July 14, 1925. 1,546,265

W. H. SYMONS

SIPHON

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Fig. 3.

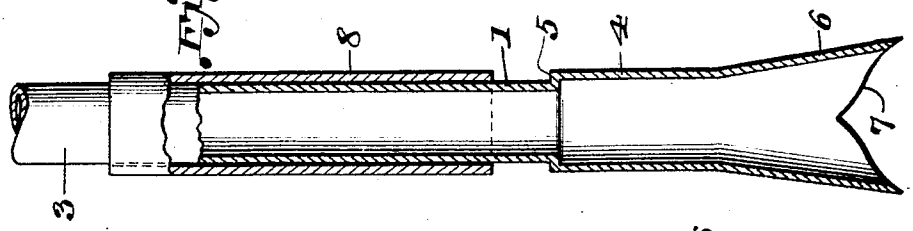



Fig. 4.

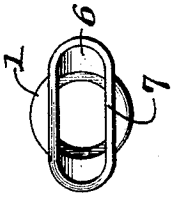



Fig. 1.

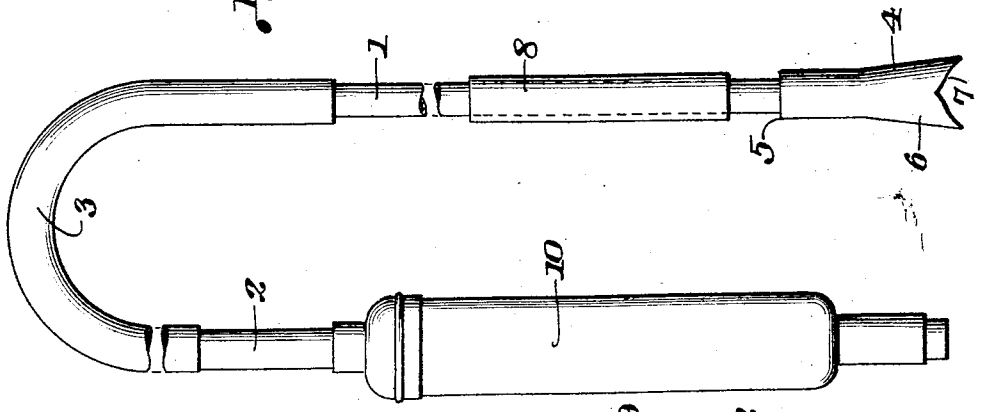
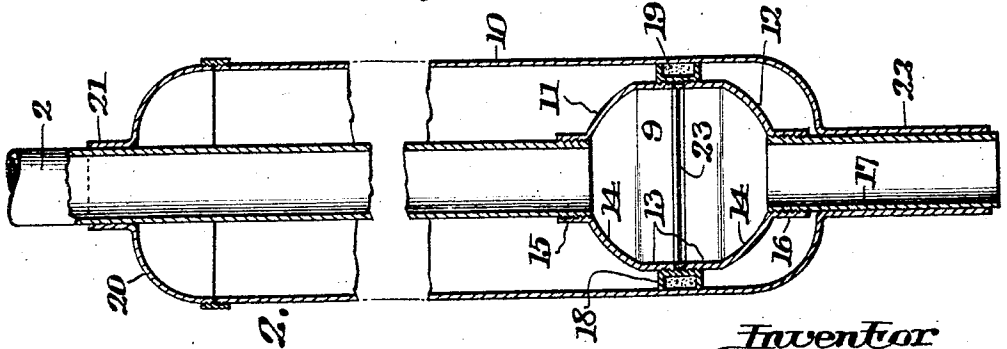



Fig. 2.




Inventor
William Henry Symons
by his Attorneys
Fenton Wight

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W. H. SYMONS

SIPHON

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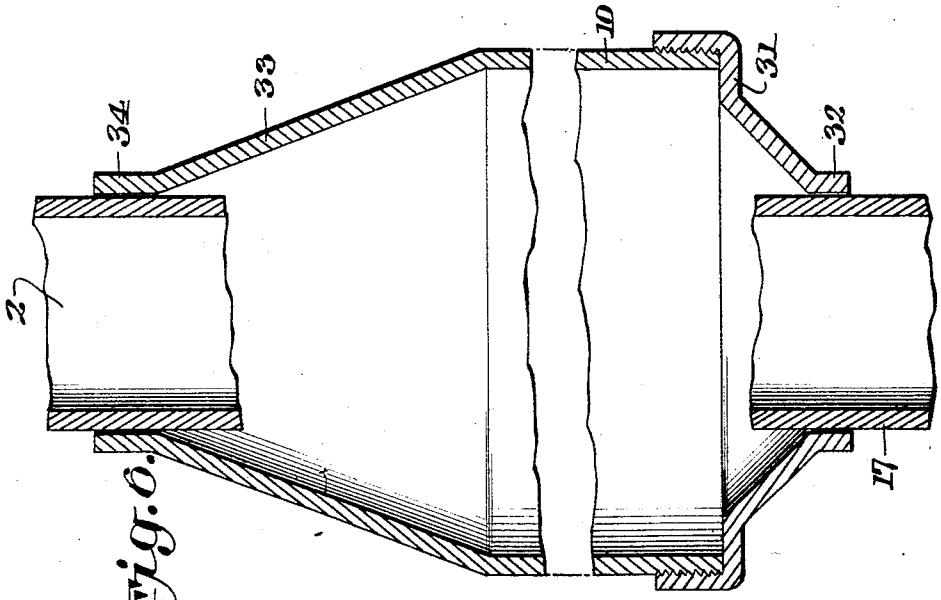



Fig. 6.

