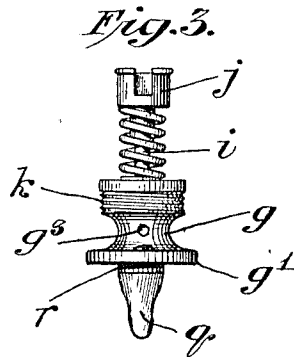
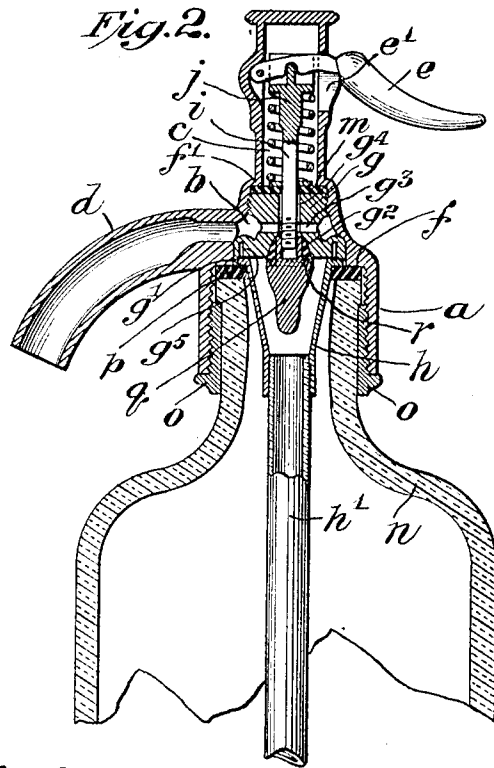
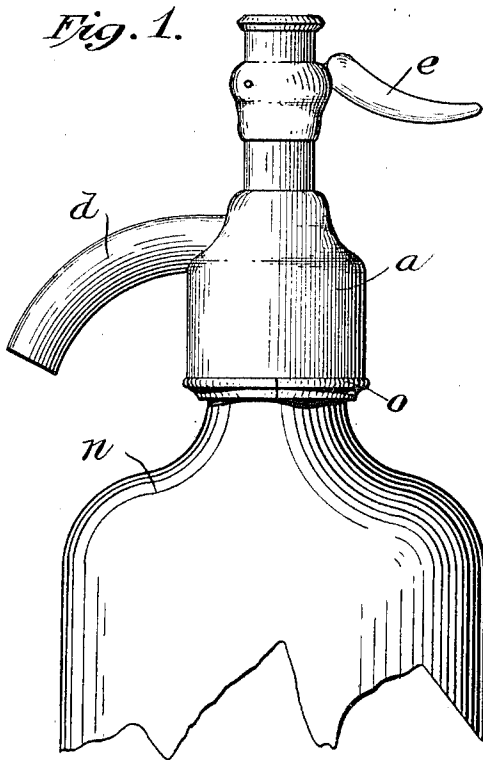


J. A. SCHULTZ, JR.
SIPHON HEAD.
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1,064,092.

Patented June 10, 1913.



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UNITED STATES PATENT OFFICE.

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SIPHON-HEAD.

1,064,092.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN A. SCHULTZ, Jr., a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Siphon-Heads, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to siphon heads and more particularly to the valve mechanism therefor.

In a certain type of siphon head now commonly used, the valve seat block, to facilitate its manufacture, assembling and repairs, is made detachable from the head casting, a construction which also has the advantage of permitting that portion of the head casting forming the valve spring chamber to be formed without a detachable cap which must otherwise be used to permit the insertion of the valve stem spindle and its spring, these parts, in this type of head, being inserted through the circular, interiorly screw-threaded flange by means of which the head is attached to a bottle. In this type of head, the valve block itself is carried by the said spindle, and in various other types of valve blocks used with a spindle of this character, a square shoulder within the head of the siphon tube, presents an angular obstruction in the path of the water delivered from the siphon bottle. I have ascertained by experiment that the presence of this obstruction in the path of the flowing, carbonated waters serves to agitate the waters in a manner to cause them to give up a sufficient quantity to the gas to lower their quality and deliver with them a certain volume of free gas. The use of this shoulder has always been adhered to as permitting the formation of side fillets for use in connection with a wrench for attaching and detaching the valve block.

The main object of the invention is to provide a siphon head wherein the channel through which the carbonated water flows will present, as nearly as possible, smooth, uninterrupted surfaces so as to avoid the tumbling of the waters and the resultant separation of the gases therefrom.

A further object is to provide a siphon head wherein the channel for the flow of the water being discharged will not be obstructed by a flange seat or by the presence of obstructions on the valve block, in a manner to

cause a loss of gases in their passage from the siphon tube to the spout.

A still further object is to provide a siphon head wherein the valve mechanism including the valve seat block may be inserted from the bottom of the head, thus permitting the entire head casting to be made of one integral casting, all of said parts being held upon the valve seat block by the manner of uniting the valve stem or spindle and the block.

