(No Model.)

G. W. WASHBURN.

AIR VALVE.

No. 577,122. Patented Feb. 16, 1897.

Fig. 1.

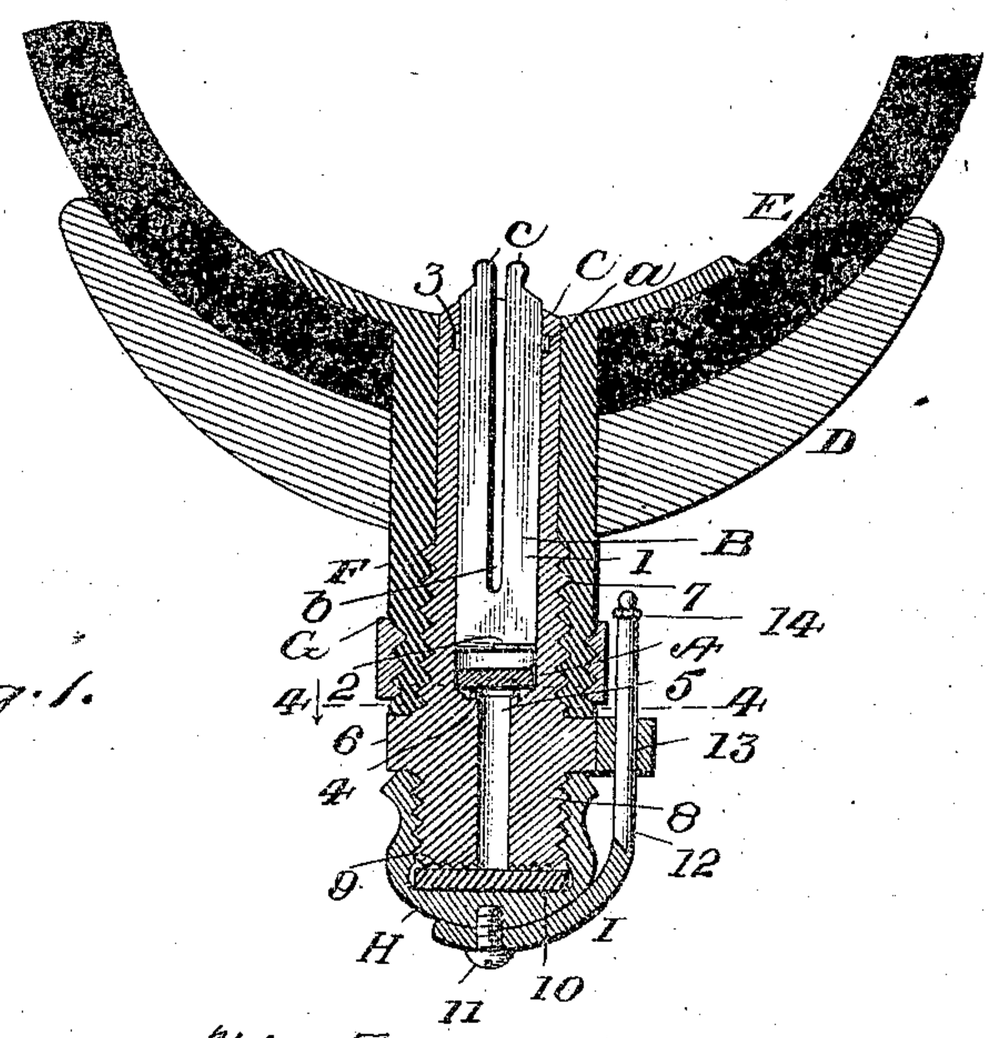


Fig. 3.

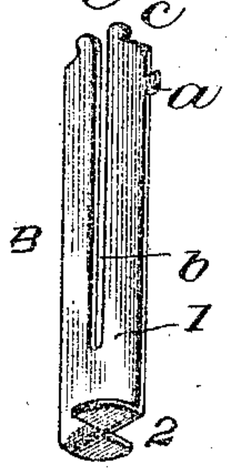


Fig. 3a.

