Feb. 13, 1962 A. A. DEDOES 3,021,118

PAINT MIXING RECEPTACLES

Filed March 25, 1959

FIG. 1.

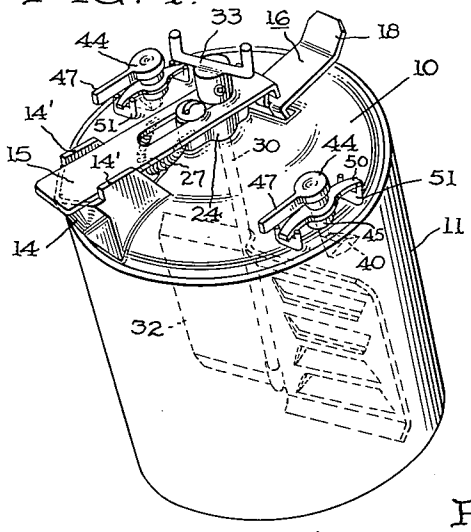


FIG. 2.

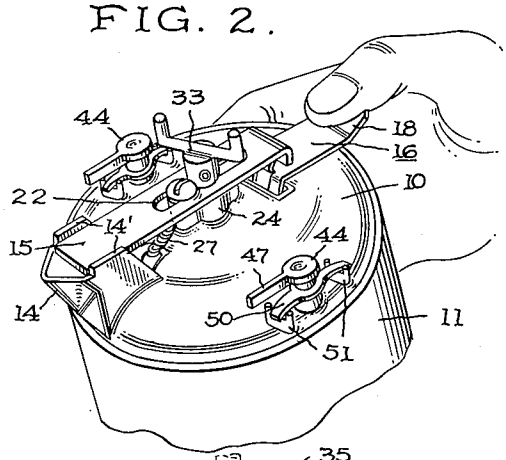


FIG. 3.

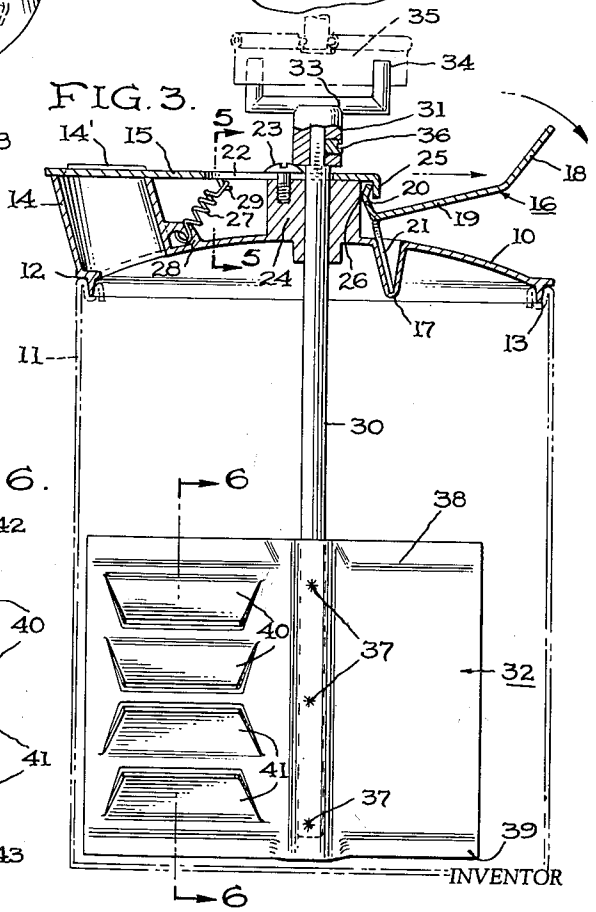


FIG. 4.

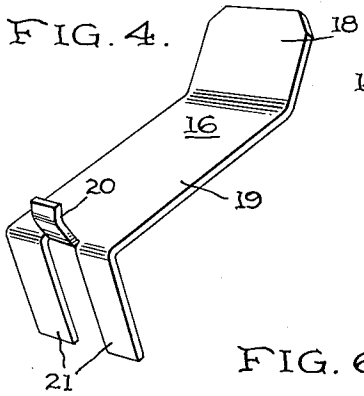


FIG. 5.

