

951,822.

G. LEICH.
AIR VALVE.
APPLICATION FILED JUNE 24, 1909.

Patented Mar. 15, 1910.

Fig. 1.

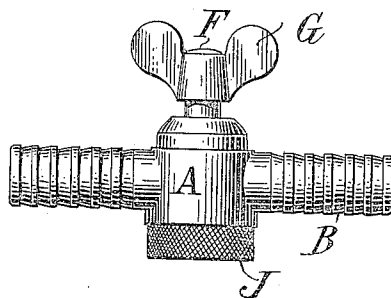


Fig. 2.

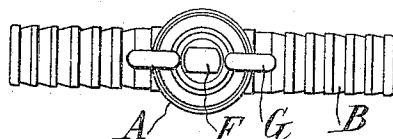


Fig. 3.

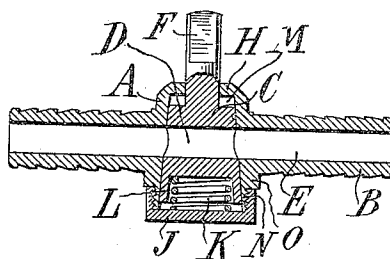
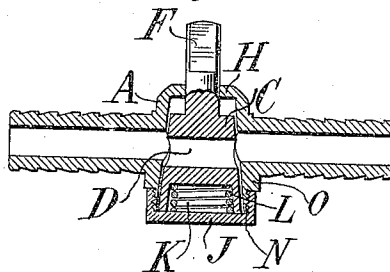


Fig. 4.



WITNESSES:

Ired White
Rene' Pluine

INVENTOR

George Leich,

By Attorneys,

Arthur C. Hager & Co.

UNITED STATES PATENT OFFICE.

GEORGE LEICH, OF NEW YORK, N. Y., ASSIGNOR TO E. W. BLISS COMPANY, OF
BROOKLYN, NEW YORK, A CORPORATION OF WEST VIRGINIA.

AIR-VALVE.

951,822.

Specification of Letters Patent. Patented Mar. 15, 1910.

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To all whom it may concern:

Be it known that I, GEORGE LEICH, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Air-Valves, of which the following is a specification.

This invention aims to provide certain improvements in valves of the class generally used in pneumatic machinery, drills, hammers and the like. The valve is of the plug type with a conical plug pressed to position by a spring, and having a transverse aperture adapted to communicate at opposite ends with the passages of the valve casing. There is more or less dirt and grease carried by the compressed air which passes through these valves, and the valve often becomes stuck. In the valves generally in use the smaller end of the conical plug is adjacent to an open end of the casing, and by striking this small end the plug can be pressed upward, and by reason of its conical shape loosened sufficiently to permit it to be turned to the right or the left, the handle being at the opposite or larger end of the plug. The frequent careless blows upon the smaller end of the plug opposite the handle in time distort the plug and the surrounding portion of the casing, so that the valve sticks and becomes practically useless.

This invention provides an improvement whereby the above disadvantage is eliminated, and whereby certain other advantages are secured, as referred to in detail hereinafter.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a side elevation, and Fig. 2 a plan of a valve; Fig. 3 is a longitudinal section of the same; and Fig. 4 a similar section with the parts in another position.

Referring to the embodiment of the invention illustrated, the casing A of the valve is provided with corrugated nipples B of any suitable type for attachment of the hose. The casing is provided with a conical socket into which fits the plug C. The plug is provided with a passage D, which may be turned to bring the passages E of the nipples into communication, or to cut off communication between such passages. The socket and the plug have their smaller ends upward, and the plug is provided on its

smaller end with a stem F projecting axially from it and upon which a handle G is arranged either loosely or permanently, and by which the plug can be turned. The upper end H of the casing is closed except for the aperture through which the operating stem F of the plug passes. The opposite end of the casing is open to permit the introduction of the plug, and the latter is held in by a cap J screwed or otherwise fastened over the end of the casing after the plug is inserted. The plug is held yieldingly pressed toward the smaller end of the socket by means of a helicoidal spring K compressed between the cap J and the plug, a considerable length of spring being secured by providing a cylindrical recess L in the large end of the plug within which the spring lies.

In order to turn the valve from the open to the closed position, or vice versa, when it is stuck, it will ordinarily be sufficient to press down upon the handle G or the stem F, at the same time giving it a slight turning pressure. Even if it should be stuck so hard as to require a blow upon the end of the stem, such a blow would not have any effect upon the shape of the plug or of the casing so as to interfere with the proper operation of the valve. Fig. 4 shows the plug pressed downward to the limit, that is until its larger end strikes the cap J. In this position it is so loose in the conical socket that no difficulty is experienced in turning it. Upon releasing it from the downward pressure after turning it to the desired position, the spring K will jam the plug tightly upward into the small end of its socket. The stem F is straight-sided, cylindrical in the case shown, and fits closely in the opening in the head H of the casing through which it passes. Consequently when the stem is pressed downward as in Fig. 4, although the air may escape around the sides of the conical plug into the upper end of the casing, yet the stem substantially prevents any loss of air into the atmosphere. This cylindrical portion of course need extend only so high on the stem as to include the portion of the stem which is pressed down through the opening in the head H. The upper part of the stem may be non-circular as shown for convenient attachment of the handle G. The plug is shaped somewhat larger at its upper end than the upper end of the socket, so

that when new there is a space M between the head of the plug and the head of the casing so that the plug as it wears can move upward in the casing and still make a tight fit.

5 The lower end N of the casing over which the cap J screws is preferably provided with a shoulder O which is engaged by the upper edge of the cap when the body of the cap engages the lower edge of the part N, so as
10 to form a closure both at the bottom and at the shoulder O for greater security against the escape of air when the plug is depressed.

I claim as my invention:—

15 A valve having a casing A with a conical socket and lateral ports, and a conical plug C fitting in said socket and having a transverse passage D adapted to establish communication between said ports, a straight-sided operating stem F projecting from the
20 smaller end of the plug, said casing having a head with an opening through which said straight-sided stem passes with a close fit, a handle G carried by said stem, the casing having an opposite end N provided with a

shoulder O and being open for the admis- 25
sion of the plug, a cap J for closing said opening and holding the plug in the socket and adapted to engage the lower end of said portion N of the casing and also to engage
30 said shoulder O, and a spring K between said cap and the larger end of the plug, the larger end of the plug having therein a recess L receiving the spring K and permit-
35 ting the use of such a spring of considerable length, said plug being at its small end of larger diameter than the small end of the socket so as to leave a space between the
40 small end of the plug and the head of the casing when the plug is pressed inward by the spring.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE LEICH.

Witnesses:

D. ANTHONY USINA,
FRED WHITE.