Sept. 23, 1941. R. TRAYNOR 2,256,957

FLASK TRAY WITH A MECHANICAL STOPPER LIFTER AND A MEANS FOR DELIVERING A PREDETERMINED VOLUME OF LIQUID

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Fig. 1.

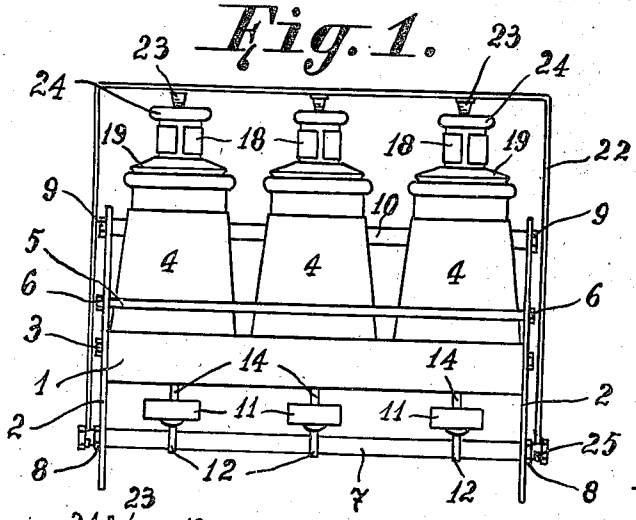


Fig. 2.

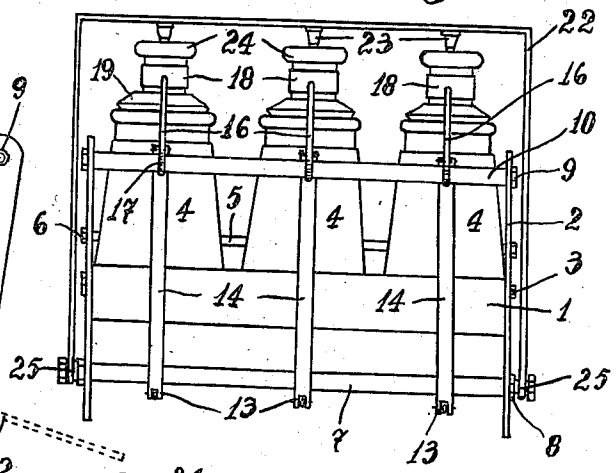


Fig. 3.

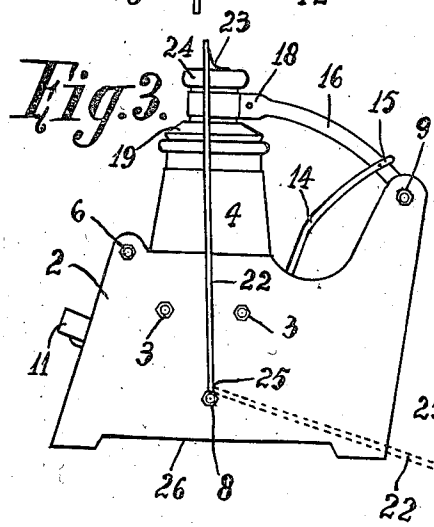
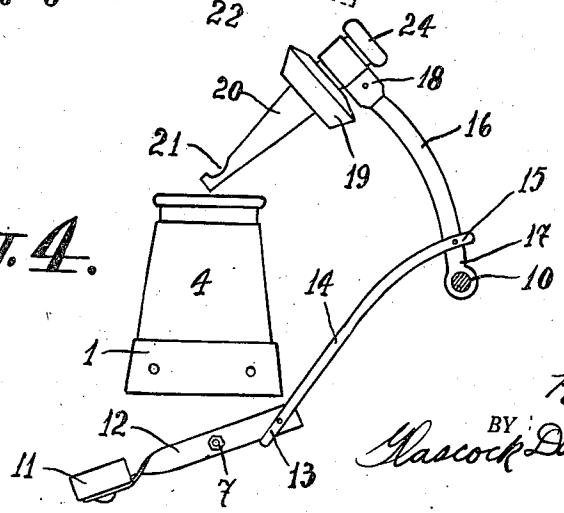


Fig. 4.



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FLASK TRAY WITH A MECHANICAL STOPPER LIFTER AND A MEANS FOR DELIVERING A PREDETERMINED VOLUME OF LIQUID

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2 Claims. (Cl. 221—97)

The present invention refers to a flask-tray provided with means for mechanically lifting the stopper of each individual flask and automatically delivering a pre-determined volume of any desired liquid.

While this novel device is particularly intended for use in odontology and medicine, no unnecessary limitations should be understood therefrom since it may likewise be employed to contain any other liquid or semi-liquid substance of the kind being used in small volumes.

The objects and advantages of this invention will be clearly understood as the present description proceeds.

