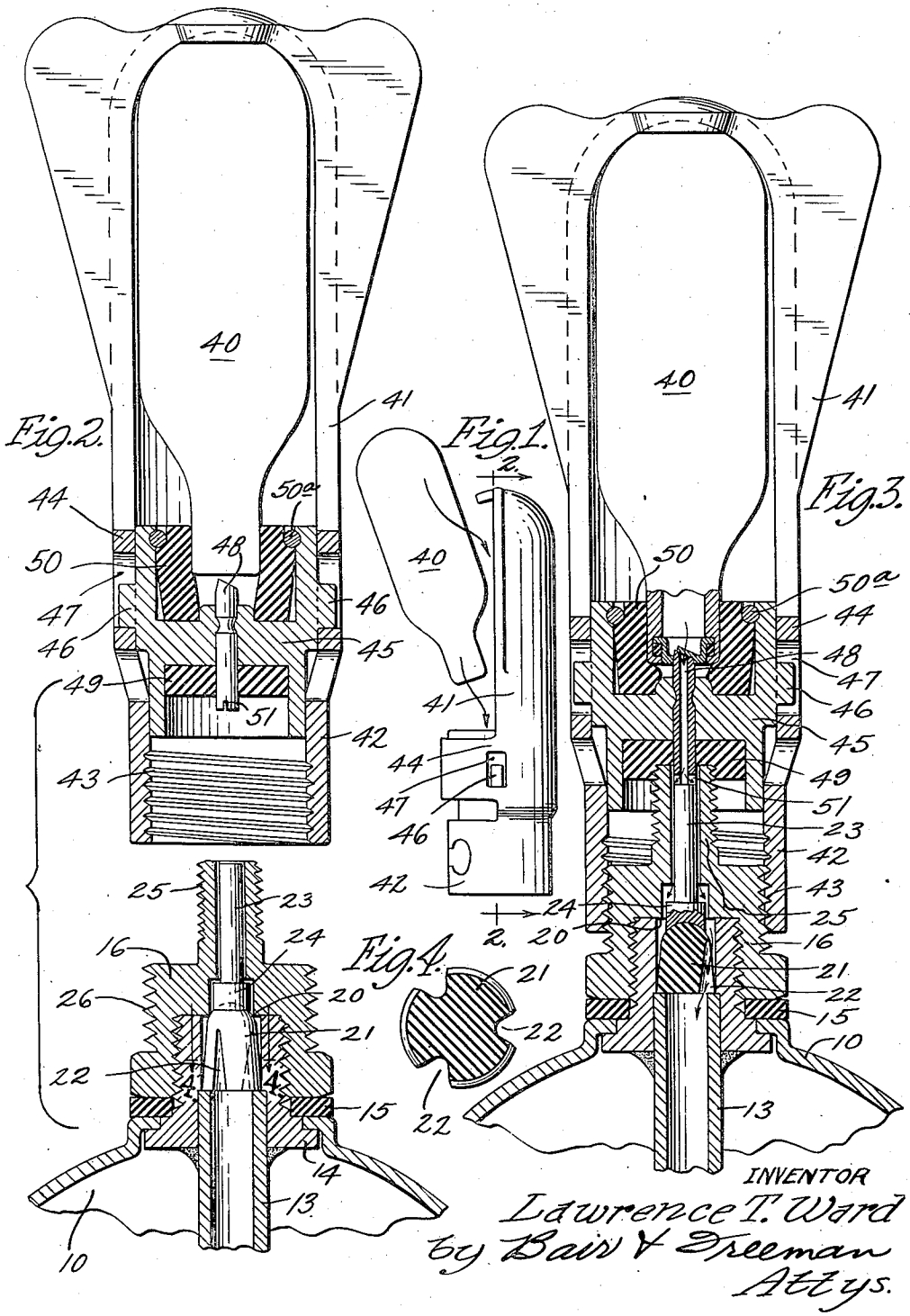
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CHARGING MECHANISM FOR AERATORS AND THE LIKE

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CHARGING MECHANISM FOR AERATORS AND THE LIKE

Lawrence T. Ward, Philadelphia, Pa., assignor to Knapp-Monarch Company, St. Louis, Mo., a corporation of Missouri

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10 Claims. (Cl. 225—18)

My present invention relates to a charging mechanism for aerators and the like for charging them with compressed gas or the like, the present invention being a division of my copending application Serial No. 348,240, filed July 29, 1940, which has issued as Patent No. 2,305,286 of Dec. 15, 1942.

One object of the invention is to provide a charging mechanism of simple, durable and inexpensive construction which may be connected by screw-threaded means to an aerator or the like, where such aerator includes a normally closed check valve which is opened by the charging mechanism as it is connected to the aerator.

