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F. H. HAMPTON

FOLDING AND SIPHONING FUNNEL

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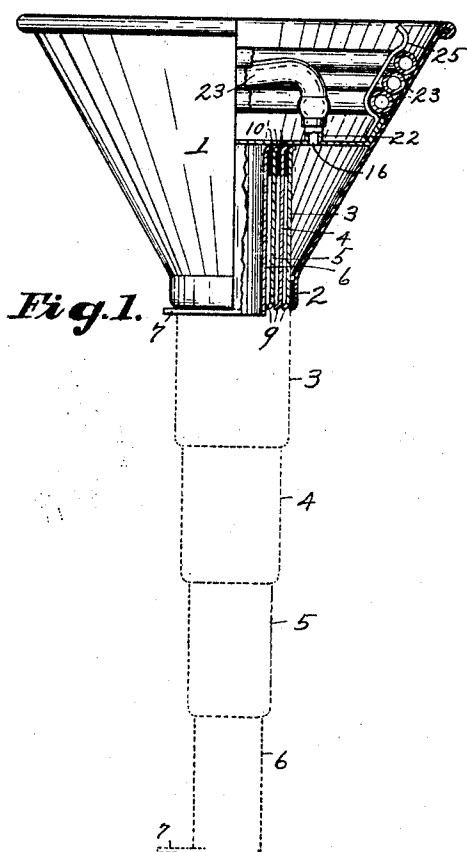


Fig. 1.

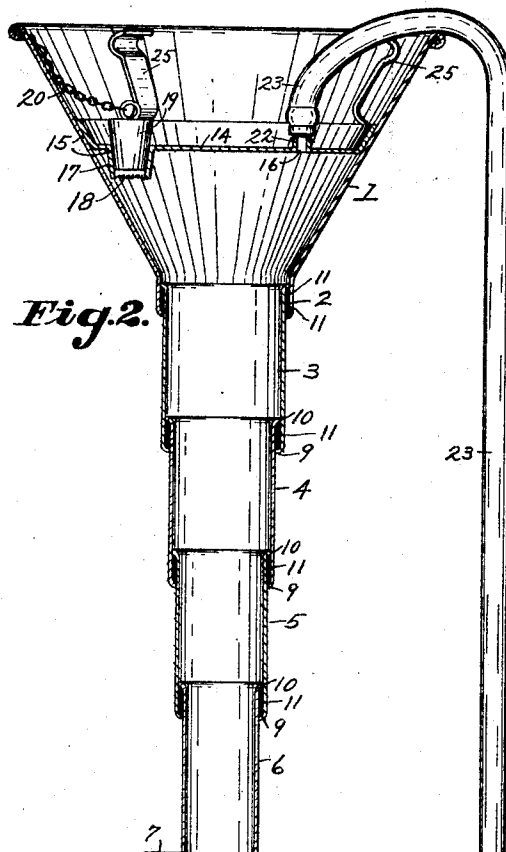


Fig. 2.

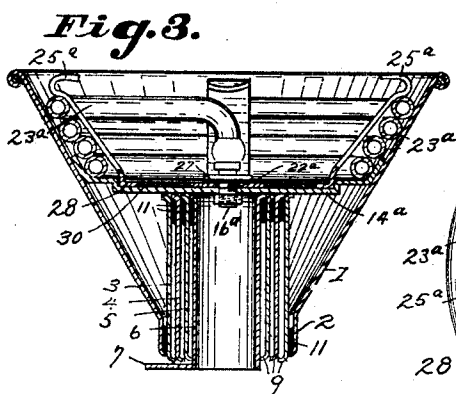


Fig. 3.

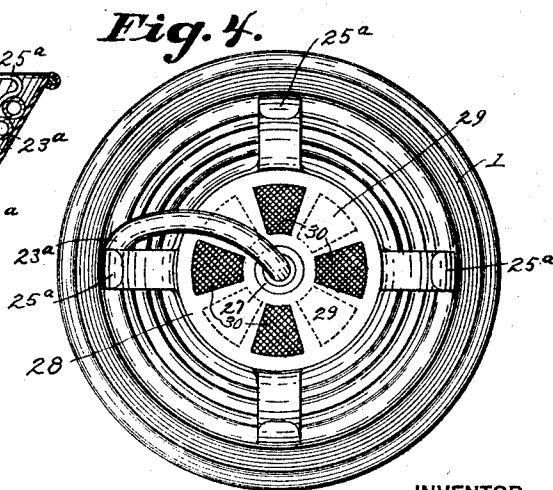


Fig. 4.

INVENTOR

Francis H. Hampton

BY

Erwin Wheeler & Woodward
ATTORNEYS

UNITED STATES PATENT OFFICE.

