May 31, 1960 L. PORFILIO ET AL 2,938,810

APPARATUS AND METHOD OF PAINTING

Filed Sept. 8, 1958 2 Sheets-Sheet 1

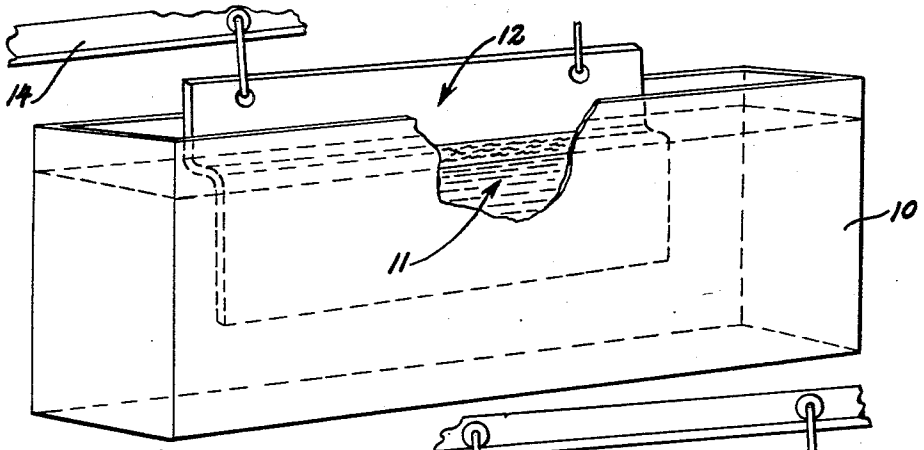



Fig. 1

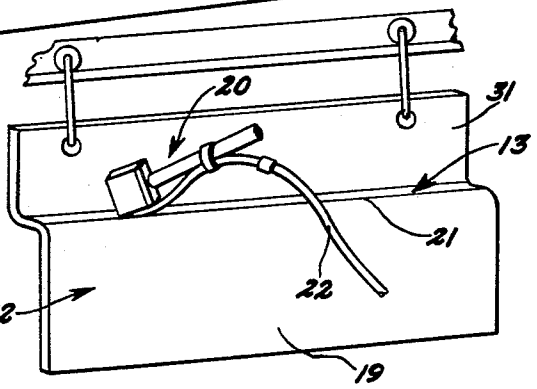



Fig. 2

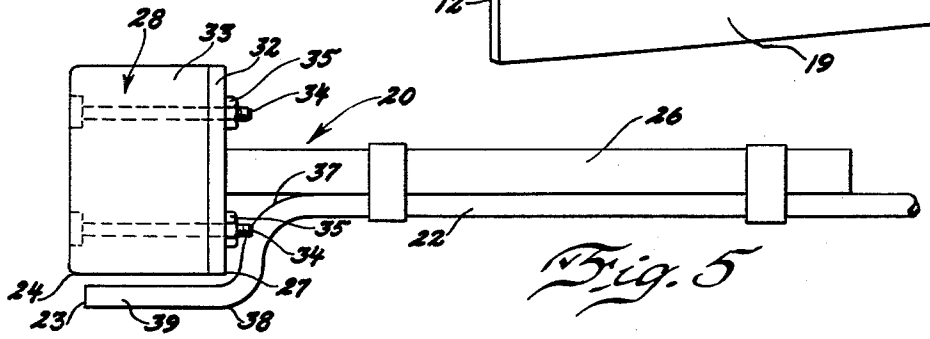



Fig. 5

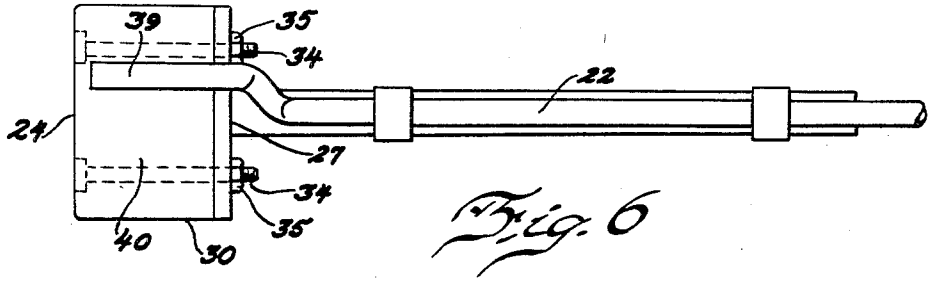



Fig. 6

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APPARATUS AND METHOD OF PAINTING

