

(No Model.)

T. M. RICHARDSON.
APPARATUS FOR TRANSFERRING LIQUIDS.

No. 581,491.

Patented Apr. 27, 1897.

Fig. 1.

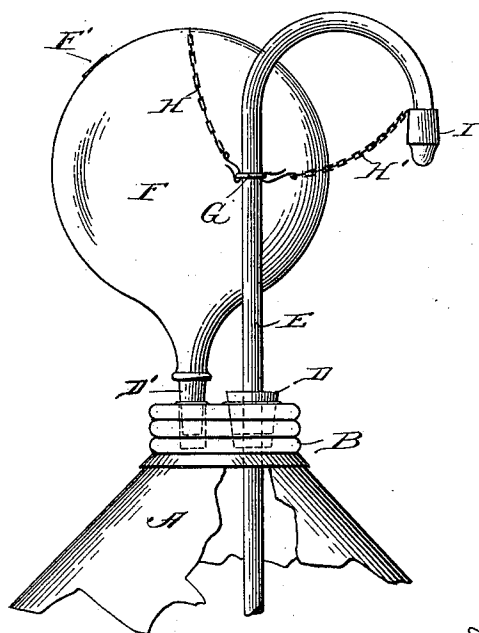


Fig. 2.

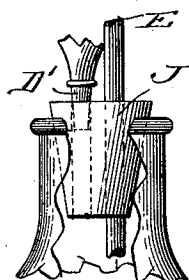


Fig. 3.

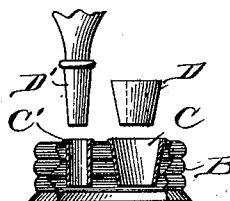


Fig. 4.

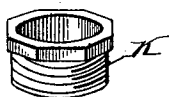


Fig. 6.

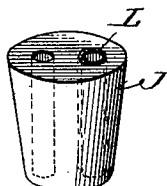
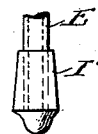


Fig. 5.



WITNESSES:

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APPARATUS FOR TRANSFERRING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 581,491, dated April 27, 1897.

Application filed February 1, 1897. Serial No. 621,470. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. RICHARDSON, a citizen of the United States, residing at Oklahoma, in the county of Oklahoma and Territory of Oklahoma, have invented certain new and useful Improvements in Apparatus for Transferring Liquids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to devices wherein air-pressure is employed for forcing liquids from a barrel, bottle, or other closed vessel; and its object is to produce an inexpensive apparatus that may be used with any of the ordinary vessels now in use.

The entire apparatus is borne by a closure which is made from or which replaces such closing devices as may accompany the vessel.

The apparatus is so constructed that the more expensive part of it may be detached and used with many duplicates of the remaining parts attached to as many different receptacles for like or unlike liquids, none of which come into contact with this part.

In the accompanying drawings, Figure 1 shows my devices applied to an ordinary household oil-can like those from which lamps are usually filled. Figs. 2 shows part of the same devices used with a bottle or the like. Fig. 3 shows detached the screw-cap of Fig. 1 the parts that are immediately connected and therewith, the cap being in section. Fig. 4 shows a sleeve adapted to be screwed into an internally-threaded neck and to receive the stopper of Fig. 2. Fig. 5 shows a tubular cap, of rubber, that may replace a certain cap seen in Fig. 1. Fig. 6 shows the stopper of Fig. 2 detached and in position for entering the opening of a vessel of different form.

In Figs. 1 and 3, A is an ordinary can having no spout, but provided with a screw-cap B, from the top of which depend slightly-conical tubes C C'. In the tube C is inserted a stopper or plug D, preferably of more or less elastic material, rubber being in most cases entirely satisfactory, although it cannot in all cases be employed, because, for one reason, it is effected by certain liquids. Through this stopper passes a discharge-tube E, long enough to reach the bottom of the vessel when

it is pushed inward and having its outer portion bent to U shape, so that it may discharge in a downward direction. In the tube C' fits an analogous perforated plug or stopper D', from which a pipe or conduit leads to an air-forcing device F, shown as an elastic bulb provided with the usual inlet-valve F', although a bellows or other suitable device may be used. Upon the tube E above the closure of the vessel slides a ring G, to which the bulb F is attached by a chain H or other flexible connection and to which a cap I, adapted to close the open end of the tube E, is connected in like manner.

The chain connected to the bulb F is made readily detachable from the ring G, and the plug D' may be withdrawn from its seat at any time, and hence if a series of vessels be provided with the other devices the same air-forcing devices may be quickly attached and used with any one of them.

The nature and fitting of the parts are such that when all the parts are in proper position air can enter and leave the vessel only through the pipe E and the passage through the plug D', and it follows that when air is forced into the vessel by means of the devices F liquid will be forced out through the tube E. When, for example, a lamp is to be filled, the can is placed alongside the lamp in such position that the outer end of the discharge-tube may be in or immediately above the opening in the lamp. Obviously, forcing air into the can by means of the devices F causes liquid to flow into the lamp with a speed dependent upon the rapidity with which the forcing apparatus delivers air. As soon as the forcing devices cease to act the liquid runs out of the outer short branch of the tube and in the inner branch falls to the level of the liquid in the can. The falling in the inner arm sucks over the bend such liquid as may have remained for an instant adherent to the upper part of the short arm, and if then the forcing device be again operated for an instant the rise of the liquid in the inner branch suddenly forces the air in the whole tube outward and blows out from the lower end of the outer arm liquid that would otherwise have slowly gathered and dripped from the end after the can and lamp were separated. Practically this is of much importance both in household and

other uses of the devices, for there is absolutely no dripping whatever.

Where the vessel is not adapted for the use of a cap, I usually employ a preferably elastic stopper J, Fig. 2, having apertures parallel to its axis to receive, respectively, the discharge-tube and the plug connected with the air-forcing device, and for vessels having an internally-threaded neck an externally-threaded sleeve K, Fig. 4, is used to receive the stopper of Figs. 2 and 6. For use with certain liquids, especially such as evaporate rapidly, the metal cap I, Fig. 1, may be replaced by a rubber one I', Fig. 5, this being a less expensive device than an accurately-fitted metal cap or plug and equally effective where the liquid concerned does not affect rubber. The cap is preferred to any plug for the reason that making the end of the tube flaring interferes with blowing out the liquid that might otherwise drip in the manner already referred to. This apparatus is especially well adapted for use with the large cans usually carried by milk-delivery wagons, and in drug-stores, where all kinds of liquids are handled, and among its other advantages for such use security against dripping is of great importance.

What I claim is—

30 1. The combination with a closure, of an air-forcing device mounted thereon and arranged to force air into a channel leading

through the closure to the interior of the vessel to which it may be applied, a tube bent to U shape, having one arm passed through the closure into said interior, and arranged for longitudinal adjustment in the closure, a cap for closing the outer end of said tube, a ring sliding upon said arm above the closure, and flexible connections attaching both said air-forcing device and the cap to said ring.

2. The combination with a vessel having a screw-threaded neck of a threaded cap, for closing said neck, provided with two conical openings leading to the interior of the vessel, two perforated stoppers removably fitted in said openings, respectively, a tube bent to U shape and having an arm sliding in the perforation in one of the stoppers, a ring sliding upon said arm above the stopper, an air-forcing device mounted upon the cap and having a delivery-tube fitting the perforation in the other stopper, a cap for closing the other arm of the U-shaped tube, and flexible connections attaching both said air-forcing device and said cap to the ring, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

T. M. RICHARDSON.

Witnesses:

WALLACE GREENE,
HARRY BARTON.