Another object is to provide a charging mechanism formed of a bulb holder having a piercing pin carried thereby and operable on one end to open the check valve in the top of the aerator and on its other end to pierce the bulb for permitting entry of gas from the bulb into the aerator, the bulb holder being screw-threaded on the aerator so that, initially, the valve in the aerator is opened, and, thereafter, the bulb is pierced.

A further object is to provide a charging mechanism having a floating portion carrying a combined piercing pin and check valve opening pin to effect the operation just described.

Although my charging mechanism is susceptible of a variety of embodiments it is unnecessary to fully describe and illustrate more than one such embodiment in order to give a full understanding of the invention, both from its structural and functional standpoints. Accordingly, on the accompanying drawing I have illustrated a preferred and desirable embodiment of the invention, said drawing forming a part of this specification, and throughout the views of which like reference characters refer to similar parts.

On the drawing:

Figure 1 is a side elevation of a gas bulb holder embodying my invention, showing a gas bulb being inserted therein;

Figure 2 is an enlarged sectional view on the line 2—2 of Figure 1, showing the bulb holder separated from the aerator;

Figure 3 is a sectional view showing the bulb holder associated with the aerator, and the compressed gas being transferred from the bulb to the aerator; and

Figure 4 is an enlarged sectional view on the line 4—4 of Figure 2 showing a dispenser valve plug.

On the accompanying drawing I have used the reference numeral 10 to indicate a container of an aerator or the like, as shown in my parent application. The container 10 has the usual syphon tube 13 projecting into it, the tube being welded or brazed into a bushing 14 at its upper end, which bushing is positioned against a gasket 15 by a fitting 16 threaded onto the bushing. The gasket is thereby compressed between the top of the container 10 and the fitting 16 to seal the container against leakage at this point.

The fitting 16 has a valve seat 20 for a dispensing valve plug 21. The valve plug 21 is formed of rubber or the like, with a hemispherical upper end. The valve plug 21 rests on a shoulder formed by the upper end of the syphon tube 13 and is provided with a plurality of grooves 22 (see Figure 4) to permit passage of gas into or from the syphon tube. An actuating pin 23 is loosely mounted in the fitting 16 for sliding movement, and has a head 24 on its lower end provided with a concave seat resting against the valve plug 21. Ordinarily, a dispensing head (not shown in this application but disclosed in the parent application) is mounted on a threaded upper end 25 of the fitting 16. When it is desirable to charge the container 10 with compressed gas, however, such dispensing head is removed, and my charging mechanism, which will now be described, is associated with the fitting 16.

My charging mechanism comprises a holder 41 for a compressed gas bulb 40, the bulb being insertable into the holder, as illustrated in Figure 1. The holder 41 has a sleeve portion 42 provided with threads 43 adapted to be screwed onto a threaded part 26 of the fitting 16.

The holder 41 also has a sleeve portion 44 in which is slidably and non-rotatably supported a floating piercing pin support 45. The support 45 has a pair of fingers 46 slidable in slots 47 of the holder to provide further slidable and non-rotatable mounting of the piercing pin support relative to the bulb holder.

A bulb piercing pin 48 is carried by the support 45, and the support has a pair of gasket members 49 and 50 carried thereby. The gasket member 49 is adapted to contact with the upper end of the fitting 16, as shown in Figure 3, to effect a seal at this point, while the gasket 50 is adapted to effect a seal between the support 45 and the neck of the bulb 40. The lower end of the piercing pin 48 is slotted, as at 51, to permit passage of gas from the bore of the piercing pin into the fitting 16 when the piercing pin is serving to open the valve 21, as in Figure 3, by engaging the actuator pin 23.

Practical operation

When it is desirable to charge the container **10** with compressed gas, the aerator is filled with the proper amount of material to be aerated, such as cream, and the bulb **40** is placed in the holder **41**, as shown in Figure 1. Thereafter, the holder is positioned over the fitting **16**, as in Figure 2, and screwed into position on the fitting, as in Figure 3. After the gasket **49** effects a seal with the upper end of the fitting **16**, the piercing pin **48** will actuate the pin **23** to cause it to open the valve **21**, following which the valve **21** will offer sufficient resistance to the actuating pin to cause the support **45** to move upwardly relative to the holder **41**, and effect piercing of the discharge end of the bulb **40** by the piercing pin. The gas from the bulb thereupon enters the syphon **13** through grooves **22** of the dispensing valve **21**, as shown by arrows in Figure 3. The introduced gas will issue as bubbles from the lower end of the syphon tube **13** and pass upwardly through the cream. The aerator is vigorously shaken while the gas is being introduced so as to facilitate absorption of the gas by the cream.

After charging the aerator, the holder **41** may be unscrewed, and, in so doing, the actuating pin **23** is released so that the inherent resiliency of the dispensing valve **21** causes its expansion back to the original position of Figure 2, seated against the seat **20**. Thereafter, the dispensing head may be placed on the threaded part **25** of the fitting **16** and the contents of the aerator dispensed by the valve lever of the dispensing head coacting with the pin **23** to depress it and compress the valve **21** to permit controlled flow of the aerated material from the aerator.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope without sacrificing any of the advantages thereof.

