No. 766,611. PATENTED AUG. 2, 1904.

H. F. GANON.

FUNNEL.

APPLICATION FILED JAN. 4, 1904.

NO MODEL.

Fig. 1.

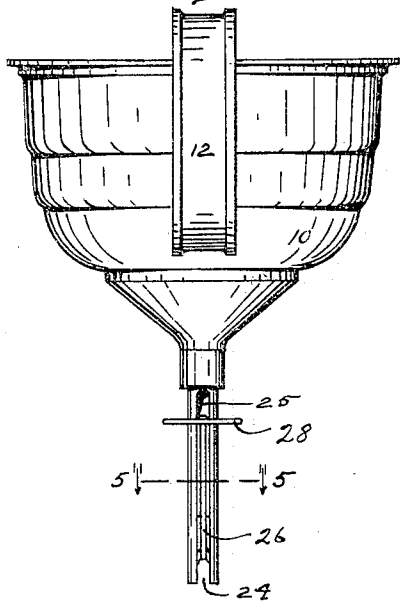


Fig. 2.

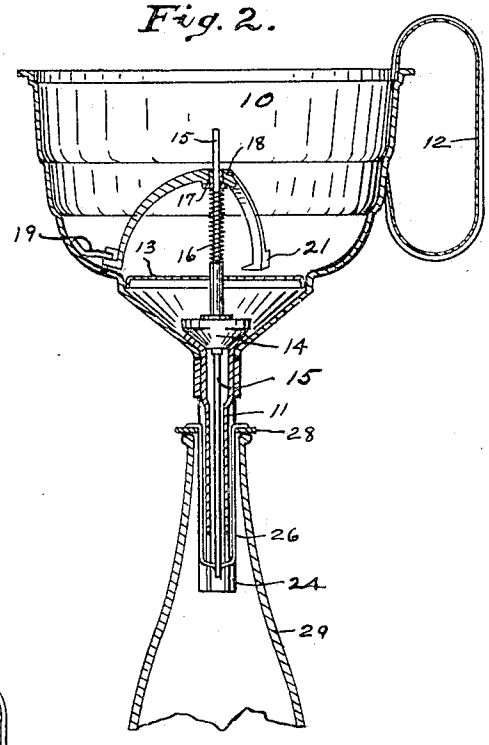


Fig. 3.

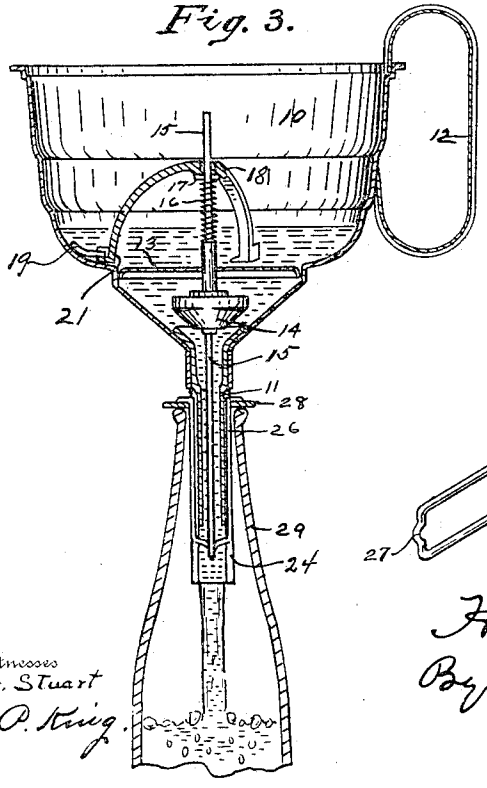


Fig. 4.



Fig. 5.



Fig. 6.

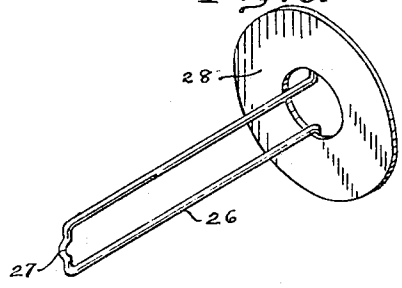
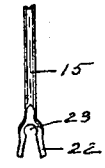


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY F. GANON, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO WILLIAM TRON, OF INDIANAPOLIS, INDIANA.

FUNNEL.

SPECIFICATION forming part of Letters Patent No. 766,611, dated August 2, 1904.

