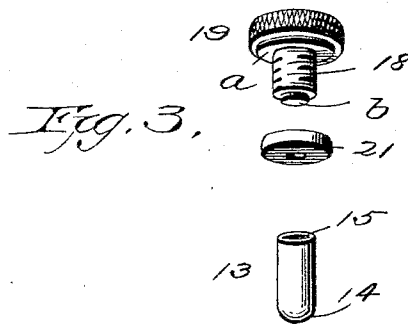
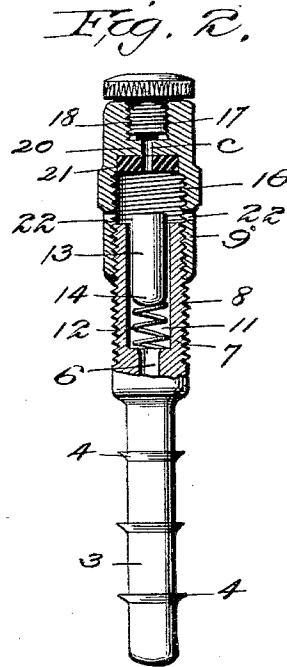
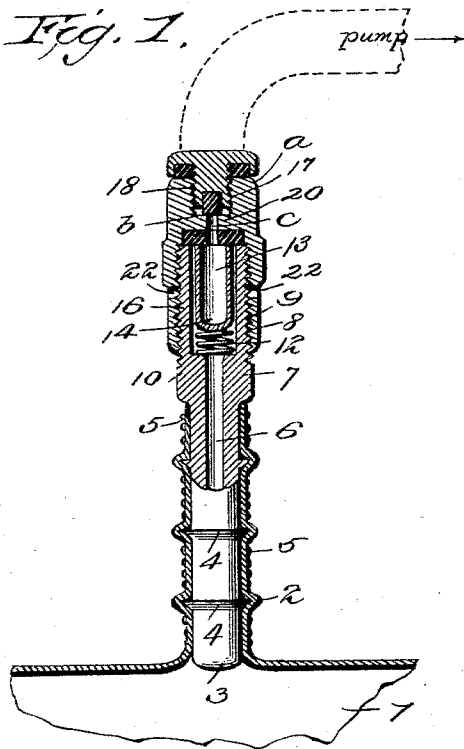


(No Model.)

S. M. SCHINDEL.
INFLATION VALVE.

No. 566,811.

Patented Sept. 1, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL M. SCHINDEL, OF HAGERSTOWN, MARYLAND, ASSIGNOR OF ONE-HALF TO H. CLAY WILLIAMS, OF TRENTON, NEW JERSEY.

INFLATION-VALVE.

SPECIFICATION forming part of Letters Patent No. 566,811, dated September 1, 1896.

Application filed October 19, 1895. Serial No. 586,222. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. SCHINDEL, a citizen of the United States, residing at Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Inflation-Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements, as hereinafter set forth, in valves for inflating and deflating pneumatic tires and other air-inflated articles.

In the drawings I have shown my improved valve as applied to a pneumatic tire, but it will be readily understood that it is equally well adapted for application to other air-inflatable articles, such as foot-balls, provided with valves through which air may be supplied to inflate the same. It is not, however, deemed necessary to show such application to other articles than a tire, as the adaptation will be apparent to those skilled in the art.

In the accompanying drawings, Figure 1 represents a vertical sectional view showing the valve applied to a cot, the parts being represented as in closed position and in position of use. Fig. 2 represents a vertical sectional view of the valve separately, this view showing the device in deflating position. Fig. 3 represents detail perspective views of, respectively, the valve-plunger, the elastic diaphragm, and the safety screw-plug.

1 represents a sectional view of a portion of a pneumatic tire, and 2 the cot within which the air inflating and deflating valve and its accessories are received.

3 represents the valve-barrel, which is seated or inserted within the cot 2, as shown, said barrel having a series of external circumferential rings or serrations 4, which frictionally grip the inner walls of the cot for the purpose of maintaining said valve-barrel in position, and 5 represents a wire or its equivalent for binding said cot and valve-barrel securely together.

6 represents the vertical bore through which air passes through the valve-barrel to and

from the tire or other article in the act of either inflating or deflating the same.

7 represents the enlarged upper or outer portion of the valve-barrel. At its top it is circumferentially threaded exteriorly, as shown at 8, to receive a cylindrical open-ended sleeve or cap 9, to be presently described, a ledge or shoulder 10 serving as a stop and seat for the inner end of said sleeve or cap.

11 represents a chamber within the enlarged portion 7 of the valve-barrel and within which is seated a spiral or other spring 12.

13 represents the valve-plunger, which is tubular except at its lower or inner end 14, which is closed and has vertically-reciprocal cushion bearing on said spring 12. The upper or outer end of this plunger has an open mouth 15, for a purpose to be presently described. This plunger 13 is of less circumference than the circumference of the chamber in which it has reciprocal seating to permit of air passing between it and that portion of the valve-barrel in which it is seated and through the central bore in said barrel.

