(No Model.)

L. BARNES, Sr. & C. O. BARNES.

AIR VALVE.

No. 574,701. Patented Jan. 5, 1897.

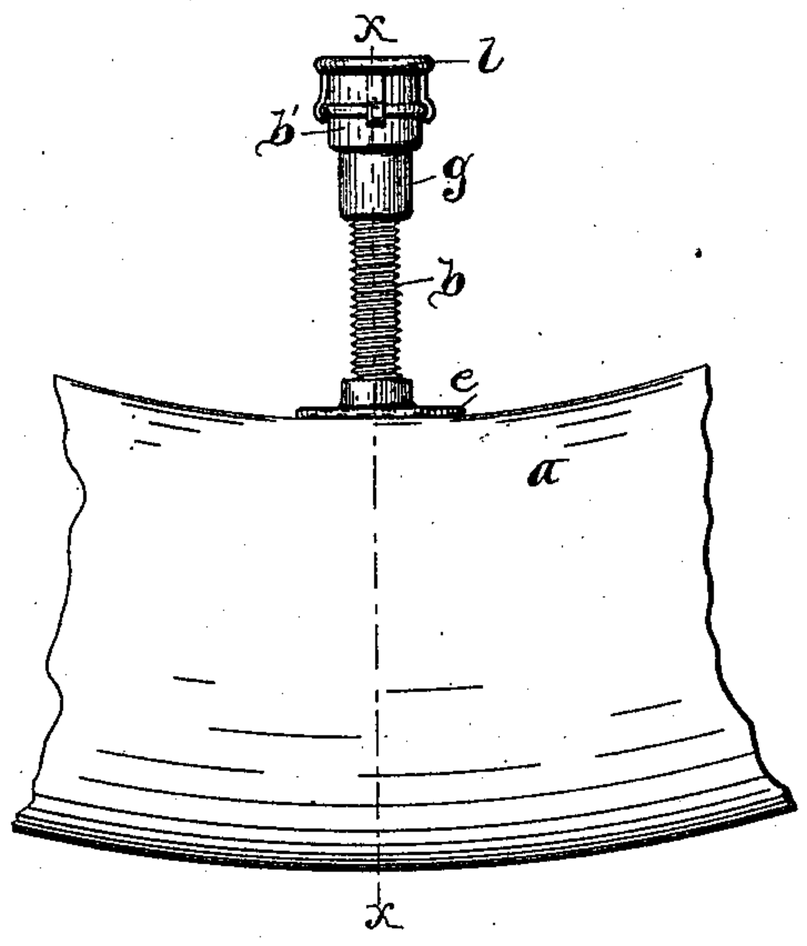

Fig. 1

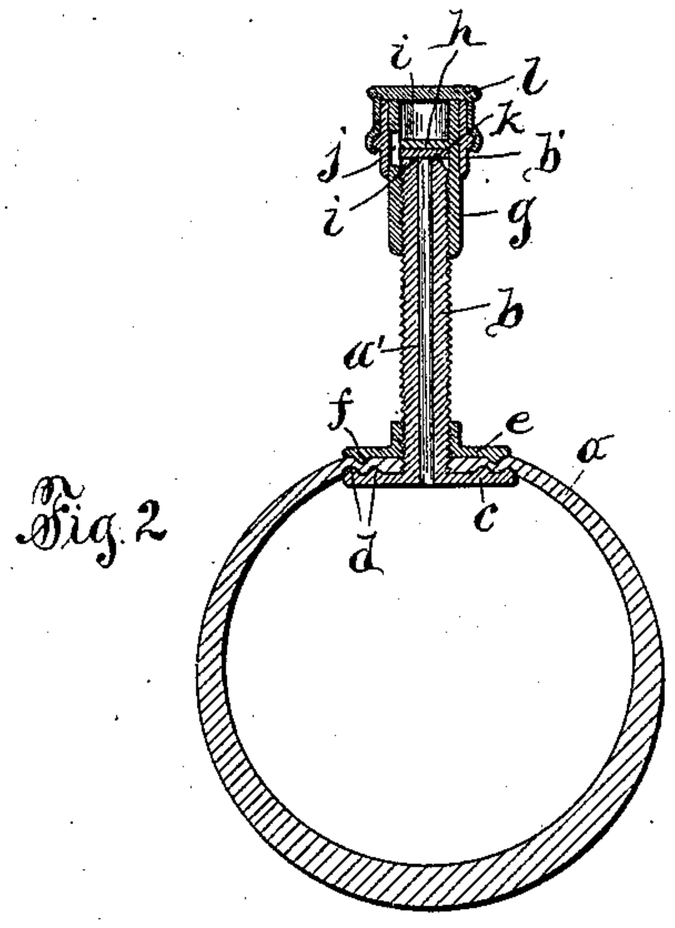

Fig. 2

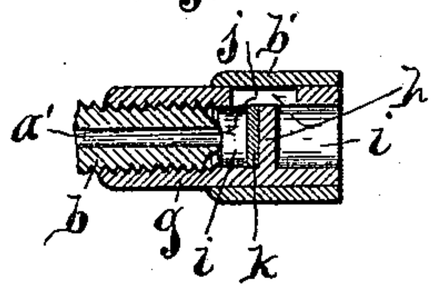

Fig. 3

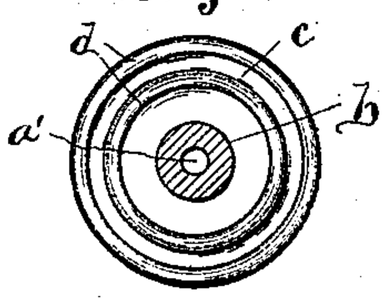

Fig. 5

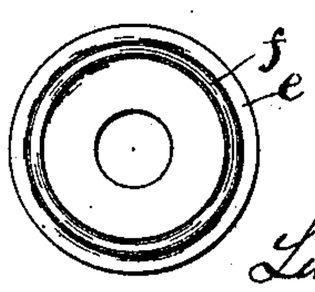

Fig. 4

WITNESSES:

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UNITED STATES PATENT OFFICE.

