Sept 17, 1957 L. F. NORRIS ET AL 2,806,482

LIQUID DISPENSING CABINET WITH READILY REMOVABLE PINCH-COCK VALVE ASSEMBLY

Filed June 17, 1954

FIG. 1

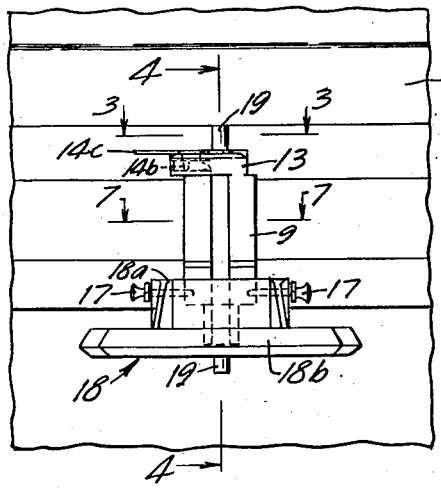


FIG. 2

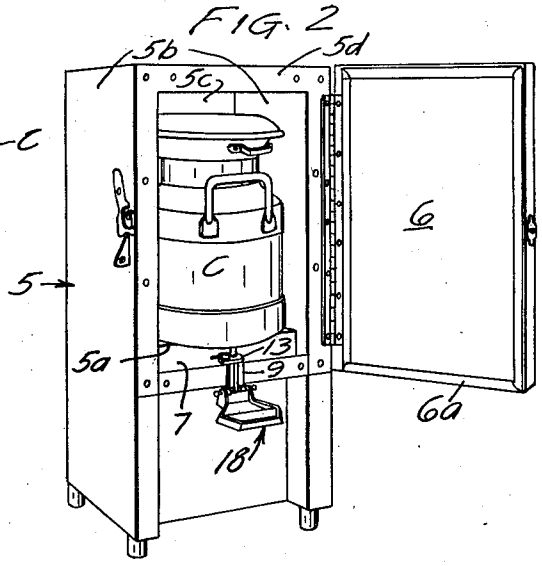


FIG. 4

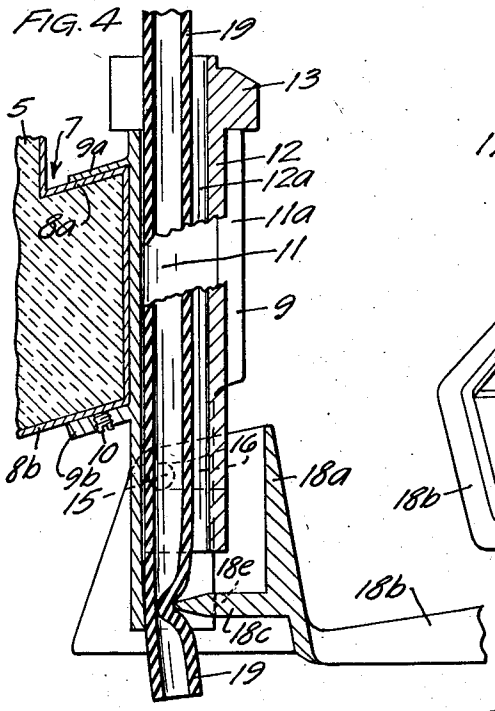


FIG. 3

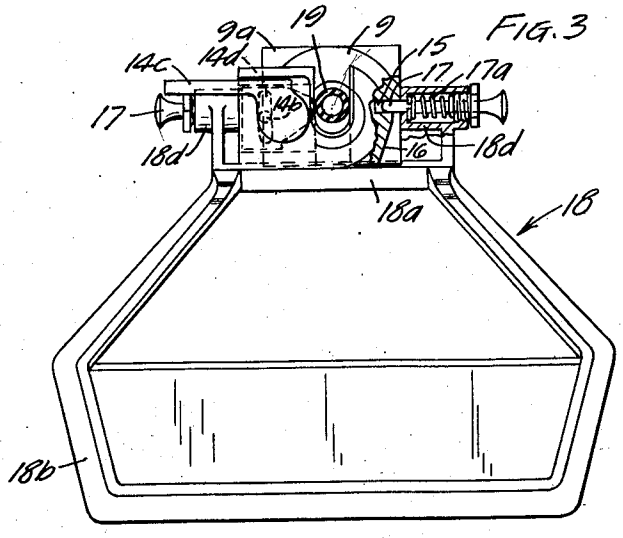


FIG. 5

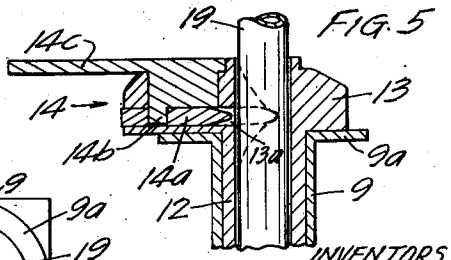


FIG. 7

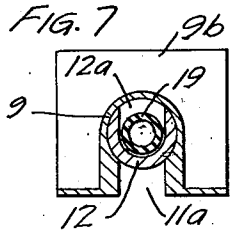
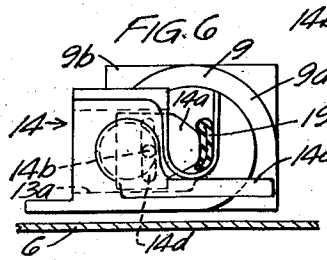


FIG. 6



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LIQUID DISPENSING CABINET WITH READILY REMOVABLE PINCH-COCK VALVE ASSEMBLY

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11 Claims. (Cl. 137—376)

This invention relates generally to liquid dispensing cabinets and particularly to a cabinet provided with a readily removable pinch-cock valve assembly specifically constructed to facilitate changing liquid containers enclosed in said cabinet.

While the invention disclosed and claimed in our prior patent, No. 2,601,319, entitled Liquid Dispensing Cabinet, issued in the United States Patent Office on June 24, 1952, has worked very satisfactorily, our present invention is an improvement thereon and is designed to further facilitate changing of the liquid containers housed within said cabinet by providing a readily removable and separable pinch-cock valve assembly which may be easily cleaned and which provides a positive lock for the valve assembly for safe, over-night storage.

It is therefore an object of our present invention to provide a liquid dispensing cabinet wherein liquid confining containers housed within the cabinet may be quickly and easily changed.

It is another object to provide a liquid dispensing cabinet specifically designed for refrigerating the liquid stored therein and provided with a pinch-cock valve assembly for controlling the liquid discharged from a container housed within the cabinet while permitting said valve assembly to be readily removed and disassembled for easy cleaning thereof.

It is a further object to provide a liquid dispensing cabinet provided with a pinch-cock type valve assembly having a portion thereof actuable only from within the dispensing cabinet and another portion actuable from outside the dispensing cabinet to permit a flexible liquid dispensing tube to be controllably opened and closed with said valve assembly being arranged so that closing of the tube by the actuating portion disposed within the cabinet will prevent dispensing of liquid by actuation of the portion disposed outside the cabinet.