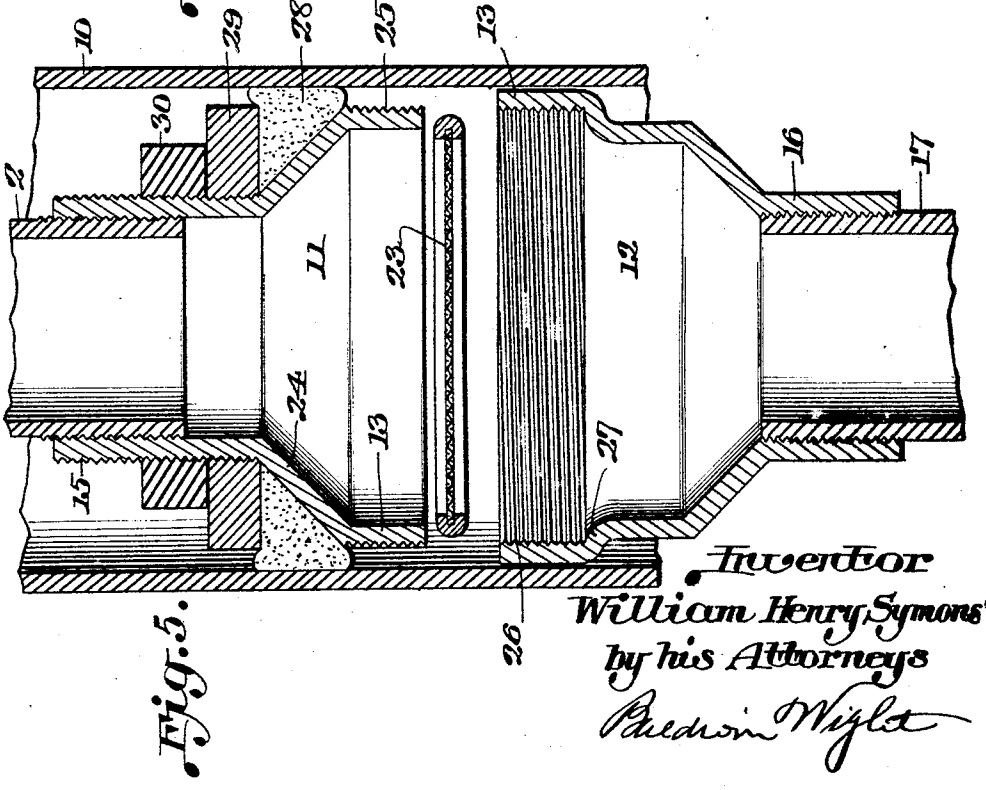



Fig. 5.

Inventor
William Henry Symons
by his Attorneys
Redman Wigle

Patented July 14, 1925. 1,546,265

# UNITED STATES PATENT OFFICE.

WILLIAM HENRY SYMONS, OF KRUGERSDORP, TRANSVAAL, SOUTH AFRICA.

## SIPHON.

Application filed August 8, 1924. Serial No. 730,889.

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY SYMONS, a citizen of the Union of South Africa, residing at Krugersdorp, Transvaal, Union of South Africa, have invented certain new and useful Improvements in Siphons, of which the following is a specification.

This invention relates to a form of siphon which can be readily carried and easily operated for drawing off liquids from containers, especially those of tin, and combines with the siphon a means for opening said containers.

An object of the invention is to provide a small and inexpensive siphon which can be readily carried in a small space and operated without any adjuncts.

Another object is to join therewith simple and efficient means for cutting a hole through a tin or similar container.

Further objects will be apparent from the following detailed description and the appended claims.

In the drawings:

Figure 1 is a side elevation of the complete device.

Figure 2 is a vertical section through the pump member of the siphon.

Figure 3 is a vertical section through the cutting member of the siphon.

Figure 4 is an end view of the cutting member.

Figure 5 is a vertical section with parts disassembled of a modification of the pump or vacuum creating device.

Figure 6 is a similar view of a further modification.

Two lengths of metal tubing 1 and 2 are connected by means of a rubber hose 3 or other airtight flexible coupling, thus providing a siphon having two rigid legs connected by a flexible tube which permits the two legs to be positioned in various relations to each other.