LUCIEN BARNES, SR., AND CHARLES O. BARNES, OF BUFFALO, NEW YORK.

AIR-VALVE.

SPECIFICATION forming part of Letters Patent No. 574,701, dated January 5, 1897.

Application filed July 9, 1896. Serial No. 598,563. (No model.)

To all whom it may concern:

Be it known that we, LUCIEN BARNES, Sr., and CHARLES O. BARNES, of Buffalo, in the county of Erie, in the State of New York, have invented new and useful Improvements in Air-Valves, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an improvement in air-valves, and is particularly adapted for pneumatic tires.

The object of the invention is to dispense with the springs and air-checks usually employed in valves, thus simplifying the construction and at the same time increasing the efficiency of the valve; and to that end the invention consists of a screw-threaded case provided with an air-passage and with a suitable attaching device, a sleeve thereon provided with a diaphragm forming an outer and an inner compartment and provided with an air-passage over or around said diaphragm and connecting said compartments and communicating with the aforesaid air-passage, said sleeve being movable longitudinally to open and close said communication to retain or release the air, as desired, as hereinafter more fully described.

The invention is fully illustrated in the annexed drawings, in which—

Figure 1 is a side view of a section of a pneumatic tire equipped with our improved valve. Fig. 2 is a transverse section on line X X in Fig. 1. Fig. 3 is an enlarged longitudinal section of the aforesaid sleeve and a portion of the case, and Figs. 4 and 5 are detail views of the aforesaid attaching device.

Similar letters of reference indicate corresponding parts.

a represents the tire, which is provided with a hole for the reception of the valve.

b denotes the screw-threaded case, provided with the air-passage *a'*, and *c* is a disk provided on the inner end of the case and preferably integral therewith, which disk is of greater diameter than the aforesaid hole. Into the tire is inserted the said disk, which is allowed to be forced through said hole owing to the elasticity of the tire. On the outer face of said disk are formed two concentric annular ribs *d d*, and on said case is a movable disk *e*, formed on its inner face with a rib *f*, which is intermediate the ribs *d d*. Between said disks is gripped the tire *a* by screwing down the disk *e*, whereby the aforesaid ribs are pressed into the tire or embedded therein, thereby obtaining a firm hold thereon and thus preventing the case from being blown out and also preventing the escapement of air, as aforesaid, as clearly shown in Fig. 2 of the drawings.

On the case *b* is a sleeve *g*, provided with a diaphragm *h*, which forms two compartments *i i*, and connecting said compartments is an air-passage *j*, which passage is preferably formed by a milling-tool being brought against the outside of said sleeve near the diaphragm, which tool is of such a form as to cut through into said compartments, then a ring or band *b'* slipped over the sleeve and preferably soldered thereon, as clearly shown in Fig. 3 of the drawings. In the inner compartment and on the diaphragm *h* is secured a disk *k*, preferably of vulcanized fiber, which disk forms a seat for the outer end of the case *b*, which end portion is reduced circumferentially, and over the outer end of said sleeve is provided the usual dust-cap *l*.

Our improved valve is not provided with an air-check, as it is the intention to supply pumps provided with the same. (Not necessary to be shown.)

The operation of our improved valve is as follows: In order to inflate the tire, the sleeve *g* is given one or two turns to unscrew the same, thereby drawing the disk *k* away from the end of the case *b*, thereby allowing the air-passage *a'* of said case to communicate with the air-passage *j* of the sleeve *g*. A pump provided with the aforesaid air-check is then attached to the sleeve, and when the tire is inflated sufficiently the sleeve is screwed down tightly before removing the pump, whereby the end of the case is firmly seated on the disk *k*, and thus the air prevented from escaping. The dust-cap is then placed over the outer end of the sleeve in the usual manner.

To further prevent the escapement of air through the thread on the case *b*, we prefer to use the filler therein, such as vaseline or other suitable material. The disk *k* being of vulcanized fiber, as aforesaid, will not be injured by the use of the filler. Consequently the same is practically indestructible.

What we claim as our invention is—

A valve comprising a screw-threaded case provided with an air-passage and a suitable attaching device, a sleeve thereon and provided with a diaphragm forming an outer and an inner compartment and provided with an air-passage over or around said diaphragm connecting said compartments and communicating with the aforesaid air-passage, said sleeve being movable longitudinally to open and close said communication, as set forth and shown.

In testimony whereof we have hereunto signed our names this 6th day of July, 1896.

LUCIEN BARNES, SR. [L. S.]
CHAS. O. BARNES. [L. S.]

Witnesses:
J. J. LAASS,
M. A. LEYDEN.