It is still another object to provide a liquid dispensing cabinet having a valve mounting assembly with a pair of pinch-cock valves mounted thereon, one of said valves being spaced above the other with the upper valve being disposed within the cabinet and the lower valve being disposed outside the cabinet, said valve mounting assembly receiving a flexible discharge tube therethrough to permit controlled flow by actuation of said valves, said lower valve controlling the flow only when said upper valve is open.

It is a still further object to provide a liquid dispensing cabinet for housing a liquid container and provided with an extremely accessible tube-receiving valve mounting member, greatly facilitating changing of the liquid containers in the cabinet by facilitation of the mounting of the elongated flexible dispensing tube therethrough and arrangement of the valve mechanisms in operative controlled position with respect to said tube.

These and other objects and advantages of our invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to the same

or similar parts throughout the several views, and in which:

Fig. 1 is a fragmentary, front elevational view of our liquid dispensing cabinet with the valve assembly mounted thereon;

Fig. 2 is a perspective view of our cabinet with the door open to show the valve assembly mounted therein;

Fig. 3 is a horizontal sectional view taken substantially along the line 3—3 of Fig. 1 with a portion of the valve-mounting member broken away and showing the upper valve in open position and the insert member in closed position;

Fig. 4 is an enlarged vertical section showing the structure illustrated in Fig. 1 and taken substantially along the line 4—4 of Fig. 1;

Fig. 5 is an enlarged, vertical sectional view showing the upper pinch-cock valve in detail and showing the same in open position by full lines and in closed position by dotted lines;

Fig. 6 is a fragmentary, horizontal, sectional view taken substantially along the line 3—3 of Fig. 1 but showing the upper pinch-cock valve in closed position as well as the insert member being swung into closed position; and

Fig. 7 is a fragmentary, horizontal, sectional view taken substantially along the line 7—7 of Fig. 1 and showing the insert member in closed position.

