(No Model.)

J. HARDMAN, Jr.

HEEL VALVE FOR ATOMIZERS.

No. 527,974. Patented Oct. 23, 1894.

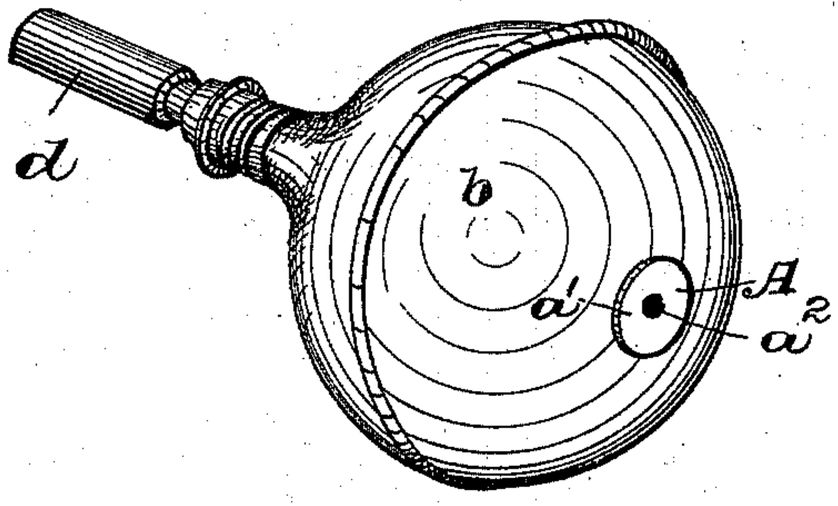

Fig. 1

Fig. 2

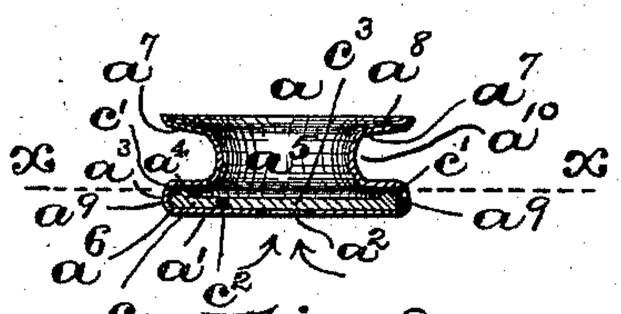

Fig. 3

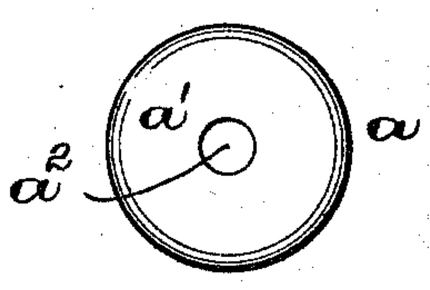

Fig. 4

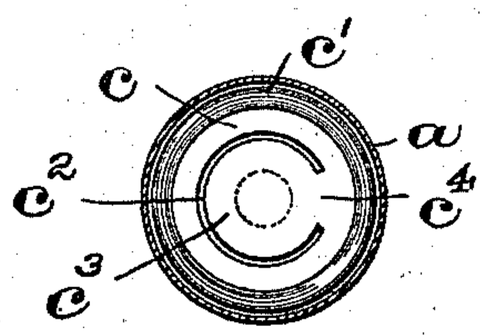

Fig. 5

WITNESSES:

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UNITED STATES PATENT OFFICE.

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HEEL-VALVE FOR ATOMIZERS.

SPECIFICATION forming part of Letters Patent No. 527,974, dated October 23, 1894.

Application filed November 28, 1893. Serial No. 492,259. (No model.)

To all whom it may concern:

Be it known that I, JAMES HARDMAN, Jr., a citizen of the United States, residing at Belleville, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Heel-Valves for Atomizers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention has reference to an improved form of heel valve for atomizers, and consists in the novel construction and arrangement of parts comprising the valve, such as will be hereinafter more fully described and finally embodied in the clauses of the claim.

The invention is illustrated in the accompanying sheet of drawings, forming part of the specification, and in which drawings similar letters of reference are employed to indicate corresponding parts in each of the views.

In said views, Figure 1 is a perspective of an atomizer-bulb provided with my improved form of heel valve, embodying therein the principles of this invention. Fig. 2 is an enlarged side view of the valve-casing in position in the bulb, and Fig. 3 is a vertical section of the valve, clearly illustrating the construction and arrangement of the flexible valve-portion. Fig. 4 is a bottom view of the heel valve, and Fig. 5 is a horizontal section, taken on line x in Fig. 3.

In the drawings, b indicates the atomizer bulb, which is made in the usual manner, and is of flexible material, such as rubber.

A is the heel valve, the parts comprising therein the casing proper a, made of sheet metal and forced or spun into shape, as illustrated in Figs. 2 and 3, and the valve disk c, of a flexible material, preferably soft rubber. Said valve-casing a, is made from a plain cylindrical-shaped piece of metal, in the face a' of which is formed a hole or perforation a^2. The cylindrical sides a^3, are turned inwardly, as at a^4, thereby forming the neck a^5 and the valve-chamber a^6 between the neck and the face a'. At a point a^7, the sides of the casing are again outwardly flaring forming an annular flange a^8, substantially as illustrated in Fig. 3.

The valve disk c, which is made of a flexible material, such as rubber, is provided with an annular rib c' to stiffen the disk, said rib being formed on the upper surface of the disk c, leaving the under surface of the disk perfectly smooth. Said disk is forced into the chamber a^6, and is held perfectly tight therein, by said enlarged rib portion c', which is firmly pressed into the rounded portion a^9 formed by the inner surface of the face a, and the inwardly turned portions a^4 of the valve casing, as will be clearly seen from Fig. 3.

As will be seen from Fig. 5, the valve disk c, is provided with a slot c^2, which nearly completes a circle, thereby forming a movable flap c^3 which is connected by means of the connection c^4 with the main portion of the disk c.

The complete valve A is forced through an opening b' in the bottom of the bulb b, as shown in Fig. 2, the edges surrounding said opening b' fitting closely into the annular depression a^{10} caused by the neck a^5, and the parts are firmly compressed together, whereby the heel valve is firmly held in position in the bottom of the bulb b. When the bulb b is compressed, the flap c^3 is firmly forced against the inner surface of the face a' of the valve casing, causing the air to escape from the pipe or tube d connected with the bulb b, while the heel valve remains closed; but as soon as the pressure is removed from the bulb, the air will pass through the hole or perforation a^2 in the direction of the arrows in Fig. 3, causing the flap c^3 of the valve-disk c to be forced inwardly, as will be understood. By this arrangement and construction of the several parts of the valve, a cheaply constructed and a very effective valve for atomizers is the result.

The valve casing is made from one piece of metal, thus producing a very light and ornamental fitting.

Having thus described my invention, what I claim is—

A valve for atomizers, comprising therein a sheet metal casing a, having a face a' provided with a perforation, a chamber a^6, a neck a^5 having a flange a^8, and a flexible disk-valve in said chamber, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 18th day of November, 1893.

JAMES HARDMAN, JR.

Witnesses:
FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.