The new device according to the present invention consists of a base or pedestal on which various flasks are arrayed and retained. In front of said flasks a keyboard is provided and each individual key thereof, on being depressed, operates a mechanism which automatically lifts the stopper of the corresponding flask and places at the disposal of the individual operating the same (a dentist) a small volume of liquid that has been retained by a spoon-shaped rod associated with the stopper. The dentist then moistens on said spoon the wad he desires to introduce into the patient's mouth.

Needless to say that this new device enables the dentist to dispense with the necessity of manually lifting the flask stoppers which operation is not only troublesome but also causes the fingers, at times, to come into contact with the liquid, the contact of the fingers thus contaminated involving a danger for the patient's face when liquids capable of injuring the skin are concerned. Another great advantage of the device consists in that it eliminates the operation of introducing the wad into the flask to become liquid-soaked, thus preventing the wad from becoming either insufficiently or excessively liquid-soaked or from slipping away and falling on the bottom of the flask, and making it impossible for the dentist to overthrow the flask when introducing into the same the pincers or other instrument holding the wad.

In order that the invention may be fully understood it is illustrated by way of example in the accompanying drawing wherein the same reference numerals indicate the same visible parts of the various figures. In this drawing:

Figure I is a front view of the device according to my invention,

Figure II is a rear view of the same,

Figure III is a side view, and

Figure IV is a side view showing a flask with its stopper automatically lifted up and which indicates the stopper together with its rod delivering a volume of liquid. The lateral support of the pedestal holding the flasks has been left out in this figure to show the stopper-lifting mechanism.

In the drawing the device is illustrated as containing a set of three flasks. This number, of course, is given only by way of example and should not in any way be considered as a limitation since the device may comprise any greater or smaller amount of flasks.

The device according to my present invention comprises a pedestal constituted by a tray 1 secured at its lateral ends to a support 2 by means of screws 3. This tray 1 constitutes the seat of a plurality of flasks 4 which are kept in place thereon by means of the bar 5 which has threaded ends and is secured to the lateral supports 2 by the aid of the nuts 6, pulling said sides inwardly and pressing the bottom of one flask against that of the other.

Beneath the tray 1 and mounted on the lateral supports 2 is a shaft 7 secured by the nuts 8. Behind the flasks 4, likewise mounted on the lateral supports 2 and secured by the nuts 9, is another shaft 10. In front of the device there is provided for each one of the flasks 4 a key 11 associated with a lever 12 mounted on and turning around shaft 7, the said lever 12 being articulated to the end 13 of a push-bar 14 which has its other end 15 articulated to a traction-arm 16. This latter is mounted by its end 17 on shaft 10 around which it rotates while its other end 18 clutches and carries the stopper 19. This stopper 19 has its lower portion provided with an extension or rod 20 the end of which possesses a concavity resembling a spoon 21.

An arc-forming rod 22 has its upper horizontal portion associated with the flexible steel claws 23 which are so arranged that each one of them registers with the location of the head 24 of each stopper 19. The ends 25 of the lateral vertical portions of said rod 22 are provided with a hook or any other suitable organ capable of engaging these ends in the nuts 8 of shaft 7 or in the lower edge 26 of the lateral supports 2. Arc 22 is used when the device is out of operation, its object consisting in causing the flexible steel claws 23 to press against the head 24 of the stoppers 19 with a view to more tightly seal the flasks 4 and prevent the liquid therein contained from volatilizing. During operation of the device, the arc 22 is drawn rearwardly, as is indicated by the dotted line in Figure III.

From the construction described in the foregoing it will be seen that by depressing a key 11 the lever 12 is caused to rotate around its fulcrum as constituted by shaft 7 and made to operate the push-bar 14 which, in turn, lifts the traction-bar 16 which latter lifts then the stopper 19 whose rod 20 retains in its spoon 21 a fraction of the liquid contained in flask 4. The dentist, thereupon, moistens the wad by causing it to come into contact with the spoon 21 whereupon he puts a finger on the head 24 of the stopper 19, pushing this latter back to its sealing position when the key 11 will return to its initial raised position, ready again to be operated in case of need.

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

1. The combination of a flask carrier with mechanical means for opening flasks on said carrier and delivering a predetermined quantity of liquid therefrom comprising a support and a tray thereon for carrying flasks, means for securing said flasks on said tray, a shaft supported in the ends of said support beneath said tray and a rod supported in the ends of said support in rear of said tray, a key lever for each of said flasks pivoted on said shaft beneath the corresponding flask, a link pivoted to said key lever at one end, a carrier lever pivoted at one end on said rod, said link being pivoted at one end to said carrier lever, a stopper for said corresponding flask, secured to the free end of said carrier arm, said stopper having an extension extending into the lower part of the flask when said stopper is in closed position, said extension having a cavity near its lower extremity for holding a predetermined quantity of liquid, whereby when said key lever is depressed the stopper and its extension are lifted from the flask with the liquid contained in said cavity.

2. The combination as claimed in claim 1, and releasable means for positively holding said stoppers in said flasks against the action of the delivery mechanism.

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