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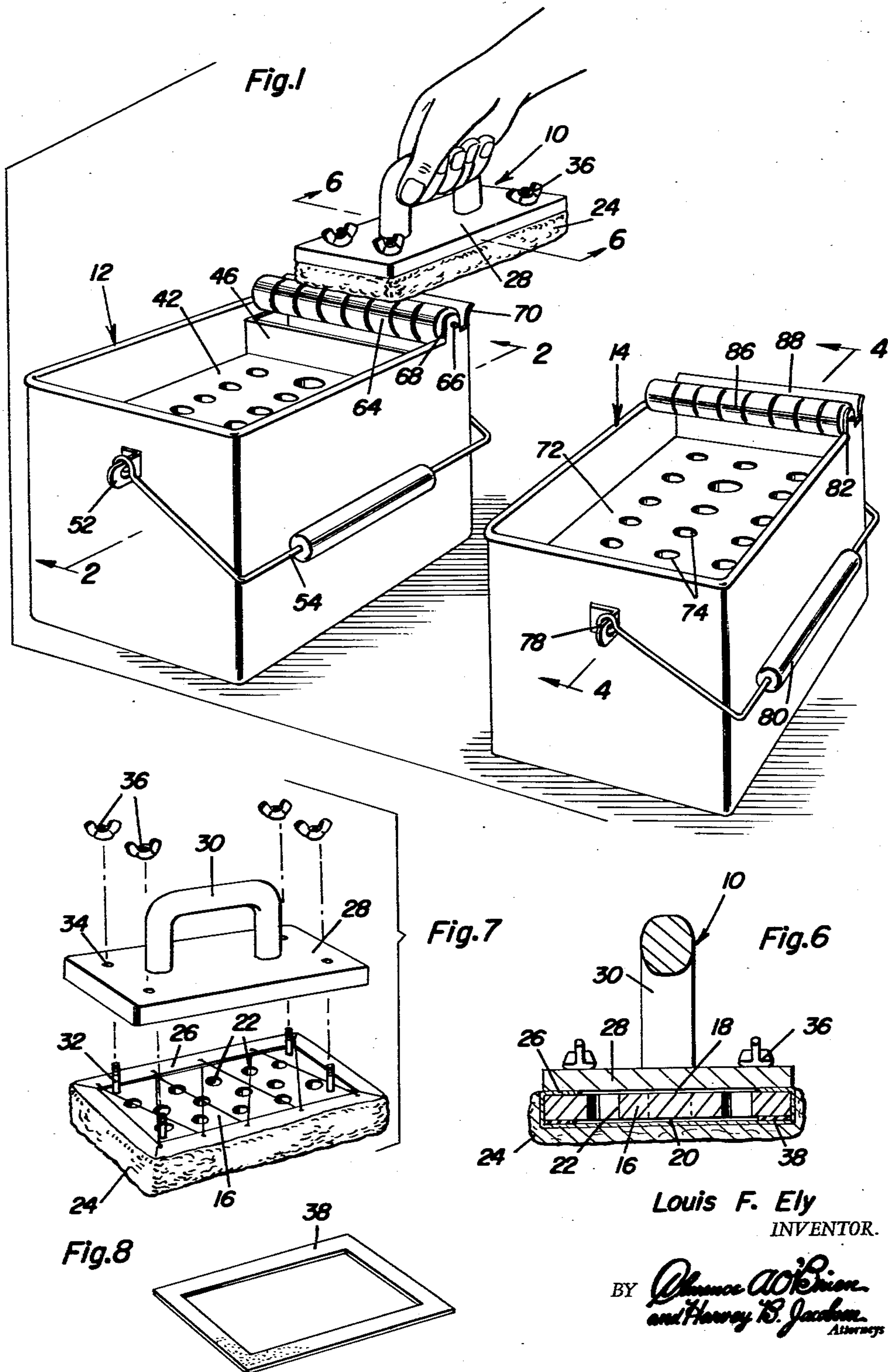
L. F. ELY

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LOADING MEANS FOR FLUID APPLICATORS

