

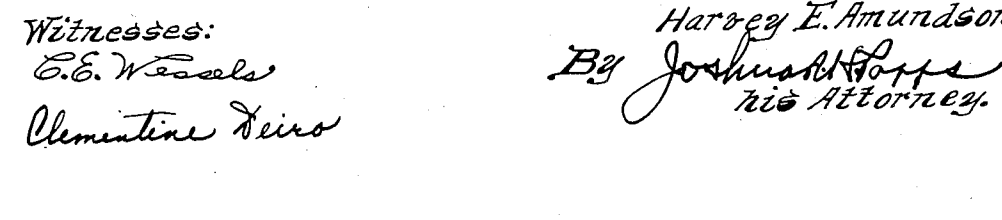
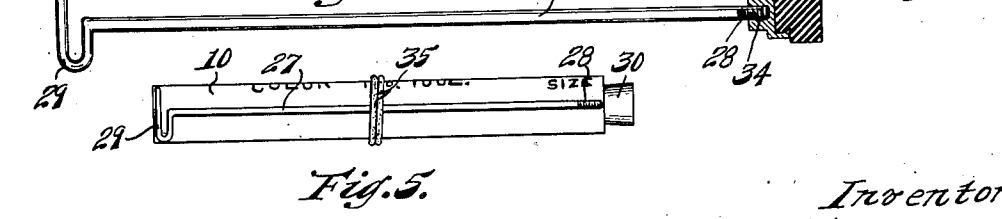
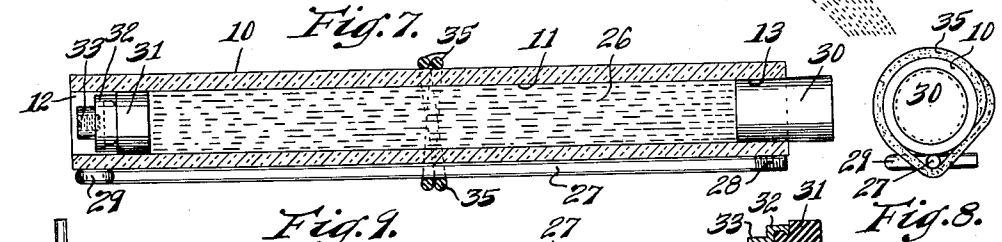
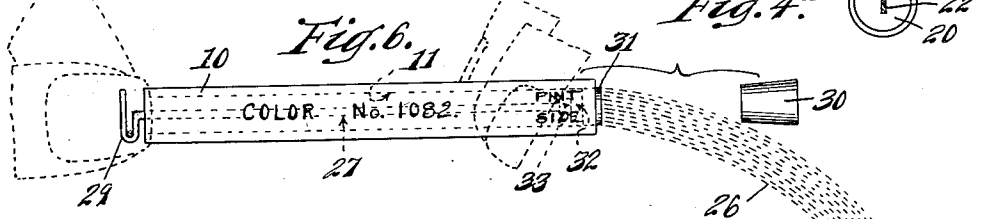
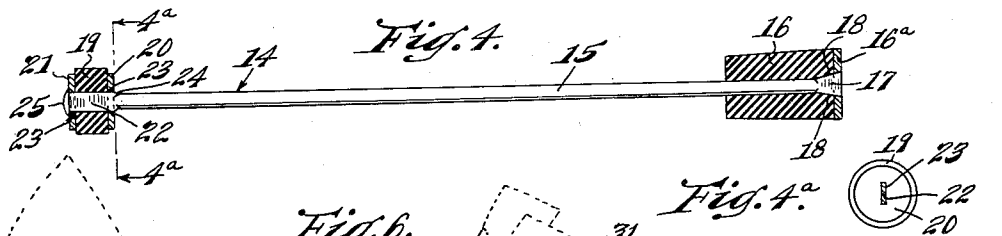
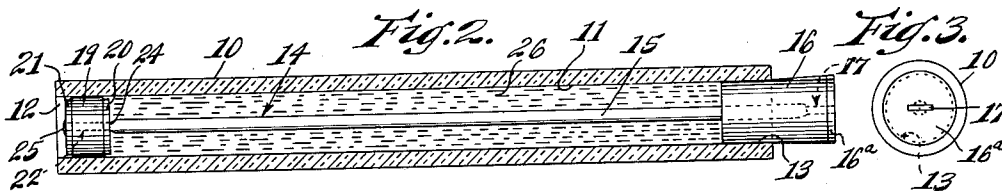
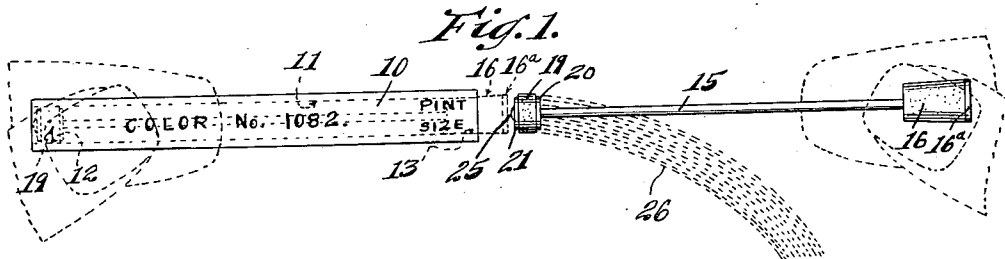
Nov. 9, 1943.

