H. V. R. READ.

DEVICE FOR AERATING LIQUIDS.

APPLICATION FILED FEB. 9, 1914.

1,126,865.

Patented Feb. 2, 1915.

4 SHEETS—SHEET 1.

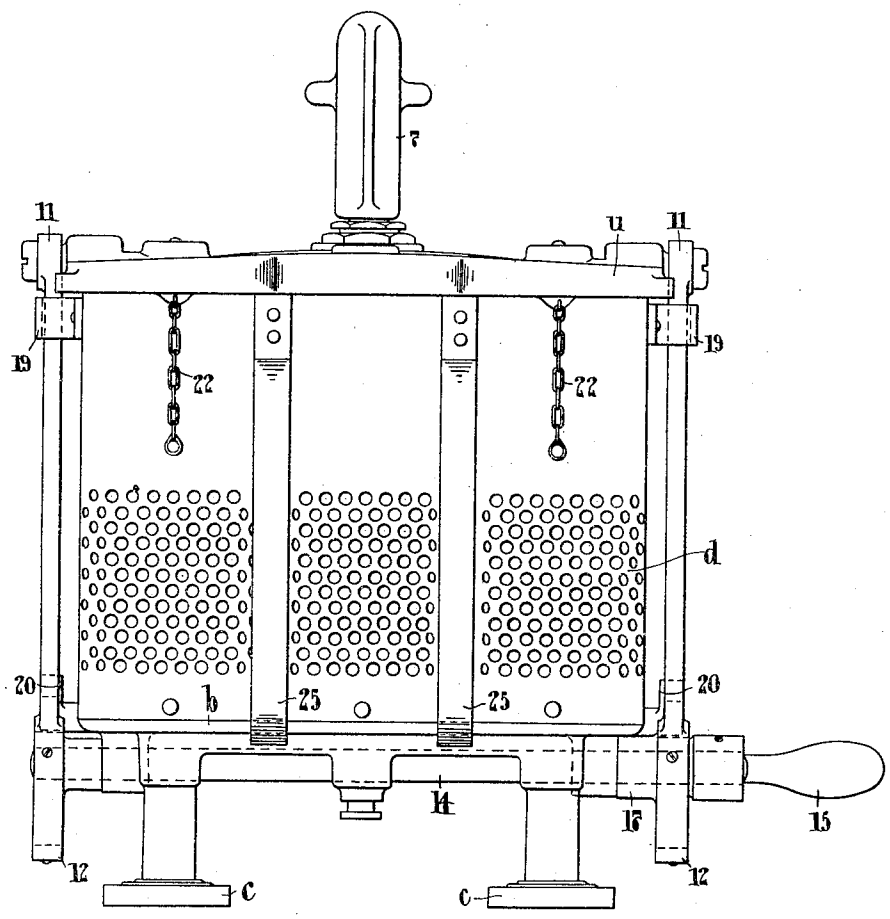


Fig. 1.

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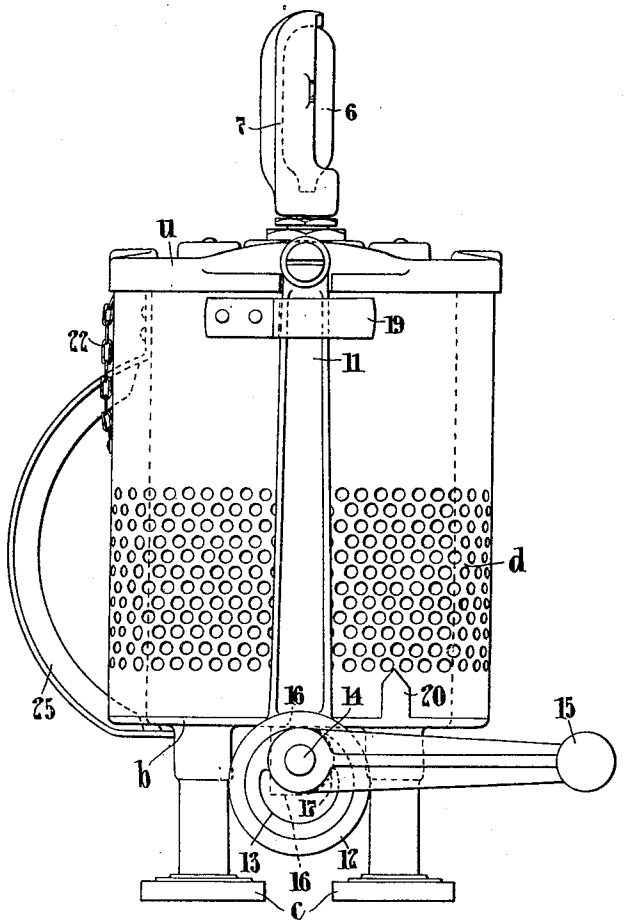


Fig. 2.