The open-ended and centrally-bored sleeve or cap 9 is interiorly threaded at its inner or lower end, as at 16, to engage with the threads 8 and enable said sleeve or cap to fit over and surround the upper or outer end of the valve-barrel, the opposite end of said sleeve or cap being similarly threaded, as shown at 17, to receive the threaded stem 18 of a safety screw-plug 19, which closes the outer end of said sleeve or cap, so as to exclude the entrance of dust and other foreign matters to the valve-barrel. The head of the screw-plug has a concaved under face within which is received a washer *a* to seal the joint between said head and the top of the sleeve 9, an elastic plug *b* being inserted in the lower end of the stem 18 to close the central bore *c* of the sleeve 9, said screw-plug by its closure of said sleeve or cap additionally insuring the prevention of the escape of air in case of accident to the other air-sealing parts of the device, though, by my construction, the unauthorized escape of air is prevented under ordinary circumstances.

20 represents a centrally-bored diaphragm, of metal, located in the sleeve or cap, and 21 represents a centrally-bored washer, of rub-

ber or other flexible material, secured to or located below said diaphragm. Against this flexible washer or diaphragm 21 the mouth 15 of the plunger 13 is normally projected by the spring 12, so as to embed in form a close joint therewith and inclose and hermetically seal the bore in said washer 21 and also the bore in the metal diaphragm 20, and thereby prevent the passage of air there-
10 through.

22 represents deflating-openings, of which there may be any desired number, extending transversely through the walls of the sleeve or cap 9 below the centrally-bored washer or diaphragm 21, previously described. When the sleeve or cap 9 is in its closed position, these deflating-openings 22 are guarded by the extension thereover of the adjacent portion of the valve-barrel, and the valve-plunger is projected against the said washer 21, so as to seal the bore thereof. When it is desired to deflate the tire or other article, said sleeve or cap 9 is unscrewed until said deflating-openings 22 are brought to a position above the top or outer end of the valve-barrel, whereupon the air escapes from between the bore of said barrel and the plunger and passes out through said openings 22.
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The operation of this device is as follows:
30 The valve-barrel, with its connected parts, as herein set forth and shown, being secured in and to the cot 2, when it is desired to inflate a tire or other article the safety screw-plug 19 is removed, the nozzle of the pump is then inserted in the outer end of the bore of the sleeve or cap 9, and the pump-piston operated to force air into said sleeve or cap 9. As the air passes therein the valve-plunger 13 is by it deflected and forced away
40 from its seat against the elastic washer or diaphragm 21. The air then passes around said plunger 13, to and through the bore of the valve-barrel, and through the cot 2 into the interior of the article to be inflated. When sufficient air has been thus supplied to the article, the pump is removed. Immediately on the cessation of the supply of air the open end 15 of the valve-plunger 13 is, by the combined pressure against its closed end of the air in the cot and of the spring 12, projected against its flexible seat or washer 21, and with its open end surrounding the bore in said washer, thereby hermetically sealing

said bore and perfectly preventing the escape of air. When it is desired to deflate the article, the sleeve or cap 9 is unscrewed sufficiently to bring the openings 22 therein above the top of the valve-barrel, whereupon air will exhaust therefrom through said openings.
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It will be observed that so far as the prevention of the unauthorized escape of air is concerned the safety screw-plug 19 need not be in position, as the plunger 13, when the sleeve 9 is in closed position, always securely closes the bores in the elastic and metal diaphragm, 20 and 21, the only channels through which air can pass when the sleeve is in closed position.
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Having thus described my invention, what I claim is—

1. A valve consisting of a barrel, a spring located in said barrel, a plunger having a closed inner end having seat bearing on said spring, and an open outer end, a tubular sleeve adjustably mounted on said barrel and surrounding said plunger a centrally-bored diaphragm located in said sleeve, a flexible, centrally-bored washer or diaphragm seated against the inner, or under, face of said diaphragm, said sleeve being provided with one or more deflating-openings in its sides below, or inwardly of, the flexible washer, substantially as and for the purpose set forth.
75 80

2. A valve consisting of a barrel, a spring located therein, a plunger having a closed inner end having seat bearing on said spring and also having an open outer end, a tubular sleeve adjustably mounted on said barrel so as to surround said barrel and plunger and having a deflating opening, or openings, near its inner end, a rigid centrally-bored diaphragm located in said sleeve, a centrally-bored, flexible washer seated against the inner face of said diaphragm, said diaphragm and washer being located in the sleeve outwardly of the deflating opening or openings therein, and a safety-plug engaged with the outer end of said sleeve, substantially as and for the purpose set forth.
85 90 95 100

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

SAMUEL M. SCHINDEL.

Witnesses:

CHAS. J. GOOCH,
J. ROSS COLHOUN.