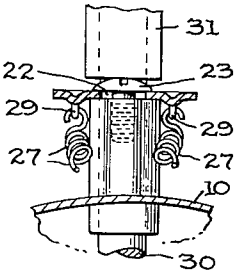


FIG. 6.

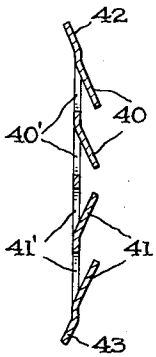
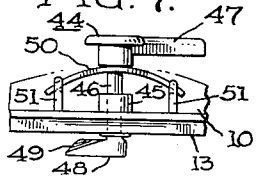


FIG. 7.



INVENTOR

ARNOLD A. DEDOES

BY Chas. W. Frankhouser

ATTORNEY

United States Patent Office 3,021,118
Patented Feb. 13, 1962

3,021,118
PAINT MIXING RECEPTACLES

Arnold A. Dedoes, 2070 W. Eleven Mile Road, Berkley, Mich.

Filed Mar. 25, 1959, Ser. No. 801,811
3 Claims. (Cl. 259—43)

This invention relates to improvements in fluid mixing machines and more particularly to a novel form of detachable cover device for application to the individual commercial receptacles or containers associated with cabinet type mixing machines.

The operation of such commercial (paint or lacquer) mixing machines for use in mixing paints and lacquers for example, enables the operator to stir several different liquids simultaneously and when it is desired to stir and mix several different colors it requires considerable handling of the containers in and out of the machine. Heretofore difficulty has been experienced in providing an efficient and accessible cover which shall conveniently replace the commercial covers for each of the several containers while in the machine and facilitate fluid mixing and pouring and general usage of the fluid containers in and out of the machine.

One important object of the present invention is to provide a novel form of detachable cover attachment for association with a commercial fluid container which shall be more desirable and efficient in operation than similar devices heretofore proposed.

Another object of the invention is to provide a cover of the character designated which may be made from a single metal die-casting operation and include a simplified and more efficient form of fluid pouring spout.

Another object of the invention is to provide a novel form of container cover spout fluid cut-off valve and operating mechanism therefor.

Another object of the invention is to provide a cover mechanism of the character designated including a spout closure and fluid cut-off valve mechanism which may be manually operated while handling the container to facilitate pouring material from the container.

A further object of the invention is to provide a cover device including a novel form of stirrer unit carried thereby.

These and other objects of the invention will be more manifest from the following specification and drawings and more particularly set forth in the claims.

In the drawings:

FIG. 1 is a perspective view of a container cover and stirrer constructed and arranged in accordance with the present invention;

FIG. 2 is a perspective view of the cover and spout mechanism showing the spout valve partially open;

FIG. 3 is a sectional view in elevation of the cover and container shown in FIG. 1;

FIG. 4 is an enlarged perspective view of the spout valve operating lever shown in FIG. 1;

FIG. 5 is a fragmentary sectional front view on line 5—5 of FIG. 3 of the spout valve and retaining guide therefor;

FIG. 6 is a detailed sectional view of the agitator blade on line 6—6 of FIG. 3; and

FIG. 7 is a fragmentary view in elevation of the can cover lock shown in FIG. 2.

Referring to FIGURES 1, 2, and 3 of the drawings, there is shown a dome-shaped container closure cover **10** embodying the invention and adapted for use with a conventional type of commercial paint can adaptable for use in association with a fluid mixing mechanism of the usual type well known in the art. The cover **10** is preferably made of relatively heavy die-cast metal and is adapted to replace the commercial can cover while the contents are

being stirred in the machine. This cover includes a peripheral depending edge flange **12** adapted to fit within a top groove **13** of the standard paint can when the commercial can cover is removed to permit application of the mixer head **10** with its associated parts hereinafter more fully described. The cover is made dome-shaped and of die-cast metal to provide a more sturdy construction of the required strength to withstand the rough usage to which such covers are continuously subjected during the normal operation thereof in stirring, mixing, pouring, and blending fluent materials.

