(No Model.)

J. A. STEURER.

BICYCLE VALVE.

No. 588,364. Patented Aug. 17, 1897.

Fig. 1.

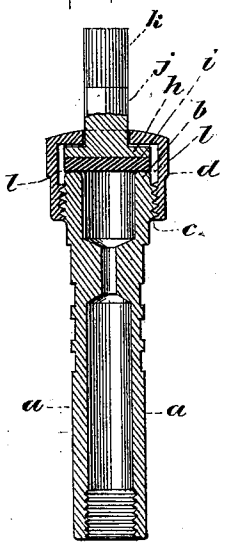


Fig. 2.

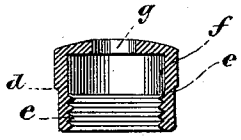


Fig. 3.

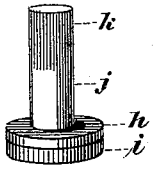
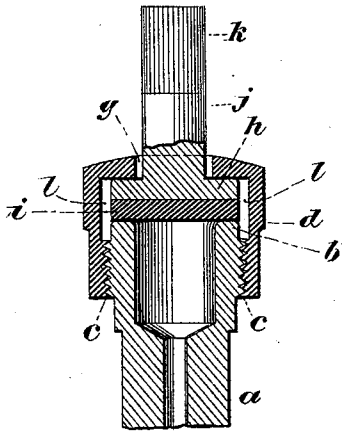


Fig. 4.



Fig. 5.



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UNITED STATES PATENT OFFICE.

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BICYCLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 588,364, dated August 17, 1897.

Application filed May 14, 1897. Serial No. 636,631. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. STEURER, a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Bicycle-Valves, of which the following is a specification.

My invention relates to closures for valve-stems, and has reference more particularly to efficiently closing the stems of valves used with pneumatic wheel-tires.

To this end my invention consists in the construction hereinafter set forth and claimed.

My invention will be understood by referring to the accompanying drawings, in which—

Figure 1 is a central vertical section of a valve apparatus embodying my invention. Fig. 2 is a detail sectional view of the cap. Fig. 3 is a detail sectional view of the valve. Fig. 4 is a face view of the portion of the valve which comes against the valve-seat; and Fig. 5 is an enlarged central vertical section similar to the section shown in Fig. 1, but illustrating the parts on an enlarged scale to more clearly bring out the invention.

Heretofore caps for bicycle-tire valves have been provided with a rubber facing inside, which is rigid therewith, and consequently when the cap is turned rotates with the cap, and is thereby cut and worn to such an extent as to rapidly deteriorate, so that after a short season of use the cap becomes valueless to seal the valve and is especially dangerous to use by reason of the fact that when the valve-seat comes into the rubber, the rubber, when the cap is screwed down, extends so far into the valve-seat as to touch the rod or stem which operates the inner valve, so that the tires so provided with these defective valve-caps become after a short time very insecurely sealed, thereby leaking rapidly. My invention is designed to obviate these defects by providing the cap with a loosely-fitting removable valve which will not turn with the cap when the same is screwed down, and consequently will not cut or wear away to such an extent as to render it leaky or bring it in contact with the stem of the inner valve.

In the drawings, *a* is the ordinary tube or hollow stem leading from the pneumatic tire, and is provided with the usual seat *b* and screw-thread *c*.

d is the cap, which is provided with a screw-thread *e* and above the topmost screw-thread is enlarged laterally to form an enlarged chamber *f* in which the valve can freely oscillate. The cap is pierced at the top with an aperture *g* for the passage of the valve-stem.

The valve is shown as consisting of a head *h*, faced with a soft packing *i* of caoutchouc or other material and provided with a rearwardly-extending stem *j*, whose end *k* is preferably milled. The head *h* with its facing of rubber is of considerably less diameter than the diameter of the recess or chamber *f*, leaving small spaces *l* between its edge and the inner face of the wall of the chamber *f*. The head and its facing are, however, small enough to pass through the portion of the cap wherein the screw-threads *e* are formed and are preferably made, as shown, of just sufficient size for the rubber when it has been well seated by pressure to frictionally engage the lands of the screw-thread, so that when it is desired to remove the valve to replace it with rubber it can be readily done by forcing it downward through the cap and at the same time turning it so as to engage the rubber with the screw-thread, thus screwing it out.

When the valve is in place in the head, the cap may be removed, and by reason of the fact that the uppermost screw-thread forms a sort of ledge the valve will not fall out of the cap and the cap may be shaken about or dropped or otherwise handled without ejecting the said valve from the cap, the most efficient means of taking out the valve being to seize the stem, press the stem downward, and at the same time rotate it, so that the rubber will engage the screw-thread and thus screw the valve out of the cap.

With valves constructed as described and shown it is wholly unnecessary to provide any other means for retaining the valve in the cap than the slight ledge afforded by the screw-threads, and consequently a considerable space may be left around the valve-stem, between the valve-stem and the sides of the aperture *g*, so that the valve may freely vibrate in the head and will be thereby more apt to catch on the ledge.

When it is desired to close the tube or stem *a* after pumping air therein, the cap is placed

upon the said stem and screwed down, and as soon as the facing of the valve comes against the valve-seat the valve will remain stationary, and the head being turned will bear the valve down firmly upon its seat, thereby sealing the stem.

I am aware that it is not new to provide a valve-cap with an enlarged recess above the screw-threads, as such a structure is shown in United States Letters Patent No. 555,664, dated March 3, 1896. I am likewise aware that it is not broadly new to provide a valve-stem with a cap containing a faced valve which is secured therein by forming a shoulder on its stem, as such a structure is shown in Letters Patent No. 555,665, dated March 3, 1896. I am likewise aware that it is not new to provide a valve-cap with a reciprocating valve secured in place by a nut on the stem, as such a structure is shown in United States Letters Patent No. 575,817, dated January 26, 1897, and consequently I do not claim such structures, but

What I do claim, and desire to secure by Letters Patent, is—

1. In an apparatus for sealing hollow valve-stems, the combination of a cap for engaging the said stem provided with an internal ledge and an aperture, of a valve located in the said cap above the ledge and provided with a stem extending through the aperture, the said valve being freely movable in the said cap and being wholly unsupported therein save by the ledge aforesaid, substantially as described.

2. In an apparatus for sealing valve-stems, the combination of a cap provided with means for engaging the stem, and provided with a ledge and aperture, of a valve located in the cap and provided with a stem extending through the aperture, the said valve being freely rotatable and vibratable in the said head and sufficiently small to pass through the head at the place where the ledge is located and being wholly unsupported in the said cap save by impingement upon the said ledge.

3. In a means for sealing valve-stems, the combination of a cap provided with screw-threads for engaging the valve-stems and with a recess above the screw-threads of greater diameter than the internal bore of the cap where it is screw-threaded, and a valve freely movable in the said head and wholly unsupported therein except when it impinges against the screw-threads.

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Witnesses:
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