

J. A. SCHULTZ, JR.
SIPHON HEAD.
APPLICATION FILED JAN. 12, 1910.

1,059,912.

Patented Apr. 22, 1913.

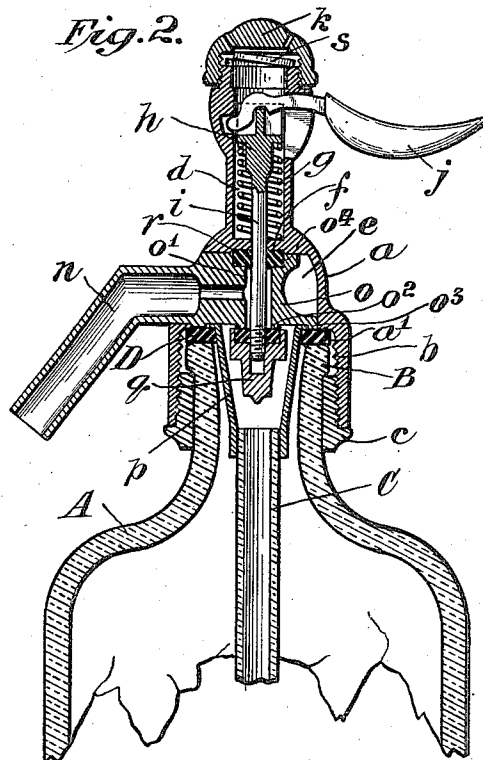
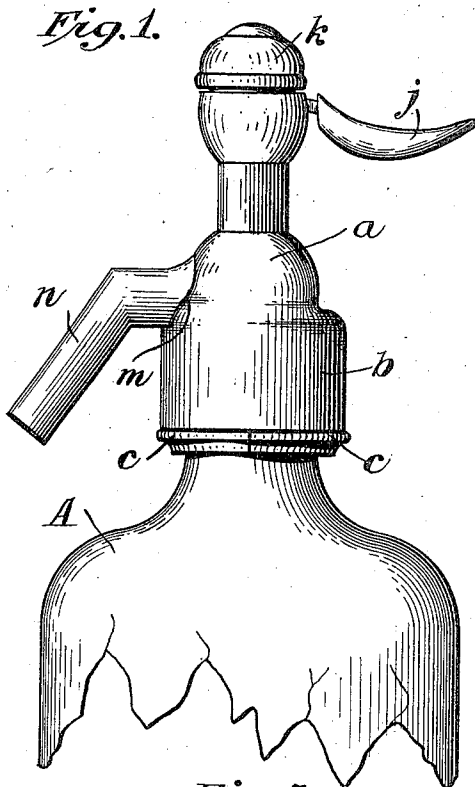


Fig. 3.

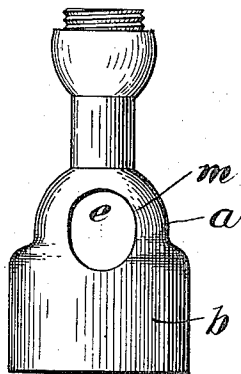
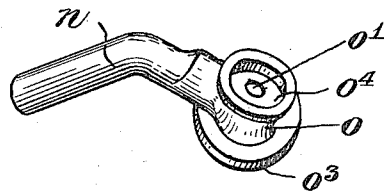


Fig. 4.



Attest:
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UNITED STATES PATENT OFFICE.

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SIPHON-HEAD.

1,059,912.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed January 12, 1910. Serial No. 537,787.

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 a type of siphon head adapted to be removably attached to a bottle.

The main object of the invention is to provide a siphon head, all parts of which forming the duct for the delivery of the charged water will be composed of a metal casting non-corrosive under the action of the acids in the water, the remaining portions of the head being composed of a cheap metal composed of an alloy having no commercial value as old metal.

A further object is to provide a siphon head wherein the casing forming the valve stem chamber and the securing flange, will be composed of one casting, and the valve seat block and spout will be composed of another casting adapted to be removably seated within said first mentioned casting, said last named casting being so packed relative to said casing and having the duct so formed in the body thereof as to confine the flow of the water to the duct in said casting and prevent the contact of the charged waters with any portion of said casing.