Formed as an integral part of the die-cast cover is a spout member **14** substantially within the side limits of the can and which is closed by a horizontally disposed flat metal sliding closure valve member **15**. This closure is actuated by a connecting lever **16** which is pivotally retained in a V shaped recess **17** formed integrally in the cover **10** as hereinafter more fully described. The valve plate **15** is freely guided in its sliding movement by the projecting spout edges **14'—14'**. The operating lever **16** shown in FIGURE 4 is made from a heavy sheet metal stamping and includes a rearwardly and upwardly extending thumb engaging portion **18** for more convenient manipulation while pouring fluid from the can. This lever also includes a central body portion **19**, a curved stuck-up valve plate engaging portion **20** and downwardly struck portions **21—21** which form the pivotal operating support for the lever at the bottom of the cover V shaped depression **17**. The portions **21—21** are relatively long and thus provide a very efficient valve operating lever. The valve plate member **15** includes a longitudinal slot **22** formed therein to slidably engage the head of a retaining screw **23** mounted in the top surface of a bearing block **24** also formed as an integral part of the cover **10**. The bearing block **24** also forms a bearing support for the stirrer mechanism hereinafter described, as well as a closure limit stop **26** for the movement of the spout valve plate **15** and lever **20** as shown in FIGURE 3. It will be observed that the spout valve plate **15** is supported and freely guided at the front end by the spout edges **14'—14'** and at the rear end portion by the top surface of the bearing block **24**, the slot **22** and screw **23**. The rear extremity of the plate **15** adjacent the bearing block **24** includes a downwardly extending flange **25** for edge contact engagement with the manual operating lever projection **20**. The valve plate **15** maintains the spout closed by means of a coil spring loop **27** engaging an upstanding eyelet projection **28** formed in the cover **10** and a pair of downwardly extending tongue members **29—29** struck from the plate **15** as shown in FIGURES 3 and 5. It will be noted that the spring **27** holds the valve spring **27** tightly in a downwardly direction as well as tightly in a horizontal sliding direction against the spout edges and the bearing stop **26**.

The cover **10** with its central bearing **24** retains in position the container agitator mechanism which includes a vertical shaft **30** with a top external drive coupling member **31** and a lower agitation member **32**. The coupling member **31** includes a hub having a transverse bar portion **33** and upwardly extending vertical end portions **34—34** to freely engage a freely swinging and pivotally mounted cooperating plate member **35** which forms a part of the power drive mechanism, not shown. The coupling **31** is removably connected to the shaft **30** by a set screw **36** when it is desired to remove and clean the valve plate **15** whenever necessary.

The agitator member **32** is formed from a heavy sheet metal stamping and designed as shown in FIGURE 6 to produce a most effective and efficient stirring operation while being rotated in the container. This agitator is preferably rectangular in shape and divided at its mid portion by a vertical groove to fit the shaft **30** and be integrally

secured thereto by spot welding as indicated by the numerals 37—37. It will be noted that one vertical side section of the stirrer plate 32 is a solid plate and provided with deflected top and bottom end portions 38—39 both inclined in the same direction. The other section of the stirrer plate is perforated by a top group of transverse louvers 40—40 bent outwardly in one direction at the top half of the stirrer and a bottom set of louvers 41—41 bent from the same side of the plate body but in the opposite direction. From the above arrangement it will be noted that in the construction of the stirrer member 32, the one solid plane side produces bodily movement of the fluid engaged thereby while the side with the louvers produces a counter directional or turbulent movement of the fluid engaging that portion of the stirrer body and thus effectuates the desired intimate mixing of the fluid. The mixing is further aided by the fact that the top and bottom edges 42—43 of the perforated section are inclined parallel to louvers 40 and 41 so as to force fluid through associated openings 40' and 41' respectively. A further feature of this novel stirrer arrangement is that it may be made from a single metal stamping operation and thus further reduce production costs to a minimum.