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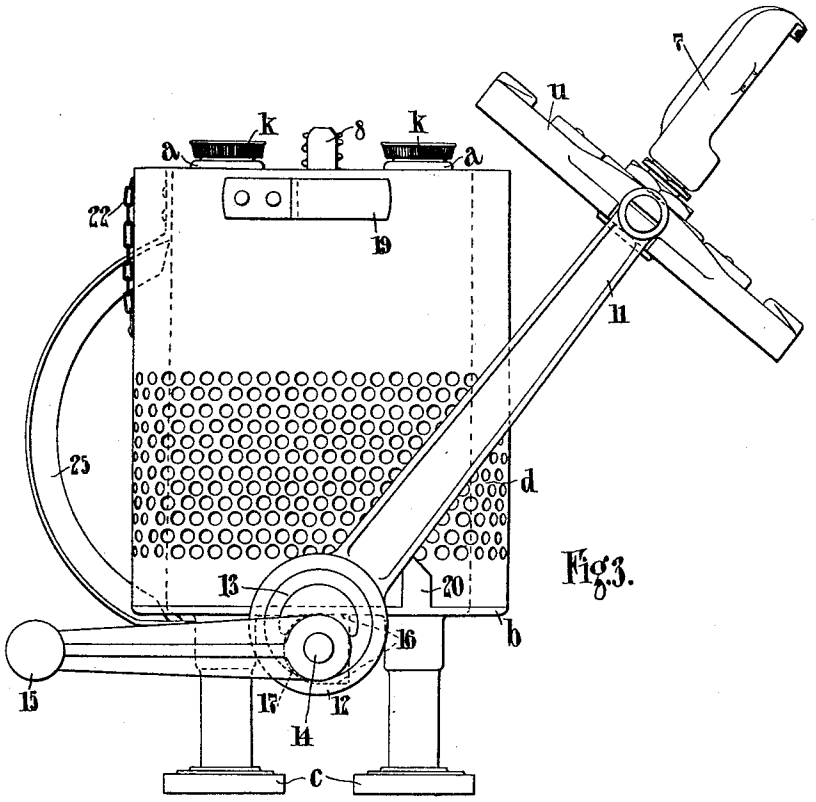


Fig.3.

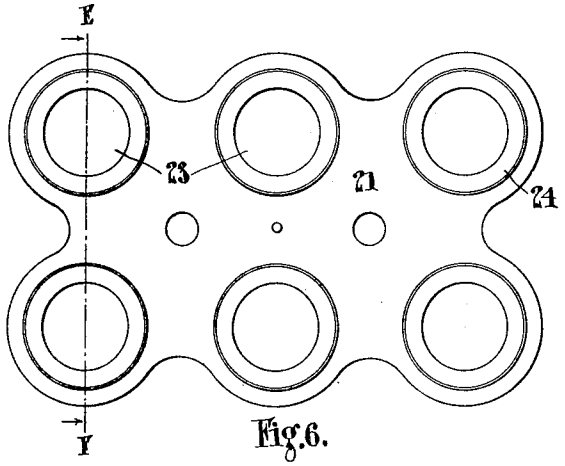


Fig.6.

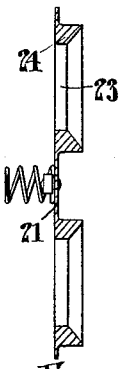


Fig.7.