Filed Sept. 8, 1958 2 Sheets-Sheet 2

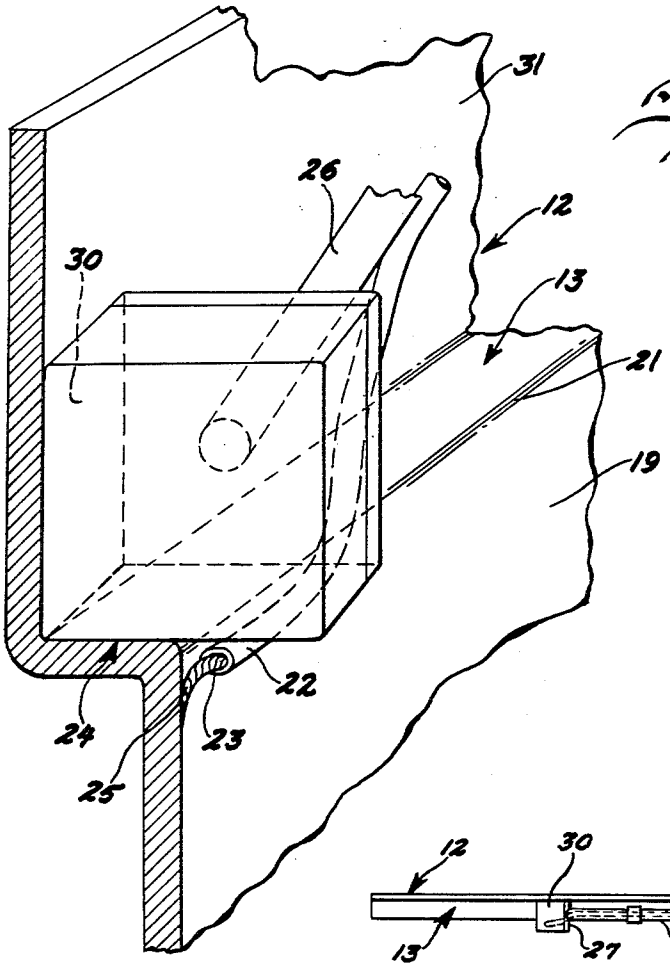



Fig. 4

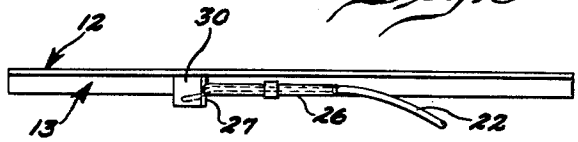



Fig. 3

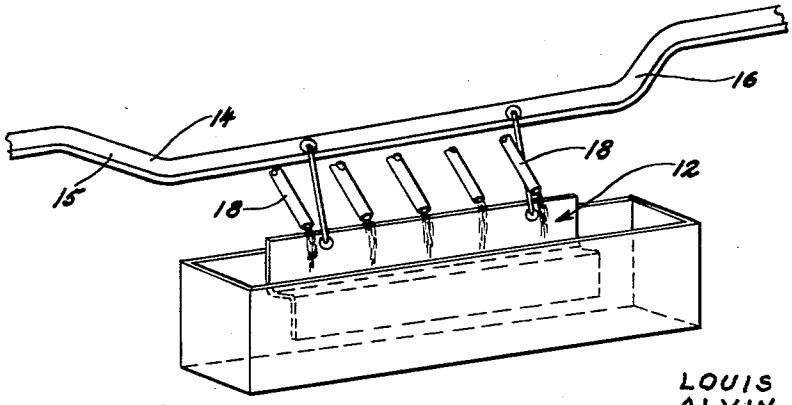



Fig. 7

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# APPARATUS AND METHOD OF PAINTING

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4 Claims. (Cl. 117—102)

The invention relates to a painting or coating method and the apparatus utilized therewith.

The invention has particular reference to the type of painting wherein liquid paint is applied to the end product in excessive quantities—such excesses being drained therefrom by gravity.