FRANCIS H. HAMPTON, OF SALT LAKE CITY, UTAH.

FOLDING AND SIPHONING FUNNEL.

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My invention relates to improvements in folding and siphoning funnels.

The primary object of my invention is to provide a funnel which may be conveniently boxed, packaged or stored for transportation in a motor driven vehicle and utilized in an extended form to facilitate filling gasoline tanks or oil reservoirs, or to facilitate the removal of gasoline or oil from such tanks or reservoirs either by a pumping or siphoning action.

While my primary purpose is to provide a funnel which is peculiarly adapted to the requirements for motor driven vehicles, my improved funnel is also adapted for a wide range of purposes, including practically every purpose for which either a funnel or siphon of similar capacity may be employed.

Specific objects of this invention are to provide a funnel having a valved hopper or receiving bowl with an extensible spout composed of telescoping sections adapted to be received one within the other and nested within the lower portion of the bowl, whereby the entire funnel may be supported within a space no larger than that required for the storage of the hopper or bowl; also, to provide a funnel having an extensible spout with means for maintaining the sections or members of said spout in air or liquid-tight relation to each other while being extended, so that, by closing one end of the spout and extending the same, the funnel may be used as a pump; also, to provide such a funnel with a suction duct, preferably a flexible duct, whereby the same may be employed to withdraw liquid from a reservoir either by a pumping or by a siphoning action; also, to provide means whereby a flexible suction duct may be connected to the funnel within the bowl or hopper and folded and retained within such bowl when not in use.

In the drawings:

Figure 1 is an elevation, partly in vertical section, showing my improved funnel as it appears when folded for storage purposes.

Figure 2 is a view of the same, partly in elevation and partly in vertical section, as it appears when extended for use as a siphon.

Figure 3 is a detailed sectional view of the bowl or hopper portion, showing a modified form of construction.

Figure 4 is a plan view of the structure illustrated in Figure 3.

Like parts are identified by the same reference characters throughout the several views.

A receiving bowl or hopper 1 tapers downwardly and is provided with a short cylindrical extension 2 at the lower end thereof, to which is slidingly fitted an extensible cylindrical spout section 3. Additional spout sections or members 4, 5 and 6 are successively of sufficiently reduced diameter to telescope within the preceding section, whereby all of the sections may be nested, each within the one preceding it, and received within the lower portion of the bowl 1 and its cylindrical portion 2. The lower section 6 is preferably formed with a projecting lip 7 which may serve as a handle to facilitate the extension of the sections.

Each of the sections preferably has its lower end margin 9 contracted or inturned against the wall of the section below it and its upper margin 10 correspondingly expanded or turned outwardly against the inner surface of the preceding section. Packing rings 11 may also be employed between the inturned margins 9 of one section and the outwardly turned margins 10 of the next section, thereby ensuring an air-tight joint not only when the sections are extended, but also while they are being adjusted from the contracted to the extended position.

In Figures 1 and 2, the bowl is shown as provided with a transverse or horizontal partition 14, suitably ported at 15 and 16. The marginal wall of the port 15 is downwardly turned to form a tubular boss 17, preferably provided with a screen or strainer 18 at its lower end. A valve 19, which may consist of an ordinary cork, is adapted to close this port and is preferably connected with the wall of the bowl by a flexible connection or chain 20. The portion of the partition occupied by the port 16 is provided with an upwardly projecting nipple 22, which receives a flexible hose 23, the nipple preferably having a bulbous enlargement to provide secure anchorage for the hose. The partition 14 is provided with suitable brackets 25, preferably of resilient material, and which are extended upwardly along the side wall of the bowl in spaced relation thereto and in a position to receive and retain the hose in a coiled position within the upper part of the bowl as illustrated in Figure 1.

Referring to Figures 3 and 4, it may be assumed that the structure is the same as that shown in Figures 1 and 2 except as to the portions now to be described.

A partition 14^a, corresponding with the

partition 14 in Figures 1 and 2, subdivides the bowl into upper and lower portions substantially as in Figure 1, but with the nipple located substantially at the center, this nipple corresponding to the nipple 22 in Figures 1 and 2 and receiving the hose 23^a. The nipple, of course, affords communication with the space below the partition through a port 16^a. The nipple is preferably screwed into the port and provided with an annular shoulder 27 adapted to engage and hold a valve disk 28 in a position for rotation upon the upper surface of the partition 14^a. The partition is provided with ports 29 and the valve disk is provided with corresponding ports 30 which may be brought into and out of registry with the ports 29 by rotation of the valve disk. The ports 30 in the valve disk are preferably screened as illustrated in Figure 3 and the disk is provided with upwardly projecting brackets 25^a which not only perform the function of the brackets 25 in holding the hose as illustrated in Figure 1, but also perform the additional function of handles, whereby the valve disk may be rotated to open or close the ports 29. With the form of construction illustrated in Figures 3 and 4, the nipple 22^a may be unscrewed and the valve disk removed and cleaned. When removed, the brackets 25^a and the hose 23 will, of course, also be removed, leaving the upper part of the funnel bowl free of obstructions, whereby it may easily be cleaned. The port below the partition may be kept clean and free of dust by inserting a cork in the lower end of spout section 6 and keeping the partition valve closed when the funnel is not in use.