A still further object is to provide a sectional siphon head wherein the spout will be detachable from the head, to facilitate the finishing of the different parts, the construction being such as to avoid any necessity for packing said spout relative to said casing.

A still further object is to provide a siphon head embodying therein a head casing, and a valve seat block and spout casting, separable from and removably mounted within, said casing, wherein said casting will be so formed as to support a packing gasket in a manner to cause the attachment of the head to pack the valve stem.

A still further object is to provide a siphon head embodying an outer casing, and a separable valve seat block and spout, a casting mounted loosely therein, the parts

of which will be so constructed and arranged as to cause the attachment of the outer casing to the neck of the bottle to firmly seat said casting within said casing and thus avoid the necessity for providing separate means of attachment to unite the said parts in an operative structure.

A still further object is to provide a siphon head having a spring chamber open at the top, and a closure cap therefor, which parts are composed of soft metal, with means whereby the closure cap will be held in position against the pressures thereon incidental to the polishing and cleaning of the head. And a still further object is to provide a siphon head of this character which will be compact of structure and neat in appearance, and which may be inexpensively produced.

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 elevation of a siphon head embodying my invention, showing it attached to an ordinary siphon bottle; Fig. 2 is a vertical section thereof; Fig. 3 is a front view of the head casing, and Fig. 4 is a perspective view of the valve seat and spout casing.

Like letters refer to like parts throughout the several views.

In the embodiment of my invention shown in the drawings, I have shown at A the upper portion of an ordinary siphon bottle through the means of the lip B of which, a metallic siphon head is secured thereto.

At C I have shown the upper portion of an ordinary siphon tube, supported from the neck, and projecting to a point adjacent to the bottom of, said bottle.

As now commonly made, the entire head casting is composed of non-corrosive metal, an alloy rich in tin, in order to comply with the various laws and ordinances conserving the health of the community. The head casing ordinarily weighs several ounces and has sufficient value as old metal to lead to large losses from theft, which is variously estimated from 20 to 40% of the heads made during each year. This loss is due entirely to the fact that the heads may be readily melted down and contain enough metal hav-

ing a high market value to justify such melting down of the head, and the payment of a fair price per head. To obviate this difficulty, various expedients have been adopted, to incorporate in a siphon head a sufficient volume of a base metal, having no commercial value as old metal, (such as an alloy rich in zinc or lead) at a cost which would permit competition with the old style of single block tin casting. Such heads, it is obvious, would require more work than the old style, and the saving due to the use of the baser metal must equalize or exceed the cost of the additional work in manufacturing the composite head. Hence it is a desideratum to produce a head which may be assembled without machine work in preparing for assembling, or a nice adjustment of parts in assembling.

In carrying out the objects of the invention, I provide a head casing *a* having an interiorly screw threaded flange *b* by means of which and the split ring *c*, the head is secured to the bottle *A*. The interior of the casing *a* is formed into a valve spring chamber *d* and a valve seat block chamber *e*, said chambers preferably being separated by a partition *f* having an opening extending therethrough for the valve stem. Seated within the chamber *d* is the valve spring *g* which acts upon the enlarged head *h* of the valve stem *i*, and the partition *f*, said stem being under control of the lever handle *j* of ordinary and well known construction. The chamber *d* is closed by means of a screw cap *k*. The general arrangement of parts heretofore described excepting the manner of forming the chamber *e* are old and well known in this art and no claim of invention is made to these parts *per se*.

All of the parts heretofore described, however, I make of a lead or tin alloy having no value as old metal, and as these parts constitute the greater part of the metal entering into the head, it will be seen that the head can have but little value as old metal.