Filed May 13, 1958

2 Sheets-Sheet 1



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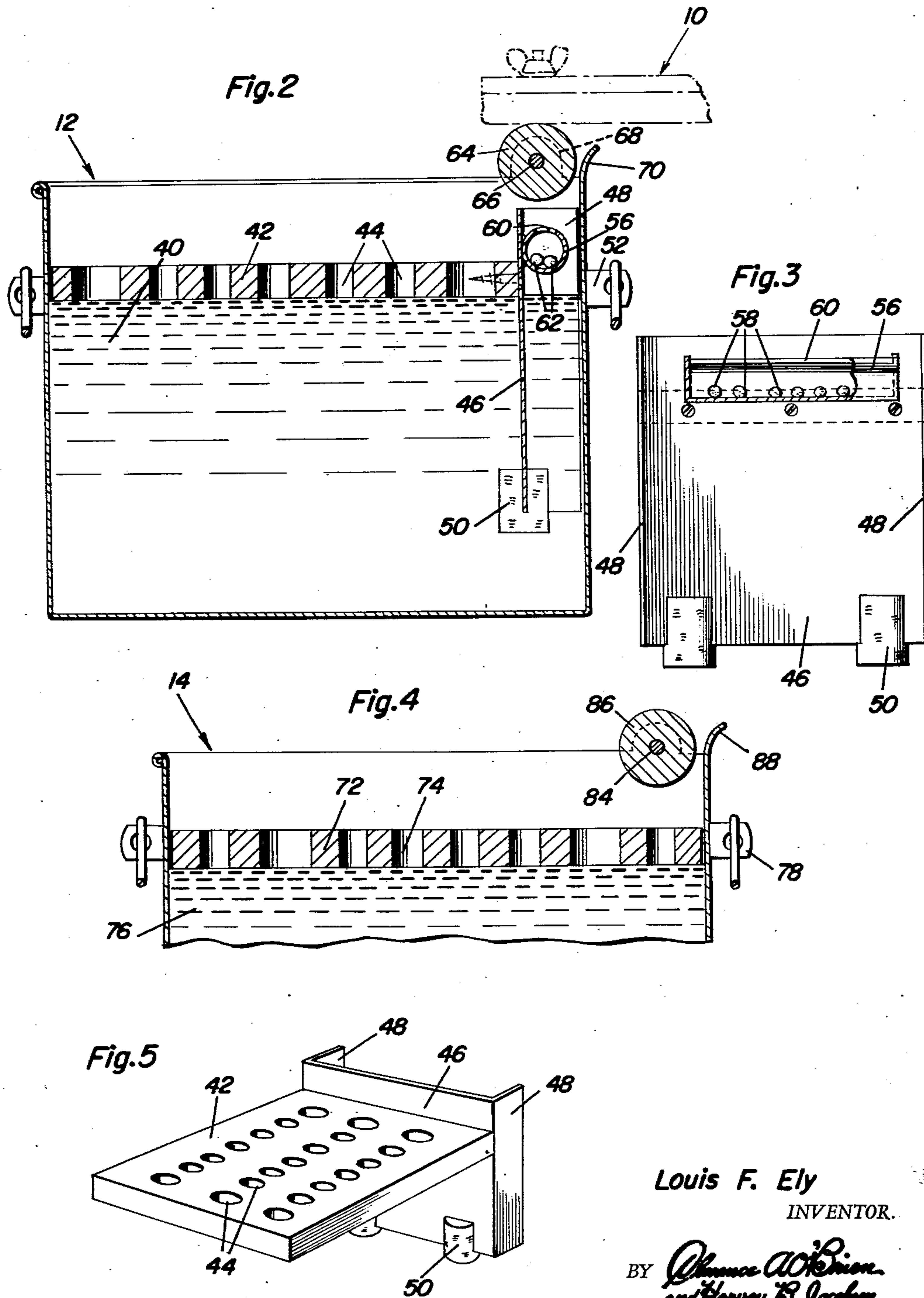
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## LOADING MEANS FOR FLUID APPLICATORS

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10 Claims. (Cl. 15—257.05)

This invention comprises a novel and useful fluid applicator and more particularly relates to a fluid applicator adapted to facilitate the application of a fluid agent to an applicator adapted to apply a coating of a fluid agent whether liquid, semi-liquid or of a paste consistency to a surface in order to clean the latter.

The primary object of this invention is to provide an apparatus which will facilitate the application of a treating agent to a surface, regardless of whether the agent is of a liquid, semi-liquid or of a paste consistency.

A further object of the invention is to provide an apparatus in conformity with the preceding object wherein a fluid agent may be applied to an applicator with great facility, rapidity and uniformity.

Yet another object of the invention is to provide an apparatus which will substantially eliminate or prevent splashing and wasting of the treating agent when coating or applying this agent to the applicator for treating a surface.