When the funnel is to be used as a funnel, the spout sections are extended and the partition valve opened and thereupon the liquid may be poured into the funnel and allowed to pass through the port 18 (Figures 1 and 2), or the ports 29 (Figures 3 and 4). If the device is to be used for pumping or siphoning purposes, the valve 19 (or 28) will be closed and the spout sections telescoped or collapsed to substantially the storage position as indicated by dotted lines in Figure 2. Thereupon, the hose 23 may be inserted in the liquid to be pumped or siphoned and by placing the finger of the user over the open end of section 6 and extending the sections, a sufficient vacuum will be created within the spout and the portion of the bowl below the partition to draw the liquid through the hose 23 into the enlarged cavity thus formed. If the lower end of section 6 is below the level of the liquid into which the hose is inserted, the device may then be operated as a siphon. If it is not convenient to adjust the lower end of section 6 below the level of the liquid which receives the hose, a quantity of the liquid may, nevertheless, be drawn into the funnel and this liquid may be delivered at

any desired point to which the funnel may be transported. Thereupon, the hose may again be coiled within the upper portion of the funnel bowl and the spout sections telescoped within the lower portion of the bowl as indicated by dotted lines in Figures 2 and 3, thus adjusting the funnel for storage purposes.

In a companion application, Serial No. 108,108, filed May 10, 1926, I have shown, described and claimed a funnel having nesting spout sections and a valved partition to which a flexible tube is connected and normally coiled within the funnel bowl above the partition, but in that application the spout sections are tapered and are not air tight. During extension the funnel and the flexible tube may be employed for siphoning purposes if liquid is available to be poured through the funnel for starting the siphon, but the claims of that application were and are limited to the funnel bowl with valved partition or hose and hose retaining means, no claim being made to any siphon starting feature. Since the filing of this application, a patent has been granted upon said companion application dated February 22, 1927, and numbered 1,618,531. The claims of this application are, therefore, limited to a funnel structure which is adapted to be employed as a siphon starter without the aid of liquid from another source of supply.

I claim:

1. A funnel having a receiving portion and an extensible spout portion having walls movable upon each other in air tight relation during extension of the spout portion, a valve controlling the flow of liquid through the two portions, and a flexible suction duct communicating with the space enclosed by the extensible spout portion at the outlet side of the valve, whereby when the valve is closed the outlet end of the spout portion may also be closed by the finger of the operator and the spout portion extended to develop suction in said duct.

2. A funnel having a receiving portion and an outlet portion provided with a discharge port, a valve controlling delivery from the receiving portion to the outlet portion, and a suction duct communicating with the outlet portion independently of the valve and receiving portion, said outlet portion being capable of expansion and adapted when expanded with the discharge port closed to draw fluid through said suction duct.

3. A funnel having a receiving bowl subdivided into upper and lower portions by a transverse partition having an aperture through which liquid may pass when poured into the upper portion of the bowl, a set of telescoping spout members adapted to be nested within the lower portion of the bowl or extended therefrom in a lineal series of

reduced extensions, said spout members being in air tight relation to each other in all positions of adjustment, a hose in communication with the space below said partition, and means for closing said partition aperture preparatory to the use of the hose.

4. A funnel having a bowl provided with a transverse centrally apertured partition, a flexible hose provided with a nipple threaded into said central aperture, said partition having another aperture lateral thereto, and a rotary disk valve provided with a port adapted for registry with said lateral aperture and normally held in place by said nipple.

5. A funnel having a bowl provided with a transverse centrally apertured partition, a flexible hose provided with a nipple threaded into said central aperture, said

partition having another aperture lateral thereto, and a rotary disk valve provided with a port adapted for registry with said lateral aperture and normally held in place by said nipple, said rotary valve being provided with brackets adapted to normally retain the hose in a coiled position within the funnel.

6. In a funnel having receiving and outlet portions and an intermediate valved partition, the combination with the outlet portion of a flexible suction duct and vacuum producing means.

7. A valved funnel provided with a flexible suction duct and having an expandible outlet portion adapted to have its end closed to develop a vacuum in the suction duct.

FRANCIS H. HAMPTON.