March 26, 1940. F. H. BROWN 2,195,234

MEANS FOR COLORING AND AGITATING PAINT

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Fig. 1.

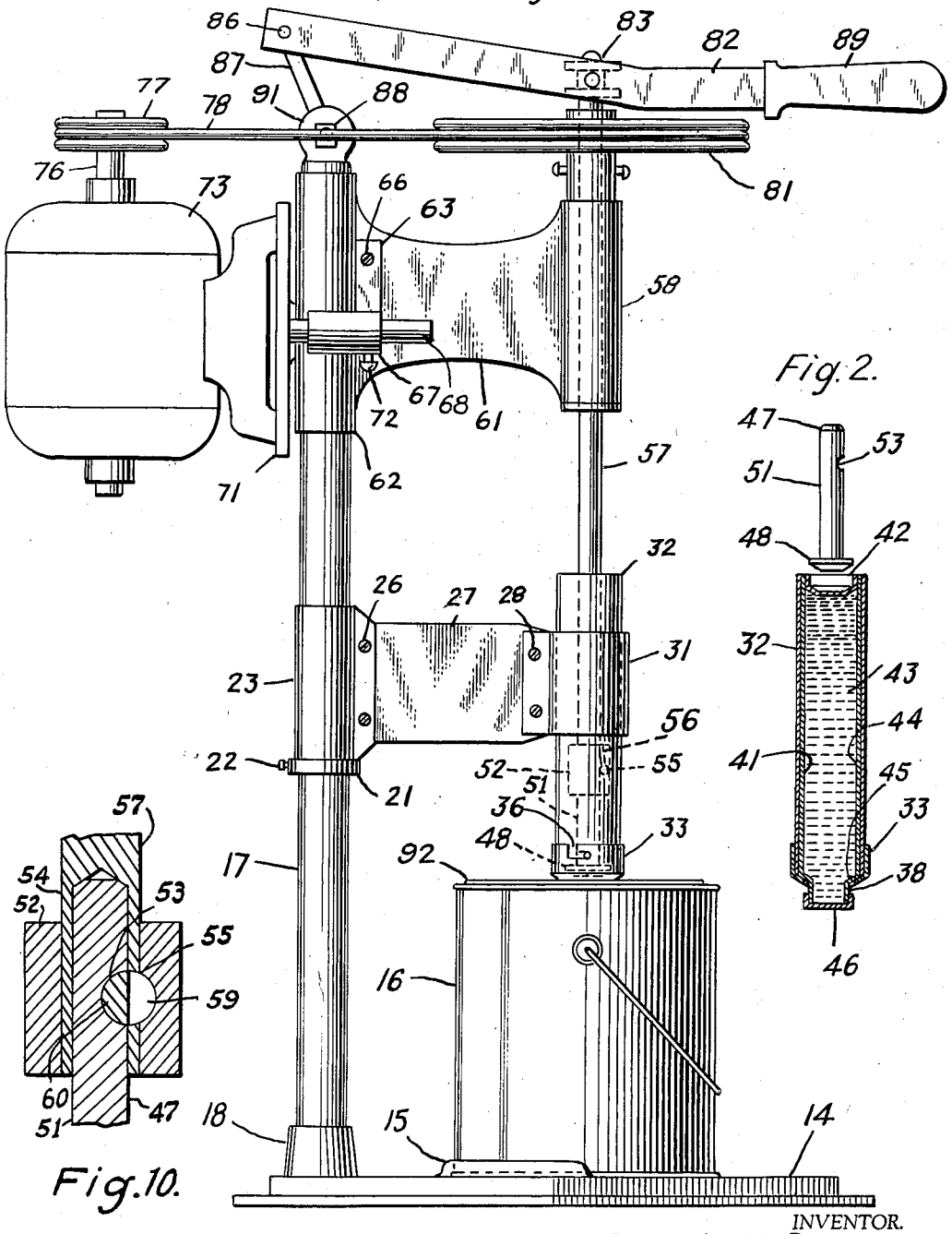



Fig. 2.