A still further object of the invention is to provide an apparatus which will prevent or greatly reduce undesired dilution of the treating agent which would ordinarily be effected by immersing the applicator into a detergent or rinse liquid intermittently with the applying of the agent to a surface.

A still further object of the invention is to provide an apparatus which will increase the effectiveness and efficiency of the surface treating action by the applicator by hastening the precipitation and settling of dirt removed from the surface being treated by the applicator and into the bottom of the rinse or detergent liquid employed by the apparatus.

An additional important object of the invention is to reduce the frequency with which the detergent or rinse liquid must be changed during the use of the applicator.

A still further important object of the invention is to minimize the agitation of the treating agent in the use of the same during the application of the fluid agent to an applicator.

Yet another object of the invention is to provide an apparatus which will facilitate the removal of excess treating agent from the applicator and thereby improve the quality and efficiency of the treating operation of a surface by the agent.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view showing the applicator and a pair of tanks or containers with which the same is used, the larger tank receiving therein the treating agent which is to be applied to the applicator for treating a surface, and the smaller tank receiving a detergent or rinse solution by which the surface of the applicator is to be cleansed after a surface has been treated thereby in order to condition the applicator for receiving a new quantity of fresh treating agent thereon for the next surface treating operation;

FIGURE 2 is a vertical longitudinal sectional view taken substantially upon the plane indicated by the section line 2—2 of FIGURE 1 and showing the construction and internal arrangement of the receptacle or con-

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tainer for the treating agent which is to be applied to the applicator, there being shown in dotted lines the manner in which an excess treating agent is removed from the applicator prior to the operation of the latter in treating a surface with the agent;

FIGURE 3 is an end elevational view of a combined float and separator partition forming a part of the treating agent container or tank, parts of the latter being shown in section;

FIGURE 4 is a view in vertical longitudinal section taken substantially upon the plane indicated by the section line 4—4 of FIGURE 1 and showing the construction of the detergent receiving tank or receptacle according to this invention;

FIGURE 5 is a perspective view of the combined float and partition member of the treating agent tank of FIGURE 1;

FIGURE 6 is a view in vertical transverse section taken substantially upon the plane indicated by the section line 6—6 of FIGURE 1 and upon an enlarged scale and showing the construction of the applicator member;

FIGURE 7 is an exploded perspective view of the applicator showing various elements thereof; and

FIGURE 8 is a perspective view of a spacer frame forming an element of the applicator assembly.

In its broadest aspect the purpose of this invention is to provide an apparatus which will facilitate the applying of a treating agent to a surface. This surface may constitute the floors, walls, or ceiling of a building, or may constitute other surfaces of sufficient size to warrant the use of this invention in applying a treating agent thereto. The treating agent itself may consist of liquids, semi-liquids or paste depending upon the specific purpose and treating operation to be performed, and may for example consist of water or a detergent for cleaning the surface, sterilizing agents, various chemicals, or acids, paints or other coloring or protective agents, sizing material for plaster walls and the like, waxes, varnishes, and the like, and in fact any material which can be applied to a surface and spread thereon as a film.

The advantages of this apparatus are that it greatly accelerates the speed of the worker in the treating of large surfaces, enabling greater coverage of work within a given time, reduces wastage of the treating agent by splashing or dripping and assures a more even application of the treating agent to a surface; and further eliminates or minimizes dilution of the treating agent by dipping the applicator too deeply into the detergent or rinse water being used.

Still further, the use of the apparatus of this invention attains the important advantage that it secures a much more effective and economical use of a precipitating agent in the detergent or rinse water which hastens the precipitation of soil or dirt to the bottom thereof thereby prolonging the useful life of the rinse water or detergent.

The apparatus in accordance with this invention consists primarily of three elements, these comprising an applicator designated generally by the numeral 10, a receptacle for the treating agent designated generally by the numeral 12, and a further receptacle 14 containing a detergent or rinsing water for cleaning the surface of the applicator from time to time during its operation. In some instances, the receptacle 14 may be omitted and the applicator employed only with the receptacle, container, or tank 12. In certain other instances, it may be preferred to omit the container 12 and to employ only the container or receptacle 14 with the applicator.

Referring now specifically to FIGURES 6, 7 and 8, in conjunction with FIGURE 1, it will be seen that the applicator 10 comprises a body 16 which may conveniently



consist of a rectangular block of wood or like material and which provides parallel flat surfaces 18 comprising a back and 20 comprising a face of the body. Extending through this body and communicating with both faces thereof are a plurality of recesses or bores 22. In some instances, these bores may open from the face 20 and extend only partially through the body, although it is preferred, as shown in FIGURES 6 and 7 to extend these bores entirely through the body.