The invention contemplates the painting of an end product having adjoining surfaces, one of which is situated so as to be suitable for gravity draining and the other of which is situated so that drainage of the excess paint therefrom by gravity is impractical. The excess paint on such latter surface is removed by means of a squeegee and deposited onto the other surface substantially simultaneously with the addition of a fresh supply of paint for effecting drainage characteristics capable of providing an ultimate coating with the desired substantially uniform thickness.

It will be understood that the use of the word "paint" throughout the specification and claims is intended to include any coating material which is applied to an end product while in a liquid form in the manners as set forth hereinafter, which coating materials possess the properties of setting and drying into hardened coatings on the end product being coated.

The principal object of the invention is to provide a method of painting an end product of the type aforementioned.

A further object is to provide a device for accomplishing the method of painting heretofore referred to.

Other objects and advantages of the invention will be apparent from the ensuing specification and appended drawings in which:

Fig. 1 is a perspective view of a typical end product showing the initial step in the painting thereof as being one in which the end product is dipped into a tank in which liquid paint is stored.

Fig. 2 is a perspective view showing the method which follows after the initial application of the paint and the apparatus for accomplishing such method.

Fig. 3 is a plan view similar to Fig. 2.

Fig. 4 is a fragmentary perspective view similar to that of Fig. 2 but taken from a different position and on a larger scale.

Fig. 5 is a side elevational view of the apparatus employed with the method.

Fig. 6 is an underneath view of the apparatus shown in Fig. 5.

Fig. 7 is a view similar to Fig. 1 and showing a different method of initially applying the paint to the end product.

Referring to Figures 1 and 7, there are two methods shown by which an end product is initially supplied with a coating of liquid paint, such paint being applied in excessive quantities necessitating drainage of such excesses from the end product.

In the method shown in Fig. 1 a dip tank **10** has a quantity of liquid paint **11** stored therein and the end product, identified generally by the numeral **12**, is dipped into such paint to the desired depth, which in the instant application, is slightly above the level of the ledge **13** formed in the end product. The end product may be suspended from a conveyor rail **14** and the rail may be provided with suitable inclined areas **15** and **16** (see Fig. 7) for effecting a lowering of the end product into the dip tank and the subsequent withdrawing of the end product from such tank. With the end product suspended from the conveyor rail it may be impractical to tilt same in order to effect drainage of excess paint from a surface such as the ledge **13**.

In Fig. 7 the method of painting commonly referred to as "flow coating" is employed wherein the end product is passed beneath several paint discharge members **18** from which liquid paint is discharged under very low pressure and deposited onto the end product as it moves along the conveyor rail **14**. In either of the methods of initially applying the paint to the end product as shown in Figs. 1 and 7, an excessive quantity of paint is deposited onto the end product and the excess is drained therefrom by gravity. That paint which is deposited onto the ledge **13** cannot be drained by gravity because of its being inadequately inclined from a horizontal plane as the end product moves along a conveyor. The side wall surface **19** of the end product which is contiguous to the ledge surface **13** is so inclined so as to permit drainage of excess paint therefrom by gravity.

Thus, the method contemplated is to remove the excess paint from the surface **13** and deposit same onto the surface **19** by manually pulling a squeegee device, identified generally by the numeral **20**, along the surface **13** and causing the paint on such surface to be spilled over the longitudinal corner **21** which is formed between the contiguous surfaces **13** and **19**. Simultaneously with the spilling of the paint over the corner **21**, additional liquid paint is added thereto through the supply conduit **22** which has its discharge end **23** terminating immediately rearwardly of the working edge **24** of the squeegee. The stream **25** of paint which is discharged from the end of the conduit is immediately mixed with the paint which is spilled over the corner **21** and after drainage of all of the excess paint from the surface **19** by gravity, a desired coating of paint of substantially uniform thickness on the surface **19** is accomplished.

Referring to Figs. 3 and 4 it will be noted that it is desirable to tilt the handle **26** upwardly slightly so that the rearward edge **27** of the squeegee head, identified generally by the numeral **28**, is lifted out of contact with surface **13**. The side face **30** of the squeegee is preferably permitted to ride against the surface **31** of the end product so as to wipe any excess paint therefrom and so as to better guide the squeegee along the surface **13** for assuring that the entire width of such surface throughout its length is scraped clean. In the present instance, the shelf area **13**, as well as the side wall **31**, is subsequently painted as by means of a spray painting process.