In the side wall of the casing *a* communicating with the chamber *e* is an opening of any desired configuration. This opening is for the purpose of permitting the projection of the discharge spout *n* from the inside of the casing in assembling. The discharge spout *n* forms a portion of the duct through which the charged water must flow and hence must be of block tin or other non-corrosive material. The duct in this spout is in communication with a duct *o'* passing vertically through the valve seat block *o*, which duct is in alinement with the axis of the chamber *d* so as to form a way for the valve stem *i*. The duct extends vertically through the block *o* to form this way, and is in communication with the spout *n* through the passage way extending centrally of said duct to said spout.

To avoid the necessity for packing the spout *n* relative to the casing *a*, and minimize the likelihood of leakage about said spout, I preferably make the spout *n* and block *o* of one integral casting the block *o* being seated within the chamber *e* and the spout *n* projecting through the opening *m*. By this construction the packing for the valve seat block *o* will also pack the spout *n* and furthermore, the means holding the block *o* in position within the chamber *e* will give to the spout *n* the desired rigidity, the assembled structure as shown in Fig. 1 having all the appearances of a single head casting. This construction also has the advantage of giving the casting *a* an exterior surface free from obstructions, thus permitting it to be readily polished and buffed.

The lower face of the block *o* adjacent to the valve seat *o*², is channeled out to leave a pendant flange *o*³, the space between which and said valve seat, forms a seat for the metal head *p* of the siphon tube *C*, there being a metal to metal packing between said valve block and said head. Mounted upon the lower end of the valve stem *i* is the ordinary valve block *q*. While I have shown a flange valve seat, it is to be understood that the nature of the valve block and valve seat is immaterial, any desired form of such being capable of use without departing from the spirit and scope of the invention.

Seated between the neck of the bottle and the bottom of the valve block *o* and covering the seam between said block and the casing *a*, is a gasket *D*, said gasket engaging a shoulder *a'* within the head *a* which is substantially flush with the flange *o*³, which construction results in the sealing of all parts of the head above the gasket *D* by the compression exerted upon said gasket by said head as it is attached to the bottle by means of the split ring *c*, leaving the sole channel of escape for the fluid, the duct *o* and spout *n*.

The duct *o'* being open at the top for the passage of the valve stem *i*, it is necessary to provide a packing about said stem that will prevent the escape of the charged waters into the spring chamber *d*. This packing preferably consists of a gasket *r* seated within a recess *o*⁴ formed in the top of the block *o*, and projecting normally slightly above said block, so confining said gasket as to cause its expansion under pressure as the head is united to the bottle, to be toward the valve stem, which is the only point requiring packing at this point. The partition *f* is provided primarily for the purpose of exerting upon said gasket the desired pressure as well as to secure a firm seating of the block *o* within the chamber *e*. This construction not only insures a perfect packing of the valve by a single gasket, but facili-

tates the assembling of the device and the proper positioning of said gasket relative to the block *o* and the stem *i*.

Each time a siphon is filled, it is customary to rebuff it, in order to eliminate the indications of use thereon. In this buffing operation when the screw cap closing the chamber *d* is used the buffing wheel tends to unscrew this cap and thus make the process more or less troublesome because of the nature of the screw threads connecting these parts, a taper thread being universally used. To obviate this difficulty, I insert between the cap *k* and the casing forming the chamber *d*, a lock washer *s*, the opposite ends of which readily project into the metal of the cap *k* and said casing, and prevent the free turning movement of said cap.

While in the accompanying drawings I have shown the invention as applied to an ordinary type of siphon head, it is not my intention to limit myself to this particular type, the invention being capable of adaptation to various styles of head by a mere change in the configuration of parts. The operation of the siphon is apparent from the foregoing description, the invention relating more particularly to the structure by which the amount of block tin in a head is minimized without such complications as would render the manufacturing cost of same prohibitive.

In assembling, the spout *n* is inserted through the flange *b* and the opening *m* in the side wall of the chamber *e*, the block *o* being thus introduced into said chamber. The gasket *r* before the introduction of the block *o*, is first seated within its recess *o*⁴ so that the said gasket will be properly positioned by the mere insertion of said block. The valve stem mechanism is then inserted, and the valve block seated and tested in the usual manner. When the parts are assembled, the valve seat block *o*, spout *n* and casing *a d* constitute practically an integral structure, the valve block holding these parts in the assembled position. The tube *C* is then inserted through the gasket *D* and suspended from the neck of the bottle. The head is then secured in place by means of the split ring *e*, the pressure exerted by said ring compressing all of the gaskets and expanding them so as to thoroughly pack the entire upper part of the head relative to the bottle and the tube. The head may be readily taken apart by a reversal of these operations.