A still further object is to provide a siphon head wherein the entire valve mechanism carried by a detachable valve seat block may be inserted from the bottom of the head, and the parts so secured in place prior to the attachment of the head as to thoroughly pack all parts of the valve mechanism and permit the adjustment of the seat of the valve before the head is attached to the bottle, thus effecting a saving of time in the assembling of the heads and bottles.

A further object is to provide a siphon head having a valve seat block detachably mounted therein, carrying a packing gasket on the top of same for the valve spindle wherein the position of the said block relative to the head casting may be independently adjusted and maintained in any desired position to regulate the compression exerted upon said packing gasket to insure a tight fit of same about said spindle. And a still further object is to provide a siphon head which will be simple in construction, capable of accurate adjustment in its assembling, and inexpensive to manufacture.

The invention consists in the novel features of construction and combination of parts hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings:—Figure 1 is a side view of the upper portion of a siphon bottle showing a siphon head embodying my invention thereon; Fig. 2 is a vertical section of said head and said bottle, and, Fig. 3 is a detailed elevation of the valve mechanism removed from the head.

Like letters refer to like parts throughout the several views.

In the embodiment of my invention, shown in the drawings, I have shown a head casting comprising an interiorly screw-threaded flange *a*, a valve seat block chamber *b* above same, a valve spring and spindle

chamber *c*, formed in the upper portion of said casting, and a spout *d* communicating with the valve seat block chamber *b*, all of said parts being preferably formed in a single casting, with the chamber *c* permanently closed at the top. The general type of siphon head to which my invention relates, is one in which the operating lever *e* bears upon a spindle head within the valve spring chamber, said chamber being closed with the exception of the vertical way *e'* therein for the said lever handle. This type possesses the disadvantage in the ordinary siphon head that the valve mechanism must be assembled within the head, which involves additional labor and does not afford a reliable packing of the spindle.

A head casting such as I have described, is also less troublesome to cast, and capable of production at a lower cost than the ordinary double cored head. To obviate the difficulties of the old style of head, it has been suggested that the head casting be formed as I have heretofore described, and a valve seat block carrying all of the valve mechanism, be loosely seated within the valve seat block chamber, and secured therein by the same operation necessary to mount the head upon a bottle. A head of this type, is already in extensive use; and it is my aim to improve upon this type of head by providing a valve seat block which may be secured relative to the head casting prior to the mounting of the head upon the bottle, thus permitting the adjustment of the valve mechanism, and the compression of the gasket packing the valve spindle, prior to such attachment. An angular shoulder is formed at *f* between the securing flange *a* and the valve seat block chamber *b*, and a second substantially angular shoulder *f'* is formed at the top of said chamber and below the chamber *c*, said shoulders respectively forming seats for the packing ring at the top of the bottle, and the packing ring or gasket for the valve stem or spindle.

The valve mechanism comprises a valve seat block *g* having a downwardly presented circular flange *g'* within which the flange of the tube head *h* is contained. Centrally of said block, I form a countersunk valve seat *g²* (see Fig. 2), leading into a transverse duct *g³* communicating with the space within the chamber *b* which in turn is in communication with the spout *d*. A vertical way *g⁴* is formed in the block *g* directly above the center of the valve seat *g²* for the valve stem or spindle *i* which is provided with the ordinary enlarged head *j* carrying the fulcrum for the lever handle *e*, the inner end of which handle may be pivoted in any desired manner within the chamber *c*.

The upper portion of the block *g* is provided with screw-threads *h* adapted to mesh with the interior screw-threads in the walls

of the chamber *b*. Surmounting the block *g* is a compressible gasket *m* adapted to be compressed against the shoulder *f'* by the block *g* through the coöperating screw-threads upon said block and within said chamber *b*. The underface of the block *g* is provided with holes as *g⁵* adapted to be engaged by a spanner wrench, for inserting or removing the block. The screw-threaded connection between the valve seat block and the head casting affords such an adjustability of said block as to compensate for any variance in the thickness or elasticity of different gaskets *m*, thus avoiding the necessity for that nicety in the dimensions of the different parts to avoid occasional leakage from an imperfect packing of the valve stem or spindle *i*. The siphon tube *h'*, bottle *n* and split ring *o* are of the usual and well known construction. The tube head *h* is of metal as now ordinarily used, and the top flange thereof is adapted to fit within the flange *g'* and rest substantially flush with said flange, and upon substantially the same plane as the shoulder *f*. A packing gasket *p* is disposed between the lip of the bottle *n*, the shoulder *f*, flange *g'* and said flange of the siphon tube head *h*, the packing of these parts being accomplished through the pressure resulting from the action of the ring *o* upon the flange *a*. Thus it will be observed, the attachment of the head to the bottle serves merely to pack the neck of the bottle and the head of the siphon tube in the same manner as in the ordinary siphon bottle, the adjustment of the other parts having been effected through the mounting of the valve seat block *g* within its chamber *b*.