H. E. AMUNDSON

2,334,055

COLOR MIXING SYSTEM

Filed Oct. 27, 1941



Witnesses:
 C. E. Wessels
 Clementine Deiro

Inventor:
 Harvey E. Amundson,
 By Joshua H. Lopp
 his Attorney.

UNITED STATES PATENT OFFICE

2,334,055

COLOR MIXING SYSTEM

Harvey E. Amundson, Chicago, Ill.

Application October 27, 1941, Serial No. 416,771

1 claim. (Cl. 221—78)

My invention relates to a color mixing system including a special color or pigment container and while mainly adapted for the painting industry, I reserve all rights for the use of the system and container in other industries.

The object of the invention is to provide a novel coloring system in which the coloring matter or pigment for a given quantity or volume of paint for all colors, shades, tints or hues will be supplied in small containers or vials which will be filled at the factory so that any desired color may be purchased in quantity required for mixing a certain volume of paint to be mixed by the consumer or user with white paint rather than at the manufacturer's end, thus requiring only that cans of white paint be kept in stock in conjunction with the containers for the pigments thus economizing in storage space and obviating the necessity of keeping a large supply of cans of paint of different colors in stock and permitting a wider variety of colors to be obtained for use as well as relieving the shortage of tin paint containers and conserving on tin for national defense.

In accordance with the present invention in order to make the paint color mixing system workable I have invented a special color container each of which will contain enough liquid, semi-liquid or powdered color pigment to tint a specified amount of white paint and this amount will be printed on the label of the color container. Each label will have a number which will correspond with a number on the color chart which will show the color of the paint after having added the contents of the color container and the pigment properly mixed with the white paint to give the final product for use. Also, the quantity of white paint that each container will color to give the required tint will also be printed on the label of the color container and this quantity strictly adhered to in order that the order of the paint will properly correspond with the color desired from the color chart using all of the pigment in the container.

The invention therefore also embodies in addition to the novel color mixing system, of a simple and cheap container which may be easily filled with the pigment and readily discharged therefrom into the can of white paint to be mixed for use. Thus, by selecting a container or cylinder bearing a number which will correspond to a number of a certain color on a color chart which indicates the quantity of white paint which it will color to correspond with the color or tint selected on a color chart and following directions

in mixing, any color of paint may be produced. This obviates the necessity of carrying all colors of paint in cans in stock as it is only necessary to carry the white paint in cans to be colored as desired. This permits an unlimited number of different colors or tints to be obtained whereas with the old system it has been entirely too costly for a paint manufacturer to stock its outlet stores with more than 10 or 20 tints or colors of any one line of paints such as flat, gloss or stipple paints or enamel, since it was not only too expensive but the storage space required is prohibitive.