Fig. 10.

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Fig. 3.

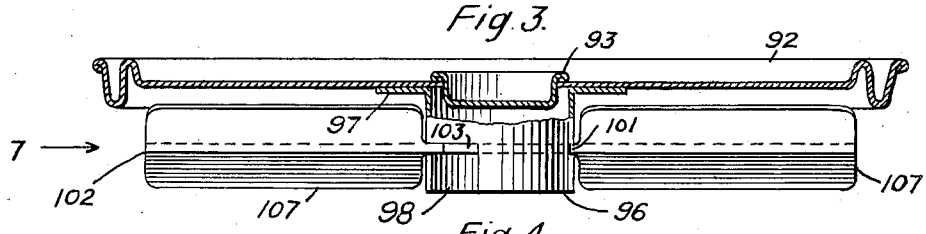



Fig. 4.

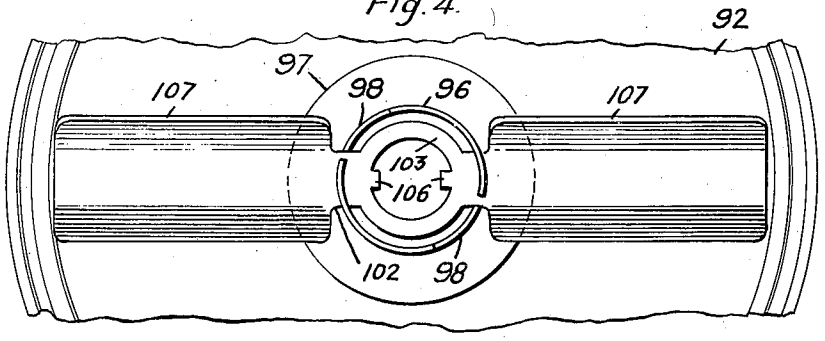



Fig. 5.

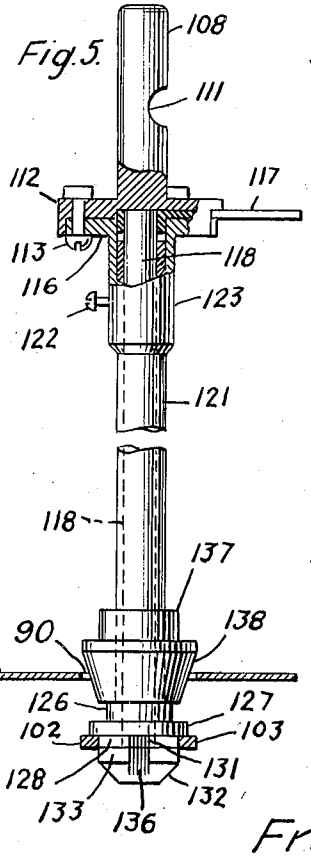



Fig. 6.

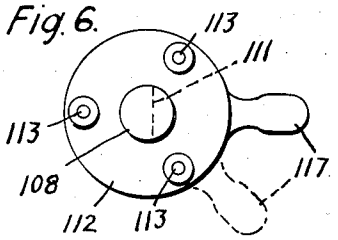



Fig. 7.

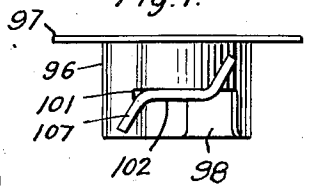



Fig. 8.

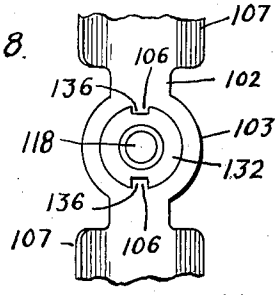
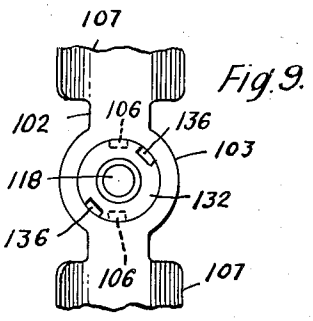



Fig. 9.