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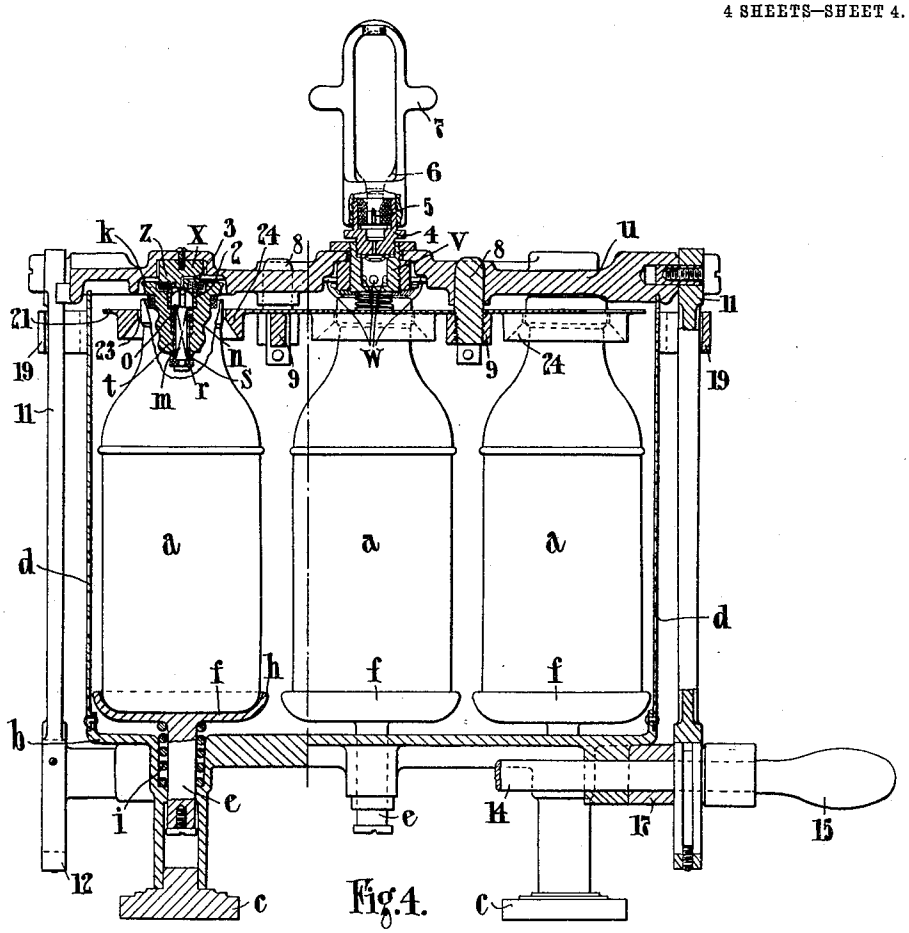


Fig. 4.

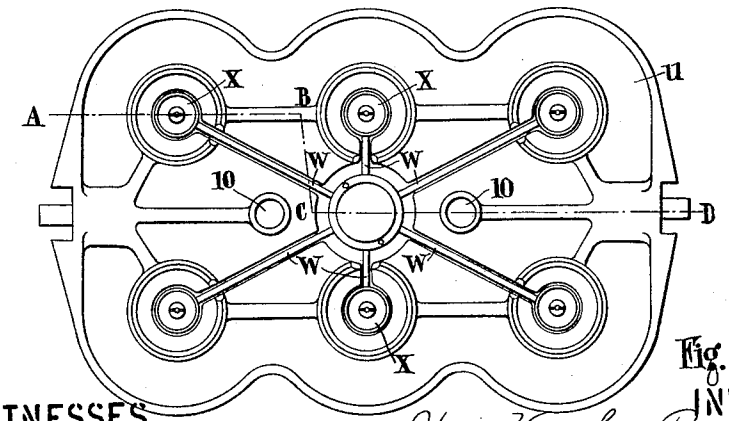


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

HARRY VAUGHAN RUDSTON READ, OF LONDON, ENGLAND, ASSIGNOR TO AERATORS LIMITED, OF LONDON, ENGLAND.

DEVICE FOR AERATING LIQUIDS.

1,126,865. Specification of Letters Patent. Patented Feb. 2, 1915.

Application filed February 9, 1914. Serial No. 817,501.

To all whom it may concern:

Be it known that I, HARRY VAUGHAN RUDSTON READ, a subject of the King of Great Britain and Ireland, and residing at Craig's Court, Charing Cross, London, S.W., England, have invented certain new and useful Improvements in and Relating to Devices for Aerating Liquids, of which the following is a specification.

This invention relates to devices for aerating liquids and particularly to those of the class in which the bottle or like receptacle containing the liquid is provided with a non-return valve or equivalent.

The main object of the present invention is to provide a device of the character in question which will enable a number of bottles to be simultaneously charged with a minimum of skill and trouble.

With this object the invention consists in a casing or frame to contain a plurality of bottles fitted with non-return valves, a pivotally mounted cover with gas ducts adapted to be positioned in operative relation to the bottles and appropriate mechanism for forcing cover and bottles together to form gas-tight joints and to hold open the non-return valves during charging.