The mere positioning of the block *o* in the manner above described, firmly seats the block and its spout within the casing *a*, and as the said spout conforms with reasonable nicety with the dimensions of the opening *m*, the appearance of a single casting head is preserved in the finished prod-

uct. The siphon head manufactured in the manner indicated requiring no screw connections between the various parts, wear cannot occur thereon from repeated use, and none of those niceties of adjustment incidental to the use of screw threads uniting the parts is required. This matter is one of considerable importance in this art as accurate screw threaded connections not only add to the cost of production, but are extremely difficult to secure in soft metal.

It is not my intention to limit the invention to the precise details of construction shown in the drawings. I believe it to be new to provide in combination with a casing of a metal having no commercial value as old metal, a valve block of pure tin separably mounted therein, which block carries the discharge spout in a manner to avoid the necessity for packing between said block and said spout, and I intend to claim such broadly.

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

1. A siphon head comprising an exterior hollow casing of low grade metal having an opening through the side thereof and a downwardly presented shoulder below said opening and extending circumferentially about said casing, a valve seat block of non-corrosive metal adapted to be loosely mounted within said casing, a spout, also of non-corrosive metal integrally connected with said block, said spout and said block having a continuous duct passing therethrough and opening downwardly of said block, a valve seat formed about the opening in said block, a pendant circumferential flange adapted to be substantially flush with said shoulder in said exterior casing, a valve block coöperating with said valve seat, a valve spindle carrying said valve block and passing upwardly through an opening in said valve seat block, a spring acting to normally seat said valve block, a packing mounted upon the top of said valve seat block and packing the said spindle about said opening, and means whereby said outer casing may be connected with a bottle.

2. A siphon head comprising an exterior casing of low grade metal having a transverse partition therein forming a spring chamber upon one side thereof and a valve seat block chamber upon the other side thereof, said casing having an opening in the wall of said valve seat block chamber, and a downwardly presented shoulder below said opening and extending circumferentially about said casing, a valve seat block of non-corrosive metal adapted to be loosely mounted within said casing, a spout, also of non-corrosive metal, integrally connected with said block, said spout and said block having a continuous duct passing there-

through and opening downwardly of said block, a valve seat formed about the opening in said block, a pendant circumferential flange adapted to be substantially flush with said shoulder in said exterior casing, a valve block cooperating with said valve seat, a valve spindle carrying said valve block and passing upwardly through an opening in said valve seat block, a spring acting to normally seat said valve block, a packing mounted upon the top of said valve seat block and adapted to be compressed against said partition to pack said spindle adjacent said opening, and means whereby said outer casing may be connected with a bottle.

3. A siphon head comprising an exterior casing of low grade metal having a transverse partition therein forming a spring chamber upon one side thereof and a valve seat block chamber upon the other side thereof, said casing having an opening in the wall of said valve seat block chamber, and a downwardly presented shoulder about said casing below said opening, extending circumferentially about said casing, a valve seat block of non-corrosive metal adapted to be loosely mounted within said casing, a

spout, also of non-corrosive metal, integrally connected with said block, said spout and said block having a continuous duct passing therethrough and opening downwardly of said block, a valve seat formed about the opening in said block, a pendant circumferential flange adapted to be substantially flush with said shoulder in said exterior casing, a valve block cooperating with said valve seat, a valve spindle carrying said valve block and passing upwardly through an opening in said valve seat block, a spring acting to normally seat said valve block, said valve seat block having a recess in the top thereof adjacent to said spindle and forming a rim about the top outer edge of said block, a packing seated within said recess whereby said rim will limit the expansion of said packing to a direction toward said spindle, and means whereby said outer casing may be connected with a bottle.

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.