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2,195,234

# UNITED STATES PATENT OFFICE

2,195,234

## MEANS FOR COLORING AND AGITATING PAINT

Frank H. Brown, Pennside, Pa.

Application February 24, 1939, Serial No. 258,167

14 Claims. (Cl. 259—24)

My invention relates to means for coloring and agitating paint, and particularly to means for this purpose that are adapted for operation at a place of wide distribution or use, such as a retail store or a paint shop.

Heretofore, it has been customary to provide cans of paint of a wide variety of colors, shades or tints, and to fill these cans at paint factories.

Thus, in many cases, in order for a dealer or shop operator to have a suitable variety of colors, it was necessary to have a great stock of paint, which involved an extensive investment of capital, and frequently resulted in deterioration and loss.

Not only were the colors many, but they were put up in cans of various sizes, so that a common complaint in establishments of this character was that the dealer might have the desired color, but not the desired can size.

The inconveniences and lack of economy and efficiency resulting from the above-mentioned causes, eventually inspired the suggestion of providing a base paint, such as white or other color, in containers or cans for the reception of color charges from separate packets, this operation to be effected by the customer.

This former suggestion has the advantage of reducing the stock to be maintained, but has the great disadvantage of requiring the individual user to open two containers, place the contents of the color container into the base paint container, and effect the mixing operation himself.

There are several detriments to such process, inasmuch as many individual users have no effective idea of how to mix the ingredients, do not mix all of the color, cannot repeat the process to obtain matched colors, and cannot avoid other difficulties, such as spilling the paint, damaging surrounding objects and undergoing considerable loss and trouble.

It is an object of my invention to provide means for retaining the advantages of the separate color packet idea by effecting the mixture at the shop or retail dispensary, whereby the operation is effected quickly and easily, by one who knows how, the individual user receives a single container of finished product, successive purchases can be readily matched, the danger of spillage, damage and loss is reduced, and the advantages are also retained of the older method of putting up all of the shades and tints at the factory.

Another object of the invention is to provide such means whereby extensive equipment at the place of mixing, and elaborate alteration of standard cans or containers are not required.

In order to render the invention more clearly understood, means are shown in the accompanying drawings for carrying the same into practical effect, without limiting the improvements in the useful applications thereof to the particular constructions shown and described, which are given merely by way of example.

In the drawings:

Figure 1 is a view, in side elevation and on a reduced scale, of means for effecting certain steps of the method of my invention; the parts being indicated as positioned during a certain intermediate phase of the method;

Fig. 2 is a view, partially in section and partially in elevation, of parts of the means of Fig. 1 as positioned at an earlier step of the method;

Fig. 3 is a view, partially in side elevation, partially in section, and on an enlarged scale, of the lid of a paint can shown in Fig. 1, and an agitator removably mounted on the under or inner side of the lid;

Fig. 4 is a bottom plan view of the agitator and a portion of the lid shown in Fig. 3;

Fig. 5 is a view, partially in side elevation and partially in section, parts also being broken away, of means for operating the agitator of Figs. 3 and 4;

Fig. 6 is a top plan view of the device of Fig. 5;

Fig. 7 is a view, taken in the direction of an arrow 7 of Fig. 3, of the agitator and its means of mounting on the lid;

Fig. 8 is a bottom plan view of the device of Fig. 5, with the parts positioned as therein shown;

Fig. 9 shows the parts of Fig. 8 in different relative positions; and

Fig. 10 is an enlarged detail view, in longitudinal section, of one example of holding device embodied in the invention.

In practicing the invention, a container or can adapted to receive a base paint, an enamel, a stain or a vehicle, and also to have service aperture means, such as the usual opening at the top of the can, or an aperture provided by cutting, for the removal of the contents, is further adapted, as by an auxiliary opening in the lid or other part of the container, to receive a color or other treating medium from a container or tube without opening the service aperture; this operation also being followed by the agitation of the mixture in the container, without opening the service opening.