The invention also consists in a device as set forth in the preceding paragraph in which the cover is mounted on members which assist in its positioning and are themselves utilized by help of suitable mechanism, such as an eccentric, to force the cover into gas-tight relation with the bottles.

The invention finally consists in the improved aerating devices hereinafter described or indicated.

Referring to the accompanying drawings: Figure 1 shows a front elevation of one form of aerating device according to the present invention looking toward the rockers, Fig. 2 being a corresponding end elevation as seen from the handle end with the cover in its operative position, and Fig. 3 a similar elevation with the cover thrown back; Fig. 4 shows a vertical section taken on the line A B C D of Fig. 5; Fig. 5 shows an inverted plan of the top cover, while Fig. 6 shows an inverted plan of the locating plate, and Fig. 7 a corresponding section on the line E—F of Fig. 6.

In carrying the invention into effect according to the illustrative form shown adapted to charge six bottles, *a*, *a*, simultaneously, the casing or frame consists of a base, *b*, provided with suitable feet, *c*, and a body portion which may conveniently be made of perforated sheet metal, *d*. Slidably mounted in the base member, *b*, and it may be in the feet thereof, are a number of plungers, *e*, each provided with a tray, *f*, with upturned rim, *h*, for the reception in a definite position of a bottle. These trays, *f*, are each pressed upward by a strong spring, *i*, and in the particular example now described, are arranged in two rows of three each.

The bottles or receptacles, *a*, to be charged are of any suitable type, and according to one known form may be provided with screw stoppers, *k*, containing a non-return valve. This valve may for example consist of a spindle, *m*, arranged axially in the stopper, and pressed upward by a spring, *n*, acting against a shoulder, *o*, the valve closing under the action of pressure within the bottle by means of a rubber ring, *r*, co-acting with an appropriate seat, *s*, at the lower end of the stopper. Suitable ducts, or passages, *t*, are provided in the spindle to admit gas when the valve is open.

The cover, *u*, may conveniently take the form of a casting ribbed as desired to give it stiffness, and carrying in its center a plug, *v*, containing a chamber from which ducts, *w*, lead to six points corresponding with the position of the bottles in the casing, these ducts preferably being proportioned as regards cross-sectional area to oppose as nearly as may be, equal resistances to the passage of gas, and thus insure an equal distribution to the different bottles. At each of the six points a block, *x*, is provided, screwed it may be to the cover, and having on its lower face a rubber ring, *z*, which is adapted to form a gas-tight joint with a corresponding upstanding ring, 2, on the bottle stopper. Each block, *x*, is likewise perforated by a duct, 3, to complete the passageway from the central chamber to the different bottles. A separate plug, 4, is provided in the center of the cover with a piercer, 5, or other device for discharging the charged capsule, 6, held in the usual fly-cap, 7, which can be screwed down by hand for discharging purposes.

To assist in the correct registering of the cover, *u*, appropriate guides may be pro-

vided, which may take the form of pins, 8, carried by cross bars, 9, attached to the casing, corresponding holes, 10, being provided in the cover itself. At the two ends of the latter and preferably in a central position, the cover is pivotally connected with a small amount of play to a pair of links, 11, one at each end, which pass downward outside the casing, and are provided at their lower ends with the equivalent of an eccentric strap, 12, adapted to engage with corresponding eccentrics, 13, arranged one at each end of a shaft or spindle, 14, journaled in the base of the casing, and passing from end to end thereof. For the operation of this spindle, a suitable handle, 15, may be provided at one end, the motion of which is limited in each direction by stops, 16, formed on the stop piece, 17, attached to the spindle, 14.

Hooked members, 19, are provided on the casing to serve as stops to the links, 11, in the operative position of the cover shown in Fig. 2, while stops, 20, serve to limit the angular motion of the links when the cover is thrown back as in Fig. 3. In addition, with the object of avoiding difficulties due to slight differences in the size of the bottles, a locating plate, 21, may be provided attached to the casing by chains, 22, and provided with a series of apertures, 23, having collars, 24, adapted to fit neatly over the necks of the bottles.

The casing itself is provided on one side with a pair of rockers, 25, which may consist of lengths of metal, it may be of T or angle section, bent into the form of a circular arc and riveted to the body of the casing.