The squeegee device may be fabricated as follows:

The handle **26**, is secured to the rigid backing plate **32** to which a resilient block **33** is removably secured as by means of bolts **34** and nuts **35**. The block **33** may be made of rubber or some comparable resilient material capable of functioning as a squeegee without damaging the surface over which it is wiped and the block may be in cubic form so that when one working edge is worn to the point of being unusable, then there are three remaining working edges which are usable by simply removing the bolts and nuts **34** and **35** and rotating the squeege block 90° and then refastening it to the backing plate **32**. The paint supply conduit **22** may extend from a suitable source of paint (not shown), such paint passing through the conduit under low pressure, for example, in

the neighborhood of 10 pounds, so that when it is expelled from the discharge end **23** of the conduit, it may be said to be simply "flowing" out of such conduit.

While we have indicated that the pressure may be in the neighborhood of 10 pounds, it will be understood that we do not wish to be limited to this figure as any pressure which causes the paint to flow from the end of the conduit at an adequate quantity rate will be sufficient. A pressure condition much above 15 pounds which would produce a flow rate that would tend to cause splattering would be excessive and undesirable.

The conduit may be bent at **37** and bent again at **38** so that the free end **39** thereof is situated immediately beneath the underside **40** of the squeegee block. If the ledge **13** is of sufficient width then it may be necessary to have the free end **39** of the conduit offset (as shown in Fig. 6) with reference to the longitudinal center line of the handle **26** so that there is adequate working area of the working edge **24** to accommodate the width of the shelf **13** while permitting the free end **39** of the conduit to be situated immediately adjacent to the side wall **19** of the end product (as best shown in Fig. 4). The free end **39** of the conduit is situated so as to be closely adjacent to the underside **40** of the squeegee block and also so that the discharge end **23** is located immediately rearwardly of the working edge **24**. Thus, the flow of supplemental paint from the end of the discharge tube merges immediately with the paint from ledge **13** as it is spilled over the edge **21** by the working edge **24** of the squeegee. Thus, there is no opportunity for the "ledge" paint as it spills over corner **21** to take any sort of set before the supplemental paint is added thereto.

We claim:

1. A method of painting an end product having adjoining surfaces, the first of which is disposed so that liquid paint applied thereto in an excessive quantity will not adequately drain therefrom by gravity and the second of which is disposed for adequate drainage by gravity, such method including the steps of: applying liquid paint to both surfaces in excessive quantities; moving a squeegee over the first surface so that the excess paint on the first surface is flowed onto the second surface; adding an additional quantity of liquid paint into the flowage of excess paint immediately after it is squeegeed onto the second surface; then permitting the excess paint on the second surface to drain therefrom.



2. A method of painting an end product having contiguous surfaces joined by a longitudinal corner, the first of such surfaces being disposed so that liquid paint applied thereto in an excessive quantity will not adequately drain therefrom by gravity and the second of such surfaces being disposed for adequate drainage by gravity, such method including the steps of: applying liquid paint to both surfaces in excessive quantities; moving a squeegee over the first surface so that the excess paint on the first surface is flowed over the longitudinal corner onto the second surface; adding an additional quantity of liquid paint into the flowage of excess paint immediately after it is squeegeed over the longitudinal corner onto the second surface; such additional quantity of excess paint being discharged from a supply conduit having its discharge end situated immediately adjacent to the squeegee and immediately adjacent to the longitudinal corner; then permitting the excess paint on the second surface to drain therefrom.

3. A method of painting an end product having adjoining surfaces, the first of which is disposed so that liquid paint applied thereto in an excessive quantity will not adequately drain therefrom by gravity and the second of which is disposed for adequate drainage by gravity, such method including the steps of: applying liquid paint to both surfaces in excessive quantities; moving a squeegee over the first surface so that the excess paint on the first surface is flowed onto the second surface; moving a supplementary paint supply conduit simultaneously with the movement of the squeegee so that an additional quantity of liquid paint is mixed with the flowage of excess paint immediately after it is squeegeed onto the second surface; then permitting the excess paint on the second surface to drain therefrom.

4. The method of claim 3 wherein the paint is discharged from the supply conduit under pressure conditions wherein no splattering occurs.

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