As illustrated in the accompanying drawings, we provide a cabinet 5 having a bottom panel 5*a*, side panels 5*b*, rear panel 5*c* and a top panel 5*d* and provided with a closure door 6 generally similar to the cabinet disclosed in our previously identified patent. The bottom 5*a* has a step 7 formed along the front marginal edge portion thereof. The top surface 8*a* of said step is inclined rearwardly from the extreme forward edge thereof, and the bottom surface 8*b* thereof is also inclined rearwardly from the extreme forward edge thereof, as best shown in Fig. 4. The central portion of the step 7 has a recess formed therein to receive a mounting and anchoring member designated as an entirety by the numeral 9. Said member 9 has a pair of cooperating, inclined flanges, respectively designated by the numerals 9*a* and 9*b* for respectively engaging in lapped relation, the top and bottom surfaces 8*a* and 8*b* of step 8. Suitable means for anchoring said flanges to the step is provided, such as the set screw element 10 threadedly inserted through the lower flange 9*b* to pull the upper flange 9*a* tightly against the top step surface 8*a*. The mounting member 9 has a vertically disposed passage 11 formed therethrough as best shown in Fig. 4 wherein the center portions of the insert and flexible tube are broken away, said passage 11 extending from the top thereof to the bottom of the mounting member. Said passage is generally cylindrical in cross section but the front portion 11*a* thereof is open and unobstructed from top to bottom, to provide complete access to the passage 11 from the front 11*a*. An elongated insert member 12 has a cylindrical segment which is rotatably mounted in the cylindrical portion of said passage 11. Said insert member defines a passage 12*a* therein and the upper end of insert member 12 has an enlarged abutment flange body 13 which houses a manually operated, upper valve mechanism designated as an entirety by the numeral 14 and is best shown in Fig. 5. The upper valve mechanism 14 has a tube-engaging and pinching element 14*a* slidably mounted in a horizontally disposed slot 13*a* formed in the flanged body 13. A valve operator having an eccentric pin 14*b* and actuating handle 14*c* is journaled for oscillation on an upstanding axis within said valve body 13 in laterally offset relation to the axis of the passage 12*a* defined within the insert member 12. Obviously, oscillation of the handle 14*c* on its axis will swing actuating eccentric pin 14*b* through a circumferential arc and said pin being mounted in an

elongated slot **14***d* in the tube-engaging, pinching element **14***a* positively shifts said tube-closing element **14***a* into and out of closing position. The lower portion of valve mounting and anchoring member **9** has a pair of horizontally disposed pin-receiving recesses **15** formed on opposite sides thereof. Each of said pin-receiving recesses or apertures **15** has a pin-camming surface **16** extending forwardly and inwardly therefrom whereby a pair of opposed, spring pressed pins **17** mounted in an upwardly extending portion **18***a* of a weight member **18** can be easily inserted into said apertures **15**. Said weight member **18** has a forwardly extending weight arm **18***b* fixed thereto and in the form shown, disposed a slight distance below the spring pressed pivot pins **17** of said weight. A tube-engaging pincher **18***c* extends rearwardly or inwardly in spaced relation below said spring pressed pivot pins and is disposed below the lower extremity of insert member **12** to pass through the access opening **11***a* formed in the front of passage **11** to engage a tube **19** received through said passage and pinch the same together, as best shown in Fig. 4, the weight arm **18***b* of course, providing sufficient closing force to positively close said tube **19**. The upper rear portion of weight member **18** is bifurcated to provide a pair of horizontally opposed, pin-mounting bosses **18***d*, within which the pins **17** and pressure springs **17***a* are housed.

The tube-engaging closure element **18***c* fixed in rearwardly extending relation to the lower portion of weight member **18** has a pair of stop shoulders **18***e* for engaging the front face of the lower portion of mounting member **9** to positively limit the inward shifting movement of said pincher element and prevent cutting of the tube thereby.

The following is the description of the assembly and operation of our new valve assembly.