The operation of the form of invention described is as follows:—With the casing in its upright position, a bottle, *a*, is placed in each of the six trays, *f*, the locating plate, 21, is brought in position over the necks of the bottles so as to rest on the cross bars, 9, and the cover, *u*, mounted on its links, 11, is swung into a position determined by the hooked members, 19. On operation of the handle, 15, the links, 11, by help of the eccentric, 13, provided, draw the cover down so that it first engages with the guide pins, 8, and then forces each block, *x*, with its rubber pad against the corresponding part of the bottle stopper, so as to form a gas-tight joint, the springs, *i*, below the trays, *f*, being slightly compressed during this operation. At the same time the spindles, *m*, of the non-return valves in the stoppers, *k*, which project slightly, are forced downward by the blocks, *x*, in the cover, so that the non-return valves are held open. The casing and bottles as a whole are then preferably turned over so as to rest on the rockers, 25, and the capsule, 6, by means of the fly-cap, 7, in which it rests is discharged, so that the issuing gas passes to the common chamber above mentioned, and thence through the ducts, *w*, leading therefrom to the blocks, *x*, in the cover and so to the interior of the bottles. After rocking the apparatus to and fro to insure complete aeration of the liquid, it is restored to its upright position, the handle, 15, is operated to lift the cover from the bottles, thereby permitting the non-return valves to close under the action of their own springs, and the cover is thrown back into the position shown in Fig. 3. The locating plate, 21, is then removed and may be left hanging on its chains, 22, after which the charged bottles can be withdrawn from the casing and a new set inserted for charging as above.

It will be seen that according to the present invention, any convenient number of bottles may be simultaneously charged while the bottles themselves may take various forms so long as each is provided with a non-return valve or equivalent device such as a Codd stopper. Moreover, for making the gas-tight joint between the cover and the bottle stoppers, various suitable mechanisms may be utilized instead of the eccentric described. Finally, the capsule may be of any known form adapted to be discharged either by piercing a disk or opening a valve.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The combination in an aerating device, of a casing or holder for the receptacles to be charged; a cover for said holder, said cover having a number of ducts for leading the contents of a charged container to a number of discharge points corresponding to the receptacles together with means for forcing said cover into gas-tight association with the inlets of said receptacles.

2. The combination in an aerating device, of a casing or holder for the receptacles to be charged; a cover for said casing; means for permitting said cover to swing in relation to said holder, and means including said swing-permitting means for forcing said cover into gas-tight association with the inlets of said receptacles.

3. The combination in an aerating device, of a casing or holder for the receptacles to be charged; a cover for said holder; locating means for accurately positioning said receptacles in said holder and means for forcing said cover into gas-tight association with the inlets of said positioned receptacles.

4. The combination in an aerating device, of a casing or holder for the receptacles to be charged; a cover for said holder; links on which said cover is mounted and eccentric means coöperating with said links for forcing said cover into gas-tight association with the inlets of said receptacles.

5. The combination in an aerating device, of a casing or holder for the receptacles to be charged; a cover for said holder; links on which said cover is pivotally mounted and eccentric means for coöperating with said links for forcing said cover into gas-tight association with the inlets of said receptacles.

6. The combination in an aerating device, of a casing or holder for the receptacles to be charged; said receptacles being provided with inlets controlled by non-return closures; a cover for said holder having a plurality of parts to contact with and open said non-return devices together with means for forcing said cover into gas-tight association with the inlets of said receptacles.

7. The combination in an aerating device, of a casing or holder for the receptacles to be charged; spring-pressed supports for said receptacles; a cover having a number of ducts for leading the contents of a charged container to a number of discharge points corresponding to the receptacles, together with means for forcing said cover into gas-tight association with the inlets of said receptacles.

8. The combination in an aerating device, of a casing or holder for the receptacles to be charged; a cover for said holder; links on which said cover is mounted, one link at each end; a spindle rotatably mounted on said holder; eccentrics on said spindle cooperating with said links and means for rotating said spindle.

9. The combination in an aerating device, of a casing or holder for the receptacles to be charged, said receptacles being provided with inlets controlled by non-return closures; a cover for said holder, said cover having a number of ducts for leading the contents of a charged container to a number of discharge points corresponding to the receptacles, together with means for forcing said cover into gas-tight association with the inlets of said receptacles.

10. The combination in an aerating device of a casing or holder for the receptacles to be charged; a cover for said holder, said cover having a number of ducts for leading the contents of a charged capsule to a number of discharge points corresponding to the receptacles; means for forcing said cover into gas-tight association with the inlets of said receptacles, together with means mounted on and movable in relation to said cover for holding a charged capsule.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY VAUGHAN RUDSTON READ.

Witnesses:
ALBERT ERNEST SMITH,
GEORGE WALTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."