Means for correlating the base paint container and the color medium container to effect the above-mentioned results, is embodied in one example of a machine for practicing the method,

such as a machine having a support for the base paint container, operating means, a support for the color medium container movable between effective and ineffective positions relative to the base paint container and the operating means, and means operable by the operating means, when the color medium container support is in said ineffective position, for agitating the mixture in the base paint container, as will be more apparent from the following description:

Referring to Fig. 1, one example of a machine for effectively operating one form of the method, comprises a base or plate 14, as for disposition on a counter or stand in a shop or retail store, means, such as a flange 15 or an adjustable element on the base 14 or other part, for centering a container or can 16, a standard 17, as of metal tubing secured in a socket 18 on the base 14, a collar 21 vertically adjustably secured in position around the standard 17, as by a screw 22, and a color medium container support sleeve 23 movably journaled about the standard on the collar 21.

The sleeve 23 is connected, as by screws 26, to a plate-like bracket arm 27 that is secured, as by screws 28, to a sleeve 31 surrounding a cylinder 32 and holding the latter in vertically adjustable fixed position. The cylinder 32 is provided with a lower end element 33 removably attached thereto, as by bayonet joint means 36, and having a tapered or funnel-like lower end outlet port conforming to the lower port or exit end 38 of a color-medium container 41 in the cylinder 32.

The container 41, which may be constructed entirely of metal or other suitable material, has a body portion 44 that closely fits the inside of the sleeve 31 and, in the present instance, is constituted as a rigid-wall tube. The end 38, also of tubular form, but of smaller diameter than the body portion 44, is joined to the body portion 44 through the intermediary of a substantially frusto-conical element 45.

The color-medium container also has an element 42 of metal as other material substantially cup-shape at its upper or rear end which is constituted as both the sole means for closing said end and as means operating similarly to a piston head for driving a color medium 43 through the lower end 38. The opening in the lower end of the element 33 is made large enough to pass a cap 46 of metal or other material on the end 38 of the container 41. This cap may be removed in certain instances where the medium 43 is sufficiently firm, before the insertion of the color medium container 41 into the cylinder 32.

A piston or plunger element 47, see Fig. 2, has a lower end head 48 of inverted substantially frusto-conical shape conforming to the shape of the lower end of the color-medium container in order to effectively extrude the medium 43, and is provided with a shank 51 fitting an opening in a clamp body 52, Fig. 1, and a notch 53 for removable attachment to the body 52, as by manipulation of a holding lever 56.

The clamp body 52 is of cylindrical shape surrounding, and fixed to, a hollow portion 54 of the plunger rod 57 into which the shank 51 is inserted. A shaft 55 is transversely journaled in the body 52 and has a slot or recess 59 which, when the shaft is turned one hundred and eighty degrees about the shaft axis from the position shown in Fig. 10, so registers with the hollow or bore of the portion 54 as to admit the shank 51. When the notch 53 is opposite the recess 59, the shaft 55 is turned one hundred and eighty degree to the position shown in Fig. 10, in which position a portion 60 of the shaft 55 opposite the recess 59 is disposed in the notch 53, and the piston 47 is thereby held in place. A simple reverse turning movement of the shaft 55, effected by manipulation of the lever 56, removes the portion 60 from the notch 53 and again places the recess 59 in register with the bore of the portion 54, whereby the piston 47 is released for removal from the plunger rod 57.

The clamp body 52, and the lever 56 thereof, are carried at the lower end of a plunger rod 57 that is rotatably and vertically reciprocably mounted in a sleeve bearing 58 on a bracket arm 61. The latter has a sleeve 62 fixed in position around the standard 17, and supports brackets 63 secured thereto as by screws 66. The brackets 63 have sleeves 67 in which rods 68 on a base 71 are secured, as by set screws 72, for supporting a drive motor 73.