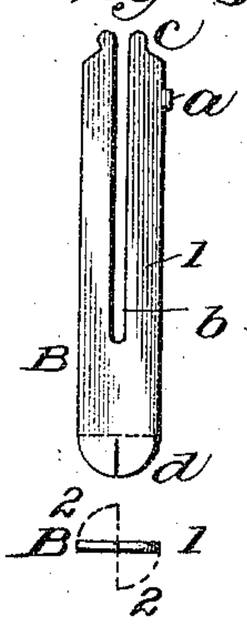


Fig. 2

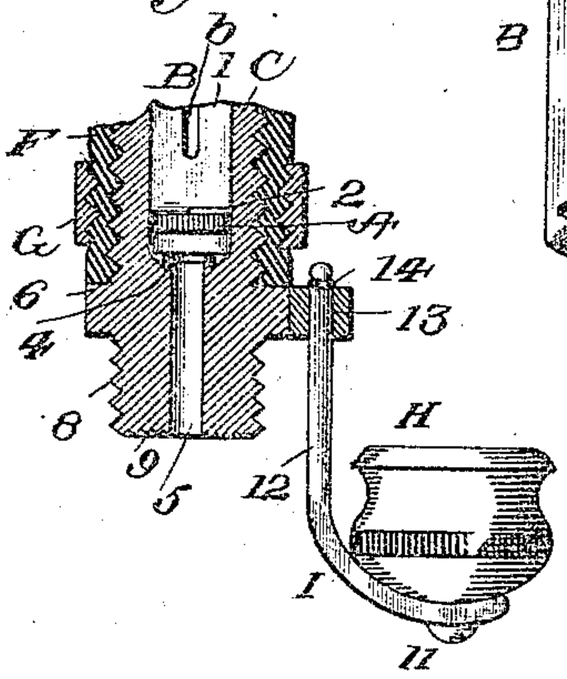


Fig. 6.

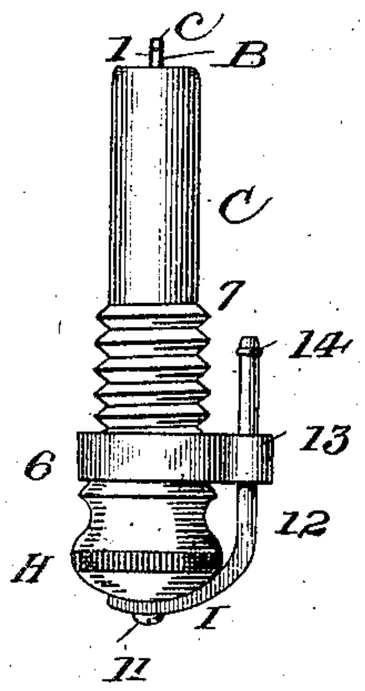


Fig. 4.

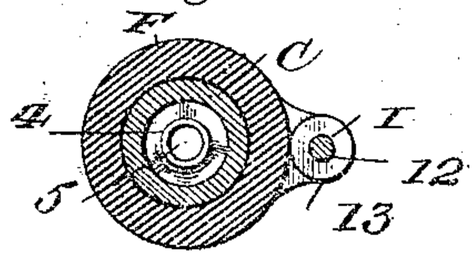
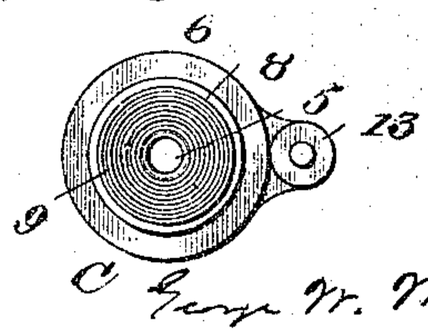


Fig. 5



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE W. WASHBURN, OF WEST NEW BRIGHTON, NEW YORK.

AIR-VALVE.

SPECIFICATION forming part of Letters Patent No. 577,122, dated February 16, 1897.

Application filed November 30, 1895. Serial No. 570,647. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WASHBURN, a citizen of the United States of America, and a resident of West New Brighton, Staten Island, in the State of New York, have invented a new and useful Improvement in Air-Valves, of which the following is a specification.

This invention relates primarily to the air-valves of pneumatic tires, but the features of novelty may be embodied in other valves for inflation.

The invention consists in certain novel combinations of parts hereinafter specified and claimed. Its primary object is to effectively employ a soft-rubber valve proper in the form of a loose disk without clamping such valve-disk upon its seat to prevent leakage, and by the term "loose valve-disk" as hereinafter employed, I mean a valve-disk which is not held on its seat by screw-pressure.

Another object of the invention is to stop or support such a loose valve-disk when lifted from its seat by means of a self-holding valve-support, and a last object is to form such a self-holding valve-support in one part and to facilitate inserting and removing the same.

A sheet of drawings accompanies this specification as part thereof.

Figures 1 to 5, inclusive, of these drawings are magnified detail views of a tire-inflating valve including said novel combinations of parts, Fig. 1 being a section lengthwise of the valve-case, showing the valve-disk and dust-cap seated; Fig. 2, a fragmentary section in the same plane, partly in elevation, showing the valve open; Fig. 3, a perspective view of the valve-disk support detached; Fig. 3ª, an elevation of the blank of the latter with an appended end view; Fig. 4, a cross-section on the line 4 4, Fig. 1; and Fig. 5, an end view of the valve-case, showing the dust-cap seat. Fig. 6 is an elevation of the valve as a whole detached, showing its external appearance.