With the insert **12** received in the mounting member **9**, which of course has been previously secured to the front step by screws **10**, the tube **19** from the liquid container C supported on the bottom **5** of the cabinet, can be easily inserted into the tube-receiving passage **12***a* when said insert member **12** has the opening thereof disposed in registration with the front opening **11***a* of mounting member **9**. During this operation of course, the pinch-cock valve weight **18** is removed from the lower portion of mounting member **9** by retracting spring pressed pins **17** from their respective apertures so that the tube-receiving passage **12***a* is completely accessible throughout its entire length and said tube **19** can easily be mounted therein.

In practice, the tube **19** has the lower portion thereof sealed by any suitable means such as a positive vulcanized plug member being received therein and this closed end must of course be severed from the upper portion of the tube in order to permit the liquid to pass from the container C downwardly through the tube. It is of course possible to cut off this tube closure before mounting the valve weight **18** back onto the mounting member **9** by closing the upper cam actuated pinch-cock valve **14**. However, in normal practice, the weight **18** is assembled on the mounting member before the tube closure is cut therefrom and normally holds the tube in closed position, as shown in Fig. 4. However, raising of the weight arm **18***b* will of course remove the tube-engaging pincher element **18***c* from the tube and permit liquid to be discharged therethrough as long as the upper valve **14** is in open position.

It should be pointed out that the tube **19** can be completely surrounded in protected relation by rotating the insert member **12** through 180 degrees to close the opening **11***a* with a closed segment of said insert and position the opening of said insert at the rear of the passage through said mounting member. The upper end of said mounting member has a substantially horizontally disposed bearing portion which receives and engages the lower surface of the flange body **13** to support said insert in outstanding relation while permitting rotation thereof within said mounting member.

The distance across the opening **11***a* at the upper portion of the mounting member is slightly less than the diameter of the passage therethrough, thus positively retaining the insert member therein since the outside diameter of the cylindrical segment of the insert member is substantially the same as the inside diameter of the passage through the mounting member.

It will be seen that we have provided a relatively simple yet highly efficient liquid dispensing cabinet which may be of the refrigerated type to house relatively large containers of milk or other liquids and facilitate dispensing thereof while maintaining the same in a cool condition. With the door **6** of the cabinet open, the container C may of course be easily lifted onto the cabnet bottom **5** and the tube **19** inserted into its confining passage as has been previously described and said tube completely enclosed in said passage, as described.

Whenever a container is changed, the insert member and weight-operated pinch-cock valve structure may be completely removed from the mounting member and thoroughly washed before being reassembled. The complete and unobstructed accessibility to the tube-receiving passage when the openings in the insert member and mounting member are brought into registration along with the removability of the weight-operated pinch-cock valve structure, greatly speeds up changing of the containers within the cabinet and facilitates cleaning of the assembly. The parallel, front surfaces of the mounting member receive the sealing gasket **6***a* of the door **6** so that the complete peripheral area of the door **6** will be substantially sealed. The upper valve assembly mechanism **14** is of course housed within the cabinet behind the door **6** and when the door is closed and locked, said valve will be inaccessible from the outside, thereby providing an easy and quick means for locking the dispensing mechanism if desired, to positively prevent stealing of the milk or other liquid.

It will of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of our invention.

What is claimed is:

1. In a liquid dispensing cabinet for housing containers provided with flexible liquid discharge tubes, a pinch-cock valve assembly comprising a mounting member having an elongated passage longitudinally formed therethrough and securely anchored in fixed relation to the front marginal edge portion of the cabinet bottom, the front portion of said elongated passage being provided with an unobstructed access opening extending the full length thereof, an elongated hollow insert member rotatably mounted within the passage of said mounting member and defining a tube-receiving passage therethrough, said passage having an elongated access opening formed therein and extending from the top to the bottom thereof to provide a completely open, front portion for access to the passage formed through said insert member when said longitudinal openings of the insert member and the mounting member are brought into registration with each other but completely surrounding the tube received therein when said openings are out of registration, a pinch-cock valve mechanism mounted on the lower portion of said mounting member for normally maintaining the flexible discharge tube in closed position, but permitting the same to be opened to dispense liquid therethrough.

2. The structure set forth in claim 1 and said pinch-cock valve assembly being bodily removable from said mounting member to provide complete access to the substantially concentric tube-receiving passages of said mounting member and said insert member.