A sheet of a pliable porous material of any suitable character constitutes a covering 24 for the body, underlying the entire face 20 thereof, and having its edges extending upwardly about the sides of the body with the edges intumed to overlie the back 18 of the body at the periphery thereof as will be apparent from FIGURE 7. These intumed edges 26 are retained in place by a plate-like member 28 comprising a head for the applicator and having a handle 30 mounted thereon. This head is removably secured to the body by means of fastening studs 32 carried by the body and which project upwardly through spaced bores or apertures 34 in the head for the reception of wing nuts 36 by which the head is removably secured upon the body. When clamped upon the back of the body by these wing nuts, the head compressively clamps the edges 26 to the body, these edges in turn comprising or constituting a rectangular spacing frame whereby the bottom surface of the head 28 is slightly spaced from the back 18 of the body to provide an air space therebetween which is in communication with the previously mentioned bores or passages 22.

A spacer frame 38, see FIGURE 6 also, is interposed between the covering 24 and the face 20 of the body to thus provide an air space therebetween which is in continuous communication with the bores or passages 22.

As so far described it will now be apparent that the air space between the covering and the face 20 of the body together with the recesses or bores 22 and with the air space between the back 18 and the head 28, if the bores 22 extend entirely through the body, provide an air chamber having sufficient volume to permit breathing through the lower face of the covering 22, as the applicator is pressed against a surface. The variation in pressure upon the covering as pressure is applied to and released from the same causes a movement of air into and out of these spaces which effects a breathing action, this facilitating passage of the treating agent through the covering and into the spaces and the discharge of the same therefrom, as well as similar passage of detergent or cleaning water therethrough, for the same purpose. This breathing action enables the sponge-like covering to absorb and hold more of the treating agent and thereby enable the device to be used for a longer period of time before a fresh application of the treating agent to the applicator must be made.

When it is desired to cleanse the applicator after use, the same may be readily disassembled for the purpose of replacing or cleaning the covering thereof, and/or after rinsing the device may be readily hung up to dry.

Reference is now made specifically to FIGURES 1-3 and 5 for a consideration of the construction and operation of the treating agent receptacle 12. The receptacle 12 comprises a tank or container of any suitable material and any desired size and shape having side, end and bottom walls and being open at its top for receiving therein any suitable treating agent such as that indicated at 40. As previously mentioned, this treating agent may consist of water if the applicator is to be used merely to wash or clean a surface, may be of various liquids such as chemicals, sterilizing agents, stains, paints, varnishes and the like, of various semi-liquids and pastes such as wax, cleaners, polishers and the like. However, these agents must be sufficiently fluid in nature, for the purpose of this invention, to support upon the surface thereof a plate-like body comprising a float 42. Referring now specifically to FIGURE 5 in conjunction with FIGURES 2 and 3,

it will be seen that the float 42 consists of a plate-like body having a plurality of bores or passages 44 extending through the same from the top to the bottom thereof. At one end thereof there is secured to this float a vertically extending sheet 46 of sheet metal or other suitable material having parallel laterally projecting flanges 48 at the opposite sides thereof. A plurality of floats such as corks or the like 50 are secured to and may project below the lower edge thereof in order to impart additional buoyancy to the float.

The float, and the sheet 46 attached thereto, are of such size that the same may be snugly received and vertically slidable in the container 12 in accordance with the liquid level therein and in accordance with pressure applied to the float tending to submerge the same as set forth hereinafter. The plate 46 comprises a partition extending across the container from one side to the other thereof and separating the treating agent 40 in this container into a main portion underlying the float 42 and a minor smaller compartment separated from the main portion by the partition 46 and its flanges 48. The purpose of this division of the treating agent in the receptacle 12 will be subsequently apparent.

The receptacle may be provided with conventional apertured ears 52 upon opposite walls of the same for engagement by a bail or carrying handle 54 by which the receptacle may be readily transported and moved as desired.