Like letters and numbers refer to like parts in all the figures.

The valve proper, hereinafter termed the "valve-disk," is shown at A in Figs. 1 and 2 and is a small disk or washer of soft rubber. All the other parts of the improved air-valve as a whole are of suitable metal, excepting a gasket hereinafter mentioned.

All the parts of the specific tire-inflating valve shown in the drawings will be briefly described, with the understanding that the claims hereinafter stated are not intended to include as limitations any details which are not mentioned therein, respectively.

The valve-disk A is stopped or supported when lifted from its seat, as in Fig. 2, by a valve-support B, which is shown detached by Fig. 3, and is composed of a flat body 1, long enough to protrude at the inner end of the valve-case C, as in Fig. 6, and a pair of quadrant-shaped projections at its inner end, which form a rest 2, Figs. 1 and 2, behind the valve-disk and parallel with its seat.

The valve-support is formed in one part from suitable sheet metal by stamping out a blank, Fig. 3ª, with a slitted half-round end *d*, the halves of which are bent in opposite directions, as in dotted lines in the appended end view, to form said rest 2. The body 1 is provided in the blank with a lateral projection *a*, which interlocks with a groove 3, Fig. 1, within the valve-case C, a longitudinal slit *b*, which adapts it to be compressed edgewise, and end projections *c*, by which to grasp and compress it between the nails of a finger and thumb for inserting or withdrawing the valve-support.

A valve-seat 4 is formed within the valve-case C by a bevel around the inlet-hole 5 and a straight cut at a suitable distance from the center. The valve-seat is thus constructed with a sharp edge to indent the soft rubber of the valve-disk, having a large diameter as compared with the inlet-hole, while a relatively large area of the valve-disk is exposed to the lifting-pressure of the air.

The valve-case C is readily constructed in one part and is provided with the groove 3, valve-seat 4, and inlet-hole 5, before mentioned, all of which are concentric with each other and with the exterior of the valve-case, said inlet-hole extending inward axially and perpendicularly to said valve-seat and valve-disk.

The wooden rim D of a bicycle-wheel, a pneumatic tire E, surrounding the same, and

a rubber tube F, extending from within the tire through the rim, are shown in section in Fig. 1 to illustrate a suitable mode of attaching the improved air-valve. For this purpose a short sleeve or "band" G, of suitable diameter, provided internally with a coarse screw-thread, is screwed upon the outer end of the rubber tube F, so as to compress the latter, and the valve-case C is screwed into the compressed tube, being constructed with a circumferential flange 6 to abut against the outer end of the tube and with a coarse screw-thread 7, corresponding with that of the band G. Beyond the flange 6 the outer end of the specific valve-case C (shown in the drawings) is constructed with a screw-threaded nipple 8, the extremity of which is roughened by means of concentric V-grooves, as shown at 9 in Figs. 2 and 5, to coact with a rubber gasket 10 within a dust-cap H, screwed upon the nipple. To permanently attach this screw-cap, so as to prevent dropping it, without interfering with the application of an air-pump to the nipple 8 when the cap is removed, as in Fig. 2, the cap is swiveled by a central screw 11 to a bent arm I, having a straight stem 12, which works in a guide 13, attached to the flange 6 of the valve-case. A wire ring 14 within a groove at the extremity of the stem 12 prevents the separation of the parts, while the play of said stem within the guide 13 permits the cap H to be screwed home, as in Figs. 1 and 6, and to be unscrewed and swung to one side, as in Fig. 2, during the pumping operation.

A riveted stud may take the place of the screw 11. The guide 13 may be formed on the flange 6. A different fastening for the arm I may be employed at 14, and other like modifications will suggest themselves to those skilled in the art.

Having thus described the said improvement, I claim as my invention and desire to patent under this specification—

1. In an air-valve, the combination with a loose valve-disk A of soft rubber and a valve-support B forming a rest behind said valve-disk, of a one-part valve-case C inclosing said valve-disk and said valve-support and having a central inlet-hole perpendicular to said valve-disk and an internal valve-seat formed by a bevel around said inlet-hole and a straight cut at a suitable distance from the center, substantially as hereinbefore specified.

2. The combination with a loose valve-disk A of a self-holding valve-support B having a rear end which is compressible edgewise and is provided with a lateral projection *a*, and a tubular valve-case having a circumferential internal groove which interlocks with said projection, and having an internal valve-seat opposed to said valve-disk and valve-support, substantially as hereinbefore specified.

3. The one-part self-holding valve-support B constructed with the flat body 1 and rest 2, the former having the lateral projection *a* longitudinal slit *b* and end projections *c*, in combination with the valve-case C having an internal groove 3 to coact with said lateral projection, substantially as hereinbefore specified.

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Witnesses:
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