In connection with the present invention the containers filled with the pigment will take up a very small space and a hundred or more different tints or colors of each line are possible thus giving a much wider variety of tints or colors for use by the consumer.

Other objects and advantages will appear and be brought out more fully in the following specification, reference being had to the accompanying drawing, wherein:

Fig. 1 is an elevation of a color or pigment container in accordance with my invention and showing the manner of expelling the coloring matter or pigment therefrom.

Fig. 2 is an enlarged section of the container with the plunger in elevation.

Fig. 3 is an end view showing the stopper end.

Fig. 4 is a longitudinal section of the pigment sealing and expelling means for the container.

Fig. 4a is a section on the line 4a—4a of Fig. 4.

Fig. 5 is an elevation of a modified form of the pigment container.

Fig. 6 is an elevation of the device shown in Fig. 5 and illustrating the manner of expelling the pigment from the container.

Fig. 7 is a large longitudinal section at right angles to Fig. 5 looking upwardly.

Fig. 8 is an end elevation looking at the stopper end, and

Fig. 9 is an elevation of the push plunger or pigment expelling means.

Referring more particularly to Figs. 1 to 4a inclusive of the drawing, 10 designates an outer shell or cylindrical container which may be an open ended tube of glass, metal or other suitable material or plastic, which may be transparent, translucent or opaque but preferably transparent or some transparent non-breakable plastic composition if not made of glass. The cylindrical bore of the container is indicated at 11 and the open ends are designated at 12 and 13. A plunger 14 consisting of a pigment ex-

pelling means in which the pigment may be a liquid, semi-liquid or powder is provided to move within the bore 11 of the container and includes a plunger rod or stem 15 which subsequently forms a core in the pigment or other material contained within the tube or container 10 and may be fastened to a stopper 16 at one end, the stopper 16 being preferably of rubber, cork or other suitable material. At this end, the rod 15 is flattened as shown at 17 to provide an enlarged end having opposite shoulders 18 to anchor the same in the stopper 16 which also forms a seal for one end 13 and a handle for operating the plunger and expelling means. The rod is preferably anchored in a metallic or fiber disc 16a which is provided with a slot for receiving the flat end 17 of the rod which is thereby anchored in the disc by upsetting the end of the rod. At the opposite end of the plunger or rod a piston 19 is provided consisting of an expelling head for the pigment. This piston includes inner and outer metallic or fibre discs 20 and 21 which are mounted on a flattened portion 22 of the rod 15 of the plunger, the discs having elongated slots 23 for receiving the flattened portion of the rod at the end thereof remote from the flattened portion 17. This flattened portion produces shoulders 24 against which the discs 20 abut so as to limit the displacement of the piston head on the rod and anchor the same against movement or displacement by upsetting the end of the flattened portion 22 against the outer face of the disc 20 as indicated at 25. It should also be noted that the rubber or cork piston 19 is slightly larger in diameter and circumference than the discs 20 and 21 to insure a liquid and air tight fit with the bore 11 and prevent the discs from scraping the interior wall or bore of the container 10.

The coloring matter or pigment is indicated at 26 and may be in the form of a liquid, semi-liquid or powder and each container will be marked or have the label thereof printed to indicate a specific amount of white paint which it will color to agree with the color given on a color chart and instead of indicating the color in words, will also have a number printed thereon which will correspond with a number on the color chart. The colors on the chart will show the final color of the paint after having added the contents of the color container to a given volume of white paint and properly mixing the same. Thus, a large variety of colors may be kept in stock and will occupy a minimum of space as compared to paints of various colors in cans.