As so far described, it should now be understood that the area or top surface of the float 42 will be substantially equal to or only slightly in excess of that of the bottom surface of the applicator 10 in order that the latter may be placed upon the float 42 and pressed downwardly thereon. This will result in the treating agent being forced upwardly through the bores 44 and against the bottom surface of the applicator to thus evenly coat the latter with the treating agent. It will be noted that the float prevents splashing of the liquid as the applicator is applied thereto, and also prevents the submerging of the applicator into the liquid since the closing of the top ends of the bores 44 by the placing of the applicator thereon will effectively retard flow of the liquid upwardly through the applicator and thus act as a dash pot to prevent rapid submerging of the float.

Disposed in the smaller compartment defined between the partition 46 and the flanges 48, the two flanges and the adjacent wall of the receptacle 12 is a transversely extending tube 56 which is secured as by welding or in any other suitable manner to the partition 46 and/or the flanges and at a position which is somewhat above the liquid level of the treating agent upon which the float 42 rests. This disposition is shown more clearly in FIGURE 2. This tube is provided with suitable perforations or apertures 58 therethrough and particularly at the bottom sides thereof, and is provided with a slotted opening 60 along the top thereof. This opening is adapted to receive capsules, granules, pellets or other charges of a material or additive as indicated by the numeral 62. The purpose of this material is to accelerate the precipitation of dirt or soil which may be introduced into the treating agent during the operation of the applicator, to cause the same to precipitate more quickly to the bottom of the receptacle. For this purpose permanganate of potassium or other suitable known substances may be employed. The arrangement is such that each time the float is depressed by placing the applicator upon the top surface thereof and pressing downwardly, the treating agent lying within the smaller compartment to the right of the partition 46 will be moved upwardly and may splash into the top of or through the apertures of the tube 56 and thus upon the additive material 62 therein. When the float rises, upon the release of pressure applied thereto, this liquid will drain from the apertures in the lower portion of the tube 56, thereby dissolving a small portion of the additive at each application of the applicator surface to



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the float. In a manner to be subsequently set forth, the major portion of the treating agent containing soil or dirt will be discharged into this smaller compartment and thus be directly affected by the precipitating substance.

In order to remove an excess of the treating agent applied to the lower surface of the applicator when the latter has been pressed downwardly upon the float 42, there is provided an excess removal roller 64 which is journaled as by pintles or trunnions 66 thereon in upstanding apertured ears 68 which rise above the top edge of the side walls of the receptacle 12 and above the flanges 48 and within the space defined between the latter and the partition 46 and the adjacent end wall of the receptacle. The arrangement is such that when the applicator has had its bottom surface coated with the treating agent, it may be rolled across or drawn across the top of the excess material roller 64, as shown in dotted lines in FIGURE 2 to thereby squeeze out or remove from the applicator surface of the applicator a predetermined quantity of the treating agent, and thereby leave a desired amount of the treating agent upon the applicator surface. It will be understood that as the applicator is pressed downwardly upon the float, treating agent is applied to the corresponding portions of the applicator surface which overlie the bores 44 of the float. Consequently, very little of the residual treating agent remaining upon the bottom surface of the float will enter the body of the treating agent 40 lying below the float since the flow is outwardly from the float and not inwardly thereinto. However, when the applicator is drawn across the excess material roller 64, the separate deposits of treating agent applied to the bottom surface of the applicator will be moved together to be spread more evenly over this bottom surface; and excess material will be removed by the excess material roller 64 and will thus drop into the compartment which contains the precipitating agent. This excess agent which is removed from the applicator will take with it a considerable portion of the soil or dirt which has been picked up by the surface of the applicator during its previous use or operation.

It will be noted that the adjacent end wall of the receptacle is curved upwardly and outwardly as at 70 to provide a lip or apron which will facilitate catching the excess treating agent removed from the applicator and directed downwardly into this chamber.

Attention is now directed specifically to FIGURES 1 and 4 for a consideration of the construction and the operation of the detergent container 14. This is of similar but simplified construction compared to that of the treating agent container 12. There is likewise provided a container or receptacle having side and bottom walls but an open top. A flat plate-like body 72 provided with bores 74 extending therethrough constitutes a float which rests upon the surface of the detergent or rinsing water or liquid 76 received in the receptacle, this float extending over substantially the entire area of the receptacle in a snug fitting relation therein as shown in FIGURE 4. The receptacle is also provided with an apertured ear 78 for reception of a bail or handle 80 whereby the tank may be readily moved as desired. As in the preceding embodiment, there is provided the upstanding apertured ears 82 at one end of the container in which are journaled the pintles or trunnions 84 of an excess material roller 86. There is likewise provided the upwardly and outwardly curved apron or lip 88 whereby excess detergent or rinsing liquid removed from the applicator by the excess material roller may be returned into the container.