The free end of the tube 1 has a portion of larger diameter 4 forming with the body of the tube a shoulder 5, and the portion 4 is flattened to form a fishtail 6 which has a portion cut out at 7 so that the free end forms a cutter. Sliding on the tube 1 is a metal sleeve 8, preferably of considerable relative weight, which can be manually reciprocated and when it strikes the shoulder 5 it acts as a hammer to drive the fishtail cutter through the tin of a container. The opening thus formed will be large enough to permit the entrance of the tube 1 to a sufficient extent so that the free end thereof will contact with the bottom of the container.

The tube 2 is provided with a piston member 9 which works in a cylinder 10. This piston is formed of two parts 11 and 12, of similar form, each having a large end 13 of substantially cylindrical shape and a frusto-conical portion 14 which terminates in a cylindrical extension. This extension 15 of the part 11 is screw threaded to engage the screw threaded end of the tube 2, while the extension 16 of the part 12 is screw threaded to engage the screw threaded end of a tube 17 which in effect constitutes an extension of the tube 2. In the form shown in Figure 2 the cylindrical ends 13 of the parts 11 and 12 are screw threaded and both thread into a packing ring 18 provided with packing 19 which causes the piston to fit tightly the interior of the cylinder 10.

The cylinder 10 is provided at one end with a cap 20 either screw threaded to the cylinder or held in position by a screw threaded ring. This cap has an extension 21 within which slides the tube 2. At the other end the cylinder 10 is reduced in size and terminates in a pipe 22 within which slides the pipe 17. When the two parts 11 and 12 of the piston are assembled, a strainer 23 is preferably placed between them and is obviously held in position by the parts 11, 12 and the ring 18.

The device as thus far described is employed as follows. The fishtail cutter end of the tube 1 is placed upon the top of a tin container and the sliding sleeve 8 is forcibly reciprocated to drive the cutter through the tin. The pipe or tube 1 is thereupon inserted into the container until its end reaches the bottom of said container. The upper portion of the tube 2 is then grasped in one hand and the extension 22 of the cylinder 10 in the other, with the ball of the thumb closing the outlet of said extension. The parts are then manually drawn apart and the movement of the piston in the cylinder will tend to produce a vacuum in the lower portion of the cylinder, and as soon as the end of the extension 17 is drawn within the cylinder, the air pressure on the liquid in the container will cause the liquid to pass through the tubes, and thus institutes a siphonic action as soon as the thumb is removed from the outlet of the extension 22. The parts are then returned to the Figure 2

position and the siphonic action permitted to continue as long as desired. It can obviously be stopped at any time by lifting the cylinder 10 to a higher level and inverting the same. Obviously there is a loose enough fit between the tubes 2 and 17 and their engaging extensions 21 and 22 of the cylinder 10 to permit escape of the air as the piston is reciprocated.

In the form shown in Figure 5, the construction of the piston is somewhat modified. The part 11 is provided with an inclined portion 24 and is externally screw threaded at 25. The portion 12 has its free end internally screw threaded at 26 and the two are assembled by screwing the part 12 into the part 11, the strainer 23 being interposed and held by the two, as a shoulder 27 is formed on the part 12 against which the strainer is forced by one end of the part 13. A packing member 28 engages the inclined portion 24 of the part 11 and is forced into and held in proper engagement with the internal wall of the cylinder 10 by a jam nut 29 and a lock nut 30. This arrangement permits adjustment of the packing to take up wear. It is obviously immaterial which of the members 11 and 12 is the upper and which the lower, as the arrangement of Figure 5 may be reversed.

Another modification is shown in Figure 6 in which the cylinder 10 is provided with a cap 31 at its lower end having a short cylindrical extension 32 which guides the extension 17. The upper end of the cylinder is tapering at 33 and terminates in a reduced cylindrical portion 34 which guides the pipe or tube 2. A piston of either form may be employed with this cylinder. The operation of the modified forms of the devices is the same as that of the one first described.

Obviously various further detail changes may be made and parts of the invention used alone or in combination with features of different form without departing from the spirit of the invention which is to be regarded as limited only by the scope of the appended claims.

I claim as my invention:

1. A siphon comprising two metal tubes connected by flexible tubing, one of said tubes having an enlarged end portion forming a shoulder, a slidable hammer member on said tube adapted to engage said shoulder, said enlarged portion being flattened and cut away to form a cutting end and the other of said tubes being provided with means for instituting a siphonic action.

2. A siphon comprising two metal tubes connected by flexible tubing, one of said tubes carrying between its ends a two-part hollow piston, a strainer between the parts of the piston to strain liquid passing through said tube and a cylinder having extensions at each end for guiding the tube carrying the piston, the piston fitting tightly within the cylinder whereby a sliding movement of the piston relative to the cylinder will institute a siphonic action.

In testimony whereof I have hereunto subscribed my name.

WILLIAM HENRY SYMONS.