3. In a liquid dispensing cabinet for housing liquid containers of the type having flexible liquid discharge tubes, a mounting member for a pinch-cock valve assembly comprising an elongated, substantially cylindrical mounting element defining an upstanding passage therethrough and mounted in the cabinet bottom, the front of

said passage being provided with an access opening extending the full length thereof and affording unobstructed access for said passage, an elongated insert member rotatably mounted in said passage and having a tube-receiving passage extending the full length thereof with an access opening being provided in one side thereof whereby the passage through said insert member will be completely accessible when said passage openings are brought into registration, one with the other, and a complete tube-surrounding passage will be formed when said openings are out of registration.

4. In a liquid dispensing cabinet having a bottom and defining a storage chamber therein for housing liquid containers of the type having flexible liquid discharge tubes, a valve mounting member comprising an elongated mounting element mounted through the bottom of the cabinet and provided with a closed rear portion but having an access opening in the front portion thereof extending from the top to the bottom thereof, an insert member rotatably mounted in said mounting element and defining a tube-receiving passage therethrough, but having a longitudinally disposed access opening extending the full length thereof to provide complete, unobstructed access to the tube-receiving passage defined thereby when said opening is in registration with the open front portion of said elongated mounting element but forming an elongated tube-enclosing and surrounding passage extending the full length thereof when the opening of said insert member is rotated to bring the same into registration with the closed rear portion of said mounting element, means for securely anchoring said mounting element in fixed relation to the bottom of a cabinet and means for mounting a pinch-cock type valve element on the lower portion of said mounting element.

5. In a liquid dispensing cabinet for housing containers provided with flexible discharge tubes, a mounting member comprising an elongated mounting element extending through a front portion of the bottom of the cabinet and having means for securely anchoring the same to said cabinet bottom, said mounting element having a longitudinally disposed opening therein and extending the full length thereof, an insert member rotatably mounted in said mounting element and having a longitudinally disposed opening extending the full length thereof but providing a closed portion for a substantial peripheral segment thereof to define an elongated, tube-receiving passage therethrough wherein the front portion thereof is open from one end to the other when the insert member is in one position and said front portion is completely closed when said insert member is in another position, and means for mounting a pinch-cock valve on the lower portion of said mounting element.

6. A cabinet for housing liquid containers of the type having flexible discharge tubes attached to the lower portion thereof, said cabinet including imperforate back and side panels with a closed top and bottom and a hinged closure door across the front thereof, a mounting member rigidly mounted in the front portion of the cabinet bottom and defining an elongated, tube-receiving passage extending from the inside to the outside of the cabinet through said cabinet bottom, valve means mounted on said

mounting member, means disposed within said cabinet and mounted on the upper portion of said mounting member for actuating certain portions of said valve means, means mounted on the lower portion of said mounting member and disposed below the cabinet bottom for access from outside of said cabinet for actuating certain other portions of said valve means whereby closure of either valve actuating means will prevent discharge of liquid through a flexible tube received through said mounting member.

7. In a liquid dispensing cabinet for housing liquid confining containers of the type having a flexible discharge tube, a valve assembly comprising a mounting member mounted in fixed relation in the bottom of a cabinet to extend from the inside to the outside of the cabinet, said mounting member having an opening across the front thereof and extending from the top to the bottom, a hollow insert member rotatably mounted in said mounting member and having an elongated access opening extending from the top to the bottom thereof to provide a completely unobstructed, elongated access opening when in registration with the opening of said mounting member but providing a tube-surrounding, closed passage when rotated out of registration with said opening, a weight-operated, pinch-cock valve mounted on the lower portion of said mounting member and having at least a portion thereof completely removable from the access opening across the front of said mounting member to provide completely unobstructed access to said passage to facilitate mounting of a flexible discharge tube therethrough.

8. The structure set forth in claim 7 and said weight-operated, pinch-cock valve being bodily removable from said mounting member.

9. The structure set forth in claim 8 and a pair of opposed pivot pins mounting said weight-operated valve assembly on said mounting member, at least one of said pins being longitudinally rectractable to facilitate removal of the entire weight-operated valve assembly from said mounting member.

10. The structure set fotrh in claim 9 and said valve assembly comprising a forwardly extending, actuating weight, a tube-engaging and closing member fixed to said weight in spaced relation below said piovt pins to normally hold the tube in collapsed position and prevent liquid flow therethrough, but releasing the tube upon raising of the weight to permit liquid flow therethrough.

11. The structure set forth in claim 10 and abutment means connected with said weight for engagement with the lower portion of said valve mounting member to positively limit the closing movement of the tube-engaging valve element and thereby prevent cutting of the flexible tube.

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