A vertical shaft 76 of the motor 73 carries a pulley 77 connected by a belt 78 to a pulley 81 that is splined to the plunger rod 57 to rotate the latter and to permit the latter to move vertically relative to the pulley 81.

This vertical movement of the plunger rod 57 is effected by a lever 82 having a connection 83 to the rod permitting the lever to pivot about a horizontal axis relative to the rod, and the rod to rotate about its vertical axis relative to the lever. The latter is further pivoted, as by a pin 86, to one end of a link 87 having its other end pivoted by a pin 88 to an upper end element 91 on the standard 17, and is provided with a handle 89.

Referring particularly to Figs. 3, 4 and 7, a lid 92 of the can 16 is generally of a usual friction type for press fitting the container, but has a small opening 90, Fig. 5, at the center thereof into which is press fitted, or otherwise mounted, a cover or cap 93. At the inner or under side of the lid 92, in register with the opening 90, is a sleeve 96 having a top flange 97 by which the sleeve is soldered or otherwise secured to the lid 92. The sleeve 96 has vertical side slots 98 communicating with horizontal slots 101 to, in effect, provide bayonet joint connection or receiving means for an agitator or mixer 102 that is normally sufficiently tightly frictionally held in position by the sleeve as to prevent accidental displacement of the agitator from the sleeve.

In the position shown in Figs. 3, 4 and 7, the agitator 102 is thus frictionally held, but by turning the agitator clockwise, as viewed in Fig. 4, it is displaced from the horizontal slots 101 and placed in register with the vertical slots 98, whereby it may be removed vertically downwardly from the sleeve. Conversely, the agitator may be replaced in position in the sleeve by moving it upwardly in the slots 98 and turning it counter clockwise into the horizontal slots 101 against the friction or spring pressure of the sleeve on the agitator.

The agitator, which as shown is of sheet material, comprises a central ring-like portion 103 having inwardly extending radially opposite projections 106 and radially outwardly extending blades 107.

Referring to Figs. 5, 6, 8 and 9, an attachment for mounting on the plunger rod 57, when the parts of Fig. 1 thereon are removed and the cylinder 32 turned aside, comprises an upper end element 108 for fitting into the clamp body 52, and a notch 111, similar to the notch 53, for attach-

ment to the clamp body by manipulation of the holding lever 56.

The element 108 has a disk-like lower end member 112 secured, as by bolts 113, to another disk-like member 116, and between which disks is mounted a lever 117 fixed to the upper end of a rod 118 disposed in a sleeve or tube 121. The latter is held, as by a set screw 122, in a sleeve 123 on which the disk 116 is mounted.

Fixed to the lower end of the sleeve 121 is an element 126 including an annular shoulder 127 and an annular portion 128 of reduced diameter having slots 131 for receiving the projections 106 of the agitator 102. The portion 128 is of such diameter as to have a close sliding fit with the inner edge of the ring-like portion 103 of the agitator whereby, when the portion 103 is on the portion 128 with the projections 106 in the slots 131, the agitator is held closely to the element 126 in lateral or radial directions.

Fixed to the lower end of the rod 118 is an element 132 having a body portion 133 of substantially the same diameter as the portion 128, and a lower end nose of tapered or frusto-conical shape whereby the agitator may readily receive the ring 103, with the projections 106 moving along the slots 136 in the element 132 into the slots 131 of the element 126.

With the parts positioned as shown in Figs. 5, 6 and 8, the slots 131 and 136 are in register with each other, so that the attachment may be inserted into, or withdrawn from, the agitator.

When the handle 117 is moved from its full-line position to its dotted-line position of Fig. 6, thereby moving the element 132 from the position of Fig. 8 to the position of Fig. 9, the slots 136 are moved out of register with the slots 131, whereby the projections 106, and the agitator as a whole, are held to the attachment, because the projections 106 are then held from above by the portion 128, and from below, by the portion 133.