Application filed January 4, 1904. Serial No. 187,668. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. GANON, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Funnel; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to improve the construction of funnels the outlet of which is closed by a stopper or valve that after the funnel has been placed in position on the bottle or other vessel to be filled is opened so as to permit the fluid in the funnel to escape.

The chief feature of this invention consists in means for opening the stopper of the funnel which is actuated by depressing the funnel on the bottle or other vessel to be filled.

Another feature of the invention consists in the arrangement of the parts and their combination with the funnel so that they may be readily removed from the funnel and leave it open and easy to clean.

These and the other features of the invention herein will appear more fully from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a side elevation of the funnel. Fig. 2 is a central vertical section of the funnel on the upper end of a bottle, the lower part of the bottle being broken away and the stopper being in a closing position, so as to prevent the escape of the fluid from the funnel into the bottle. Fig. 3 is the same section as Fig. 2 with the funnel depressed so as to open the stopper and allow the liquid to flow from the funnel into the bottle. Fig. 4 is an outside elevation of a foot on one of the legs of the guide, the upper part being broken away. Fig. 5 is a transverse section on the line 5 5 of Fig. 1. Fig. 6 is a perspective view of the means for opening the stopper. Fig. 7 is an elevation of the lower end of the stopper-rod, the upper part being broken away.

10 is the bowl of the funnel, 11 the outlet-tube, and 12 the handle. In the lower part of the funnel there is a strainer 13 of the usual sort and in the usual place. The lower part of the funnel is made conical at the point where it approaches the outlet, so as to furnish a conical seat for a conical stopper. The outlet 11 and the bowl of the funnel, as herein shown, are formed of separate pieces of metal, the former fitting snugly with the latter, and it is secured thereto by soldering or otherwise.

The stopper 14 has a rod 15 extending centrally and vertically through it. Said rod is somewhat larger at the point where the stopper is located than elsewhere. The stopper is made of rubber and surrounds the said rod. The upper end of said rod is turned down, and around that portion there is a spring 16, the lower end of which rests on the large portion of the rod 15, and on the upper end of the spring a washer 17 rests. The upper end of the rod 15 is guided and held loosely in place by a guide 18, that is in the form of a tripod, the legs thereof resting on the lower part of the bowl of the funnel. The guide is held down by the fingers 19, that are secured to the bowl of the funnel and extend inward and rest in the notch 20 in the foot 21 of the leg of each tripod. The upper surface of said foot is inclined so that it will pass readily under the finger 19 into place. The spring 16 is to push the tripod upward, and therefore the feet of the legs of the guide are held in engagement with the fingers 19. Only two of the legs of the tripod are shown; but the third leg is located equidistant from the other two. While the guide 18 is held upward by the spring 16, said guide, also held, bears down on the washer 17, spring 16, and rod 15 to force the stopper down into a closing position. Therefore when said funnel is filled with liquid the liquid cannot escape unless the stopper 14 is opened. The opening means will now be described.

The rod 15 extends down nearly to the lower end of the outlet-tube 11. At its lower end it is forked, having two spring-prongs 22 with a socket 23. The spring-prongs are contracted between their ends, so that an object entering the socket 23 must press the prongs apart somewhat, and after it has entered the socket the prongs will prevent its escape with-

out force being applied. The lower end of the funnel-tube is slotted somewhat, as seen at 24 in Fig. 1. Likewise grooves 25 are made in opposite sides of said tube that extend upward from the slots 24. A metal loop 26 fits astride the outlet-tube of the funnel, the sides of the loop being embedded in the grooves 25 of the tube, and the lower end of the loop has a kink at 27, that enters the socket 23 at the lower end of the rod 15, and when the parts are placed in such connection with each other the spring-prongs 22 on the rod 15 will hold the loop 26 in place and prevent its escaping by gravity. A disk 28 loosely surrounds the outlet-tube 11 and is secured to the upper end of the metal loop 26, as seen in Fig. 6. This disk must be large enough to rest upon the mouth of the bottle 29 or the like, and the outlet-tube 11 must be small enough to enter the bottle, as shown. The grooves 25 are made in such tube, so that when the arms of the loop 26 are in place they will not increase the width of the part to be inserted in the bottle, but will enter rather smoothly the opening in a bottle that is but very slightly larger in diameter than the outlet-tube, as appears in the drawings.