Mounted upon the valve stem or spindle *i* is the valve block, consisting of a metallic body *q* carrying on the contact surface thereof, a resilient pad *r*, preferably of pure rubber, which pad is adapted to enter and engage the walls of the countersunk valve seat *g²*. The upper surface of the valve block is curved upon a radius which will leave substantially uniform clearance between it and its seat when the valve port is open.

The flow of water, with the opening of the valve, is through the tube *h'*, and its head *h* to the port *g³* from which it passes through the duct in the block *g* to the nozzle *d*. It is one object of this invention to so construct the various parts as to reduce the impact surface in this channel to an extent to permit as much as possible, the unobstructed flow of the water, and avoid a tumbling of the waters in a manner to free or release any material percentage of the gases therein contained. With this end in view, I make the body portion *q* of the valve block, with a smooth, continuous surface of gradually diminishing diameter toward the lower apex thereof, this smooth surface being sub-

stantially parallel with the interior surface of the lower portion of the tube head *h*. This construction not only eliminates roughened surfaces and shoulders upon the metallic portion of the valve block, but secures substantial uniformity in the dimensions of the space between said block and the siphon tube head *h*.

To facilitate the attachment or detachment of the block to its stem, or its adjustment relative to its seat, I form small indentations upon opposite sides of said block adapted to be engaged by a special tool. It will thus be observed, that the waters delivered under pressure from the bottle, will flow in substantially equal volume about the portion *g* of the block, and will pass to the block within the valve seat without meeting any angles or projections which would tend to interrupt the continuous flow thereof, or cause such agitation or tumbling as would tend to free the gases contained in the water.

The manner of forming, assembling and mounting the block *g* and its appurtenances, facilitates the removal and mounting of a head upon a bottle, for the purposes of cleansing or repairs, without the necessity for readjusting any portion of the valve mechanism, and at the same time simplifies the labor of assembling the head. Furthermore, the attachment between the valve seat block and the head casting through the medium of the interior screw threads within the chamber *b*, permits a variable compression of the gasket *m* so that the packing of the valve stem spindle is under control and a definite relation of the block and the head casting is established so that the valve block may be adjusted upon its spindle and tested before the head is mounted upon a bottle. As heretofore stated, the sole function of the lower gasket *p* is to pack the siphon tube head and the lower rim of the valve block *g*, this function being the ordinary function of this gasket, as now ordinarily used.

The mode of operation of the head and the manner of mounting same is apparent from the foregoing description and will not be entered into further.

It is not my intention to limit the invention to the precise details of construction shown in the drawings, it being apparent that such details are largely a matter of design and may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new, and desire to have protected by Letters Patent, is:—

1. In a siphon head, the combination of an outer integral casting having therein a downwardly presented spring chamber opening into a downwardly presented valve seat block chamber, and a spout communi-

cating with said last named chamber, with a valve seat block adapted to be seated in said last named chamber, a valve spindle mounted in said spring chamber and passing through a vertical bore in said block, a valve block adjustably mounted upon said spindle, an enlarged head fixed upon said spindle, a spring acting between said valve seat block and said enlarged head to normally close said valve, an oscillatory lever handle pivoted in the wall of said spring chamber and acting upon said enlarged head for said spindle, means simultaneously packing the upper portion of said valve seat block and said spindle, coöperating means carried by said valve seat block and said head casting whereby said block may be detachably connected with said head casting to permit the assembling of said casting and said valve mechanism prior to its application to a bottle and said valve mechanism in its entirety may be adjusted toward and from said lever handle, and means packing the lower edge of said valve seat block.

2. In a siphon head, the combination of an outer integral casting having therein a downwardly presented spring chamber opening into a downwardly presented valve seat block chamber, said casting having a downwardly presented shoulder at the top of said valve seat block chamber, and a spout communicating with said last named chamber, with a valve seat block adapted to be seated in said last named chamber, a valve spindle mounted in said spring chamber and passing through a vertical bore in said block, a valve block adjustably mounted upon said spindle, an enlarged head fixed upon said spindle, a spring acting between said valve seat block and said enlarged head to normally close said valve, an oscillatory lever handle pivoted in the wall of said spring chamber and acting upon said enlarged head for said spindle, means simultaneously packing the upper portion of said valve seat block and said spindle, said valve seat block and said head casting being provided with coöperating screw threads whereby said block may be detachably connected with said head casting to permit the assembling of said casting and said valve mechanism prior to its application to a bottle and said valve mechanism in its entirety may be adjusted toward and from said lever handle, and means packing the lower edge of said valve seat block.

In witness whereof, I have hereunto affixed my signature, this 11th day of January, 1910, in the presence of two witnesses.

JOHN A. SCHULTZ, JR.

Witnesses:

OTTO MUNK,
P. V. WENING.