An element 137, floatingly surrounding the tube 121, has a frusto-conical or tapered portion 138 adapted to fit the opening 90 and to remain therein as a closure element when the attachment of Fig. 5 is lowered from the position of this figure, and until the attachment is lifted out of the opening 90.

In operation, as when a customer of a retail paint store has requested a certain size can of paint of a certain color, the salesman, instead of looking for such can containing a factory-mixed paint, merely selects a can of the size requested, but containing only a base, such as white paint, and selects a color medium container of such size, and containing a color medium of such character, as to give the quantity of base paint selected the tint or shade desired.

The body container 16 is then placed, as in Fig. 1, the cap 93 removed, without disturbing the lid 92 and the container 41 placed in the sleeve 32, or these operations may be varied as desired. It is sufficient that, with the container 41 positioned relative to the head 48, as in Fig. 2, and the head secured to the clamp body 52 in the upper position of the latter, effected by moving the handle 89 upwardly, the lower end 38 of the element 33, with the cap 46 removed, is inserted into the opening 90.

Then, by moving the handle 89 downwardly, the head 48 engages and fits the element 42, the latter acts as a piston head against the color medium 43, and the latter is extruded into the container 16.

The handle 89 is then raised, the empty container 41 removed, the head 48 detached from the plunger rod 57, and the cylinder 32 moved aside by pivoting the bracket arm 27 about the standard 17.

Next, the attachment of Fig. 5 is attached to the clamp 52, as above described, and the plunger rod 57 lowered until the lower end of the attachment enters the ring 103 of the agitator 102, as above set forth.

By manipulating the handle 117, the agitator is then secured to the attachment of Fig. 5, as described, whereupon, by lowering the plunger, the agitator is released from the lid 92 for lowering into the can. After this operation, by energizing the motor 73, the plunger 57 is rotated through the intermediary of the pulley 81, the belt 78 and the pulley 77, to thoroughly agitate the mixture.

Upon the completion of the latter, the motor is deenergized, the rotation of the agitator stopped, and the plunger raised, whereby, upon the reversal of the above-described operations, as set forth, the agitator is replaced in position on the sleeve 96 and released from the attachment of Fig. 5.

The cap 93 is replaced in the opening 90 and the can of freshly mixed and freshly tinted paint of the desired color handed to the purchaser ready for use, as soon as desired, by merely removing the lid 92 in a usual manner at the point of use; the method having the great advantage of not requiring the opening of this lid, which is always a hazard.

The equipment or machine at the store or shop is very simple, compact, economical to construct and easy to operate to effect the coloring and agitating operations quickly.

The method effects great economy by the reduction of stock necessary to be maintained and handled, and has many other advantages.

Although a particular form of the invention has been shown and described, changes may be effected therein without departing from the spirit and scope thereof, as set forth in the appended claims.

I claim as my invention:

1. Means for agitating paint, comprising a container having a lid providing for the opening of the container for the removal of the paint, an auxiliary opening in said lid, a cap for the auxiliary opening, means on the lid for supporting an agitator in the container, an agitator on said supporting means, and agitator actuating means operable through said auxiliary opening for removing said agitator from said supporting means.

2. Means for agitating paint, comprising a container having a lid providing for the opening of the container for the removal of the paint, an auxiliary opening in said lid, a cap for the auxiliary opening, means on the lid for supporting an agitator in the container, an agitator removably mounted on said supporting means, and agitator operating means for extension through said auxiliary opening and detachable attachment to said agitator for removing the latter from, and returning it to, said supporting means.

3. Mechanism for coloring paint, comprising a support for a base-paint container including a lid for closing the container and opening it to serve the colored paint, and means providing an entrance for a color medium to the container and also providing for agitation of the mixture while said lid is in closed position, means for holding a color-medium container in position for inserting color medium into the base-paint container through said entrance, and means for action on

the color medium in the color-medium container to exert force on the color medium during said insertion.

