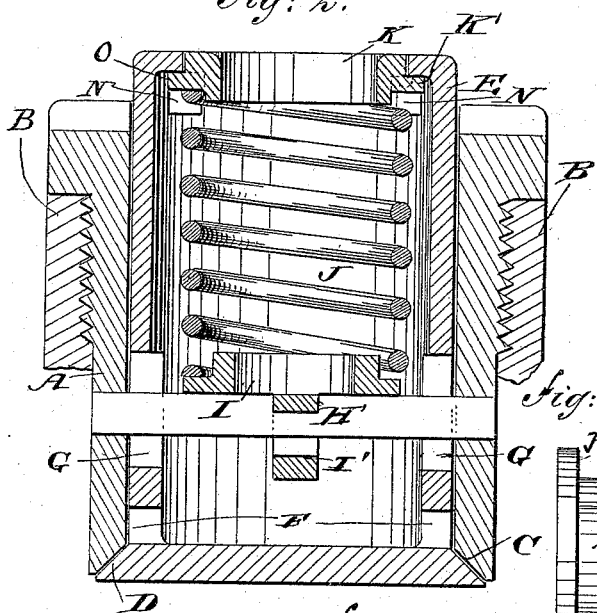
*Fig: 1.*



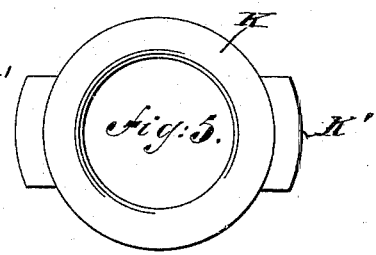
*Fig: 3.*



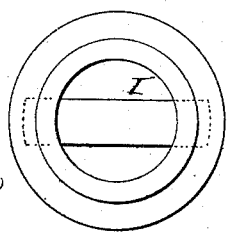
*Fig: 2.*



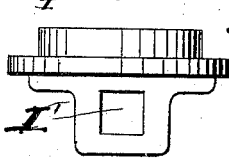
*Fig: 6.*



*Fig: 7.*



*Fig: 8.*



WITNESSES:  
*Chas. Nida.*  
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INVENTOR:

*W. H. Brenner Sr.*

BY

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# UNITED STATES PATENT OFFICE.

WILLIAM H. BRENNER, SR., OF PORT CARBON, PENNSYLVANIA.

## SUCTION-VALVE.

SPECIFICATION forming part of Letters Patent No. 493,968, dated March 21, 1893.

Application filed May 2, 1892. Serial No. 431,412. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. BRENNER, Sr., of Port Carbon, in the county of Schuylkill and State of Pennsylvania, have invented a new and Improved Suction-Valve, of which the following is a full, clear, and exact description.

The invention relates to suction valves for air compressors, and its object is to provide a new and improved suction valve which is simple and durable in construction, permits of ready access to all its parts, and is arranged to prevent the valve from being accidentally drawn into the cylinder.

The invention consists of a cross bar supported by the valve casing, and extending through the wall of the valve to guide the latter and to limit its inward motion.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

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

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2—2 of Fig. 1. Fig. 3 is a side elevation of the valve proper. Fig. 4 is a sectional plan view of the same on the line 4—4 of Fig. 3. Fig. 5 is a plan view of the top cap for the valve proper. Fig. 6 is a side elevation of the same. Fig. 7 is a plan view of a spring rest held on the cross bar; and Fig. 8 is a side elevation of the same.

The improved suction valve is provided with a cylindrical valve casing A, screwed or otherwise secured in the head B, of the cylinder of the air compressor. On the inner end of the cylindrical valve casing A is formed the usual valve seat C, adapted to be engaged by the valve D, proper, formed with a cylindrical wall or extension E, fitted to slide in the cylindrical valve casing A.

In the wall or extension E and near the valve D are formed the openings F, to permit the air to pass into the cylinder when the valve D is unseated from the seat C, that is, when the latter is moved inward. In the wall or extension E are also formed, diametrically opposite each other, the apertures G, through

which extends a bar H, fastened to the valve casing A, and serving to limit the inward sliding motion of the valve D by the wall E coming in contact with the cross bar H at the outer ends of the recesses G.

The bar H is engaged, at its middle, at a notch H' by an eye I' of a rest I, extending over the cross bar and forming a seat for the inner end of the coil spring J, abutting at its outer end against a cap K, secured in the outer end of the wall or extension E.

For conveniently fastening the cap K to the wall or extension E, the said cap is formed with lugs K', arranged diametrically opposite each other, and adapted to pass through correspondingly shaped recesses L, formed in an annular flange N extending inward at the outer end of the wall or extension E. The cap K, when inserted in the end of the wall or extension E, passes with its lugs K' through the recesses L and then is given a quarter turn to engage the inner face of the flange N between two lugs O projecting from the wall or extension E, as is plainly shown in Figs. 1 and 2. It is understood that the cap K is formed with a central opening, and a like opening is arranged in the rest I to permit the air to pass into the valve extension and through the openings F therein when the valve D is opened, as previously described. It will be seen that by this construction it is utterly impossible for the valve D to be drawn into the cylinder, as the bar H limits the inward sliding motion of the valve. At the same time the bar H prevents an inward movement of either the rest I, spring J or cap K, so that there is absolutely no danger of any of the parts of the valve being drawn into the cylinder. It will further be seen that by removing the cap K, ready access is had to replace the spring J while the compressor is in motion, and by removing the valve casing A from the head B of the cylinder any repairs that may be necessary may be made to the valve.

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

1. A suction valve, comprising a cylindrical casing having a valve seat around its inner end and two transverse openings between its ends, a valve seating on said seat and provided within the casing with an extension

having two longitudinally extending slots closed at their ends, a cross bar extending through the said openings and slots, and a spring bearing at its inner end on said cross bar and at its outer end engaging the outer end of the extension and pressing the valve to its seat, substantially as set forth.

2. A suction valve, comprising the cylindrical casing, the valve having a slotted extension sliding in said casing, a cross bar extending through the casing and slotted extension and provided with a central notch in its outer edge, and the spring bearing at its outer end on the outer end of the extension and having a seat at its inner end provided with an eye on its inner side engaging said notch, substantially as set forth.

3. A suction valve, comprising the cylindrical casing A having a valve seat at its inner end, the valve closing against said seat and having a cylindrical longitudinally slotted extension extending through the casing and having an inwardly extending flange at its outer end provided with recesses L, the cross bar

extending through the casing and slotted extension, the spring seat on the cross bar, the spring bearing at its inner end thereon, and the cap against which the outer end of the spring bears and having lugs passed through the recesses L and engaging the said flange, substantially as set forth.

4. In a suction valve, the combination with a valve casing provided with a cross bar and formed with a valve seat, of a valve adapted to be seated on the said seat and provided with a cylindrical wall fitted to slide in the valve casing, the said wall being formed with inlet openings and with apertures for the passage of the said cross bar, a rest held on the said cross bar, a spring engaging the said rest with its inner end, and a cap held on the outer end of the said wall and engaged by the outer end of the said spring, substantially as shown and described.

WILLIAM H. BRENNER, SR.

Witnesses:

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