I claim as my invention:

1. In an aerator, a container having a fitting at its upper end, a syphon tube depending from said fitting, said fitting having a valve seat, a rubber valve interposed between the upper end of said syphon tube and said valve seat, an actuating pin in said fitting, a compressed gas bulb holder adapted to be threaded on said fitting, a piercing pin support slidably and non-rotatably mounted in said holder, and a piercing pin carried by said support and adapted to contact with said actuating pin as said bulb holder is screwed into position and to pierce the bulb held thereby.

2. In an aerator, a container having a fitting at its upper end, a syphon tube depending from said fitting, said fitting having a valve seat, a valve for seating on said valve seat, an actuating pin for said valve in said fitting, a compressed gas bulb holder adapted to be connected with said fitting, a piercing pin support slidably mounted in said holder, a piercing pin carried thereby and adapted at one end to contact with said actuating pin as said bulb holder is mounted in position and at its other end to pierce the bulb held thereby.

3. An aerator comprising a container, a compressed gas bulb holder adapted to be mounted on said container, a piercing pin support movably mounted in said holder, gaskets carried on opposite sides thereof, one for contact with the bulb and the other for contact with the container, and a piercing pin carried by said support and adapted to provide communication between said bulb and said container when said bulb holder is mounted in position on said container and to pierce the bulb held by the bulb holder after said gaskets have made their contacts.

4. In in aerator, a container having a fitting at its upper end, a syphon tube depending from said fitting, said fitting having a valve seat, a rubber valve interposed between the upper end of said syphon tube and said valve seat, an actuating pin slidable in said fitting, a compressed gas bulb holder adapted to be threaded on said fitting, a piercing pin support slidably and non-rotatably mounted in said bulb holder, a piercing pin carried by said support and adapted to contact with said actuating pin as said holder is screwed into position, and to pierce the bulb held thereby, gaskets mounted on opposite sides of said support, one of said gaskets being adapted for sealing contact with the fitting on said container and the other for sealing contact with the neck of a bulb in said bulb holder.

5. A device of the class described comprising a container having a syphon tube depending thereinto, a valve in said syphon tube, a compressed gas bulb holder adapted to be mounted on said container, a piercing pin support movably mounted in said holder, a piercing pin carried by said support and adapted at one end to open said valve when said bulb holder is mounted in position and at its other end to pierce the bulb held thereby, gaskets mounted on opposite sides of said support, one of said gaskets being adapted for sealing contact with the syphon tube and the other for sealing contact with a bulb in said bulb holder.

6. An aerator comprising a container having a fitting thereon, a syphon tube depending from said fitting, a valve in said syphon tube, a compressed gas bulb holder adapted to be mounted on said fitting, a piercing pin support movably mounted in said holder, a piercing pin carried by said support and adapted to open said valve and thereafter pierce the bulb held by said bulb holder as the bulb holder is mounted in position, gaskets mounted on opposite sides of said support, one of said gaskets being adapted for sealing relation with said container and the other for sealing relation with a bulb in said bulb holder.

7. In a device of the class described, a container having a fitting thereon, a syphon tube depending from said fitting, a compressed gas bulb holder adapted to be threaded on said fitting, a piercing pin support slidably and non-rotatably mounted in said holder, a piercing pin carried by said support and adapted to pierce the bulb held by said holder, and gaskets mounted on opposite sides of said support, one of said gaskets being adapted for sealing contact with said container and the other for sealing contact with a bulb in said bulb holder.

8. In a device of the class described, a fitting adapted to receive gas from a compressed gas bulb, a holder for the bulb adapted to be threaded on said fitting, a piercing pin support slidably mounted in said holder, a piercing pin carried by said support and adapted to pierce the bulb held by said holder, and gaskets mounted on opposite sides of said support, one of said gaskets being adapted for sealing contact with said fitting and the other for sealing contact with a bulb in said bulb holder.

9. A device of the kind disclosed comprising a

fitting, a valve therein, a compressed gas bulb holder adapted to be mounted on said fitting, a piercing pin support movably mounted in said holder, a piercing pin carried by said support and adapted to engage said valve and thereby open it and to thereafter pierce the bulb held by said bulb holder as the bulb holder is mounted in position, and gaskets mounted on opposite sides of said support, one of said gaskets being adapted for sealing relation with said fitting and the other for sealing relation with a bulb in said bulb holder.

10. A device of the class described comprising a container having an opening, a resilient valve plug for said opening, a compressed gas bulb holder adapted to be mounted on said container, a piercing pin support movably mounted in said holder, and a piercing pin carried by said support and adapted at one end to compress said valve plug and thereby space it from said opening when said bulb holder is mounted in position and at its other end to pierce the bulb held thereby.

LAWRENCE T. WARD.