4. Mechanism for coloring and agitating paint, comprising a support for a base-paint container including lid for closing the container and opening it to serve the colored paint, and means providing an entrance for a color medium to the container and also providing for agitation of the mixture while said lid is in closed position, means for holding a color-medium container in position for inserting color medium into the base-paint container through said entrance, means for action on the color medium in the color-medium container to exert force on the color medium during said insertion, agitator operating means on said mechanism and held in position for operation in said entrance, and means for actuating said operating means.

5. In apparatus for inserting color medium into a closed receptacle having a small opening provided with a removable closure element, means for receiving the receptacle with said opening in predetermined position, and means for holding a color-media container for inserting the medium into the receptacle through said opening in said position.

6. In apparatus for inserting color medium into, and agitating paint in, a closed receptacle having a small opening provided with a removable closure element, means for receiving the receptacle with said opening in predetermined position, means for holding a color-medium container for inserting the medium into the receptacle through said opening in said position, and means for exerting agitating action in the receptacle.

7. In apparatus for inserting color medium into, and agitating paint in, a closed receptacle having a small opening provided with a removable closure element, means for receiving the receptacle with said opening in predetermined position, means for holding a color-medium container for inserting the medium into the receptacle through said opening in said position, and means operable through said opening in said position for exerting agitating action in the receptacle.

8. In apparatus for inserting color medium into a receptacle containing a base paint and agitating the mixture, the receptacle including a lid having a small opening provided with a removable closure element, means for receiving the receptacle with said opening in predetermined position, means for holding a color-medium container for inserting the medium into the receptacle through said opening in said position, and means operable through said opening in said position for exerting agitating action in the receptacle.

9. In apparatus for agitating color paint in a receptacle containing a base paint and including a portion having a small opening provided with a removable closure element, said small opening providing for the insertion of color medium therethrough into the receptacle, means for receiving the receptacle with said small opening in predetermined position, and means operable through said small opening in said position for agitating the mixture in the receptacle.

10. In apparatus for agitating color paint in a receptacle containing a base paint and including a portion having a small opening provided with a removable closure element, said small opening providing for the insertion of color medium therethrough into the receptacle while the receptacle remains otherwise closed, means for receiving and supporting the receptacle, and means for agitating the mixture in the receptacle while supported on said receiving means.

11. In combination, a receptacle having top and bottom walls enabling it to be stacked over and under like receptacles and including a portion of its top wall having a small opening therethrough, agitator means in the receptacle having a portion accessible through said small opening for operative connection to and disconnection from agitator operating means insertible through and withdrawable from said small opening, and removable closure means for sealing said small opening free from interference with said stacking.

12. In combination, a receptacle having a lid opening and including a movable lid for said lid opening and a smaller opening through the lid, agitator means removably mounted on the inner side of the lid having a portion accessible through said smaller opening for operative connection to agitator operating means for dismounting the agitator means from the lid and actuating the agitator means, said agitator operating means being operative to return the agitator means to position mounted on the lid and for disconnection from the agitator means for withdrawal through said smaller opening, and removable closure means for said smaller opening.

13. Means for agitating paint, comprising a receptacle including a lid providing for the opening of the receptacle for the removal of the paint and having an auxiliary opening, a removable closure element for the auxiliary opening, means on the lid for removably supporting an agitator in the receptacle, and an agitator on said supporting means having a portion accessible through said auxiliary opening for operative connection to and disconnection from agitator actuating means operable through the auxiliary opening from outside the receptacle.

14. In apparatus for agitating color paint in a receptacle containing a base paint and embodying a portion having a small aperture provided with closure means movable for opening and closing said aperture, a container holding a color medium and having an exit portion adapted for cooperation with said small aperture in inserting the medium therethrough into said receptable while the latter remains otherwise closed, closure means movable for opening and closing said exit portion, means for receiving and supporting said receptacle for cooperative relation to said container, and means for agitating the mixture in the receptacle while supported on said receiving means.

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