In filling the container with the coloring matter or pigment the plunger is forced into the open end 12 of the container until the stopper 16 is adjacent but spaced from the said open end. The liquid or semi-liquid color pigment is then inserted into or placed in the tube by suitable dispensing machinery just before the stopper is pressed into place so as to fill the tube as shown in Fig. 2 and seal both ends thereof in air and liquid tight form. In expelling the pigment for mixing the same in a can of white paint, linseed oil or neutral body liquid, the user grasps the stopper 16 between the fingers as shown in Fig. 1 and pulls the same outwardly while holding the container 10 between the fingers of the other hand as represented in dotted lines in said figure. This draws the piston or plunger 19 from the open end 12 toward the end 13 along the bore 11 to expel the pigment without spilling or wasting the coloring matter or pigment or smearing the hands

and fingers therewith. The pigment is thoroughly stirred in the paint or the like and is ready for use with the exact color or tint desired.

In the form shown in Figs. 5 to 9, inclusive, the container 10 with the bore 11 and open ends 12 and 13 is also used but in this form instead of having the stopper and piston permanently connected to the rigid piston rod 15, said parts are normally disconnected. The plunger rod is designated at 27 and has a threaded end 28 or other suitable means for connecting it to the piston. The opposite end is bent to form a handle 29 and as shown is bent radially outwardly and then bent upon itself in the opposite direction across the axis of the rod and to extend beyond the opposite side although it is to be understood that this handle may be otherwise suitably formed. A stopper 30 of rubber, cork or the like closes the end 13 of the opened tube 10. A piston 31 also of rubber or cork or other resilient cushioning material is placed in the bore 11 adjacent to the open end 12 to seal the same. This piston in addition to the cushion head includes a metal or like cup 32 which is pressed or clamped around the cushion head as shown in Fig. 9 of the drawing to permanently connect thereto and has an extension socket 33 which may be internally threaded as at 34 for engagement by the threaded end 28 of the rod or otherwise formed for connection of the rod therewith.

In this form of the invention the plunger 31 is placed in position in the open end 12 of the container or tube 10 and the latter is filled with pigment through the open end 13, after which the container is sealed with the stopper 30. The rod 27 may be conveniently mounted against the tube or container 10 as by means of a rubber band 35 to be easily removed for connecting the same to the piston or plunger 31 as previously described so that when it is desired to use the pigment for coloring the paint or oil, the stopper 30 is removed as shown in Fig. 4 of the drawing and the plunger is pushed into the tube to expel the pigment 26 by grasping the container between the fingers of one hand and the handle 29 with the fingers of the other hand all as clearly shown in dotted lines in Fig. 6. This will expel the pigment without spilling or wasting the same or smearing the hands or fingers therewith the same as in the previously described form.

Thus, it will be seen that by marking or labeling the containers using a specific number to agree with a certain color contained in the tube for the number of that particular color on a color chart, and also the quantity or volume of paint with which it is to be mixed to give the exact color desired, a desirable and efficient color mixing system is provided for paints or other liquids which will eliminate the necessity of carrying a large number of the cans in stock. Also, it will be apparent that a much larger variety of colors may be kept on hand in a minimum of space and that a much larger and wider selection of colors or tints will be available than is possible by keeping the paints or the like in stock in cans due to the large amount of space required in addition to the expense and which in accordance with the present system limits the supply of the stock in the outlet stores to 10 or 20 tints or colors of any particular line of paints.

While not specifically described, it is to be understood that the system may be equally applied to other liquids or materials to be mixed than paint but that it is especially adapted for the latter use.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

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

In a device of the class described, a transparent open ended tube, a rod having flattened ends, a stopper fastened to one end, a disc on said end against the stopper and securing the same in position, said stopper adapted to close one end of the tube, a cushion piston on the other flattened end and rigid discs held on said flattened end against opposite faces of the cushion piston, said piston adapted to close the opposite end of the tube with the rod forming a core in the material contained in the tube.

HARVEY E. AMUNDSON.