The cover 10 is clamped in place by a pair of side clamps 44—44 mounted on opposite sides of the cover and manipulated in suitable cast bearings 45—45 formed integral with the cover and only one will be described in detail as shown in FIGURE 7. Each clamp includes a vertical shaft 46 extending through a cover bearing 45, an operating handle 47 rigidly secured at the top thereof and a cam member 48 secured to the lower extremity of the shaft 46. The cam 48 has an inclined surface 49 adapted to engage under the cam rim 13 and securely hold the cover 10 in fluid tight engagement with the can to which it may be attached. The lever 47 and cam 48 are held in yieldable compressed tension relative to the cover 10 and can 11 by means of a leaf spring 50 having its free ends supported in spaced apart projections 51—51 cast integrally with the cover 10. The arrangement is such that spring 50 holds the parts in readiness to clamp the cover to the can by a half turn and release the same by a reverse movement thereof. This sturdy and simplified yieldable locking arrangement provides a clamp which is most effective in operation and particularly easy to clean and keep free of the usual contamination present in devices of this kind.

Having thus described a preferred embodiment of my invention, changes may be made therein without departing from the invention defined in the claims.

What I claim is:

1. In a receptacle cover attachment for use with a receptacle in a fluid mixing machine, a removable die-cast closure member having rim portions for engaging and sealing the top edge of the receptacle, said closure including a substantially V-shaped spout member formed integrally with said closure and extending above the same, said spout having a top horizontal pouring edge, a vertically disposed agitator shaft bearing member formed centrally of the closure member, a horizontal surface formed at the top portion of said bearing and in planar relation to said horizontal spout edge, an agitator shaft extending through said bearing, a horizontally disposed slidable closure plate for the spout opening and having a substantially straight forward end edge for engaging the edges of said spout, guide means for said spout closure plate including a longitudinally disposed slot formed in said closure plate and straddling said agitator shaft, and upwardly extending flanges formed on the opposite side edges of said spout, said bearing surface additionally guiding and supporting the rear portion of said closure plate by contact therewith, means for limiting the forward movement of the closure plate including the agitator shaft bearing, the shaft extending through the bearing and the plate slot, a manually operated lever pivotally mounted on said receptacle closure adjacent to said bearing, and means at one end of the lever for engaging the rear end of the spout closure plate to operate the same in contact relation with the spout edges and the bearing surface.

2. A receptacle cover attachment of the character described in claim 1 including yieldable means for maintaining the spout closure plate in closed position and in contact with the manually operated lever, a substantially V-shaped recess formed in the closure member, means at one end of the lever projecting into said recess and forming a pivot point for said lever and means at the same end of said lever for freely engaging said spout plate to operate the same.

3. A receptacle cover attachment of the character described in claim 1 including yieldable means for maintaining the spout closure plate in closed position and in contact with the manually operated lever, a substantially V-shaped recess formed in the closure member, a projection formed at one end of the lever and extending into the recess to form a pivot point for said lever, a flange member formed on said spout plate end adjacent to said shaft bearing and an upwardly extending end portion of said lever for freely engaging the spout plate flange member to operate the same.

References Cited in the file of this patent

UNITED STATES PATENTS

1,839,082	Burgard	Dec. 29, 1931
2,154,581	Pershall	Apr. 18, 1939
2,257,238	Hexter	Sept. 30, 1941
2,312,584	Peterson	Mar. 2, 1943
2,392,731	Fox	Jan. 8, 1946
2,469,649	Hunter et al.	May 10, 1949
2,555,459	Seufer	June 5, 1951
2,585,334	McCauley	Feb. 12, 1952
2,665,038	Fowler	Jan. 5, 1954
2,802,649	Stockton	Aug. 13, 1957