The mode of use is as follows: The funnel is filled with liquid and then placed on the bottle in the position shown in Fig. 2. The spring 16 must be strong enough to overcome the weight of the funnel and the liquid therein and not be compressed by the same, as shown, and under such circumstances the stopper will remain closed and the liquid will not flow. When it is desired for the liquid to flow, the funnel is pressed downward enough to overcome the tension of the spring. Very little downward pressure is needed for this, and that is usually given by depressing the hand that holds the handle 12. When that is done, of course the metal loop 26 and disk 28 will be pushed upward and will carry up with them the rod 15 and the stopper 14 thereon and open the stopper so the liquid can flow, as is shown in Fig. 3. When it is desired to stop the flow, the downward pressure of the hand on the funnel is stopped and the spring 16 forces the stopper into a closing position.

The advantages resulting from this construction consist chiefly from the fact that the liquid flows only when you desire it and at other times there is no leakage or escape, which is one of the great sources of loss in the use of the ordinary funnel. Furthermore, the mode of opening and closing the stopper is very simple and convenient and is almost automatic. In order for the stopper to seat itself, the hole in the guide 18, through which the rod 15 extends, should be large enough to have some play. With this construction, also, the parts are readily removable from the funnel. To do this, the disk 28 is pushed downward by the fingers, so the loop 26 will disengage the lower end of the rod 15. Then guide 18 is depressed slightly and turned to the right, so that the feet thereof disengage the fingers 19. Then the guide, rod, stopper, and strainer can be all lifted out and the funnel be cleaned and the parts be quickly replaced.

The spring-prongs at the lower end of the rod 15 are to hold the loop 26 and disk 28 from escape or loss when the funnel is not in the bottle.

As shown in Fig. 6, the upper end of the metal loops 26 are turned and extend some distance to their connection with the disk 28. This is in order that the central opening through the disk 28 will be larger than the outlet-tube of the funnel to provide an escape-vent when the device is placed on a bottle for the air as the bottle fills with liquid. This prevents an overflow or any other unsatisfactory consequences from having no air-vent at the top of the bottle while being filled. Also the kink 27 is located midway of the lower end of the loop 26 in order that it will hold the stopper-rod centrally of the outlet-tube.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a funnel and a stopper for closing the outlet, of a number of fingers extending inwardly from the bowl of the funnel, a vertical rod extending through the stopper, a guide for the upper end of said rod made in the shape of a tripod with the legs of said tripod having on their ends a foot with a notch in which the finger from the funnel may fit and also an inclined surface leading to said notch, the opening through said guide for the stopper being larger than the stopper-rod, and means for elevating the rod that is actuated by depressing the funnel on the bottle or the like that is being filled.

2. The combination with a funnel and a spring-closed stopper for the outlet-tube, of a rod extending through the stopper into the outlet-tube of the funnel, a disk slidably mounted on said outlet-tube, and a metal loop connected with said disk and extending down therefrom and detachably connected with said rod, so that the upward movement of the disk will cause a similar movement of said rod and loop and the rod may be removed upward from the funnel.

3. The combination with a funnel, and a spring-closed stopper for the outlet-tube, of a rod extending through the stopper into the outlet-tube and having spring-prongs at its lower end, a disk slidably mounted on said outlet-tube, and a metal loop extending down from said disk and adapted to be engaged and held by the spring-prongs at the lower end of said rod.

4. The combination of a funnel having an outlet-tube that has vertical slots on two opposite sides extending upward some distance

from the lower end thereof, a spring-closed stopper for the outlet-tube, a removable rod extending through said stopper into the outlet-tube down to the slotted portion thereof, a disk slidably mounted on said tube, and a metal loop extending downward from said disk with the lower end passing through said slots in the tube and detachably connected with the lower end of the stopper-rod.

5. The combination with a funnel having an outlet-tube that has vertical slots on two opposite sides extending some distance from the lower end thereof, vertical grooves in the two opposite sides of said tube extending upward from said slots, a spring-pressed stopper for closing the outlet, a rod extending through said stopper down into said tube with spring-prongs at the lower end, a disk slidably mounted on said tube, and a metal loop secured to said disk with the two arms thereof embedded loosely in the grooves in said tube and with the lower end extending upward through said slots and clamped by the prongs at the lower end of the stopper-rod.

6. The combination of a funnel having an outlet-tube that has vertical slots on two opposite sides and extending upward for some distance from the lower end thereof, a spring-closed stopper for the outlet-tube, a rod extending through said stopper into the outlet-tube down to the slotted portion thereof, a disk slidably mounted on said tube, and a metal loop extending downward from said disk with the lower end passing through said slots in the tube and having a kink centrally located in the lower end thereof that engages the lower end of the stopper-rod.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

HENRY F. GANON.

Witnesses:
V. H. LOCKWOOD,
NELLIE ALLEMONG.