In the operation of the apparatus in accordance with this invention, it is contemplated that the applicator may be first applied to the treating agent container 12 for receiving a treating agent thereon. The excess treating agent is then wiped off on the roller 64 in the manner previously described, and the applicator is then employed to spread this treating agent upon the surface undergoing

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treatment, in accordance with the treating agent being employed. Thereafter, the applicator is then placed upon the float 72 of the detergent tank, pressed downwardly to coat the lower surface of the applicator with detergent, and excess detergent is wiped off by the roller 86 in the manner previously described in connection with the treating agent receptacle. This serves to cleanse the applicator surface of any soil collected thereon during its previous treating operation, and this cleansing operation may be effected a number of successive times as desired until the applicator surface has been considered to be sufficient cleansed. Thereafter it is again applied to the treating agent receptacle to receive a new supply of the treating agent thereon, and the treating of the surface is then resumed.

It will be understood that in some instances, the use of the detergent or rinse water tank may be completely omitted, in which case the treating agent tank 12 alone may be employed. In other instances, where it is desired to merely wash or cleanse a surface in preparation for some other treatment either of the receptacles 12 and 14 may be filled with the cleaning fluid employed for this purpose and may be employed alone with the applicator in the manner previously described.

From the foregoing it will be apparent that the present invention provides an apparatus which will greatly facilitate the ease and efficiency of applying a treating agent to a surface with a more efficient use of the time of the worker, a reduction of the time required to change the rinse water or cleanse the applicator, and with a reduction in the wastage of the treating agent either by splashing, or applying an excess of the same to the applicator.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to the bottom surface of an applicator resting upon said float when the latter is depressed, an excess material removal roller journaled on said receptacle between the side walls thereof and above the treating agent when contained therein whereby excess treating agent will be removed from the bottom surface of an applicator when moved with pressure upon the surface of said roller, the adjacent end wall of said receptacle having an upwardly projecting apron or lip extending to a point slightly below the upper surface of said roller into proximity to and partially surrounding said roller for directing treating agent squeezed from the applicator by said roller back into said receptacle.

2. The combination of claim 1 wherein said container is disposed slightly above the liquid level on said float.

3. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to



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the bottom surface of an applicator resting upon said float when the latter is depressed, vertically disposed partition means dividing said receptacle into a first compartment underlying said float and a second compartment, a container in said second compartment having a soil precipitating additive therein, means providing communication between the interior of said container and the interior of said receptacle, said container being secured to said partition means, said partition means being supported by said float and terminating a spaced distance from said bottom.

4. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to the bottom surface of an applicator resting upon said float when the latter is depressed, vertically disposed partition means dividing said receptacle into a first compartment underlying said float and a second compartment, a container in said second compartment having a soil precipitating additive therein, means providing communication between the interior of said container and the interior of said receptacle, said partition means being carried by said float at one end thereof and terminating at its lower end a spaced distance from said bottom.

5. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to the bottom surface of an applicator resting upon said float when the latter is depressed, an excess material removal roller journaled on said receptacle between the side walls thereof and above the treating agent when contained therein whereby excess treating agent will be removed from the bottom surface of an applicator when moved with pressure upon the surface of said roller, vertically disposed partition means dividing said receptacle into a first compartment underlying said float and a second compartment underlying said roller and having communication with said first compartment, a container in said second compartment having a soil precipitating additive therein, means providing communication between the interior of said container and the interior of said receptacle.

6. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to the bottom surface of an applicator resting upon said float when the latter is depressed, an excess material removal roller journaled on said receptacle between the side walls thereof and above the treating agent when disposed therein whereby excess treating agent will be removed from the bottom surface of an applicator when moved into pressure upon the surface of said roller, upstanding partition means dividing said receptacle into a first compartment underlying said float and a second compartment underlying said roller, a container in said second compartment having a soil precipitating additive therein and means providing communication between said additive and said

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second compartment, said partition means being supported by said float and terminating a spaced distance from said bottom.

7. The combination of claim 6 wherein said container is carried by said float supported partition and is disposed slightly above the liquid level on said float,

8. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to the bottom surface of an applicator resting upon said float when the latter is depressed, upstanding partition means dividing said receptacle into a first compartment underlying said float and a second compartment, a container in said second compartment having a soil precipitating additive therein, means providing communication between the interior of said container and the interior of said receptacle, said partition means including a sheet carried by the float and extending across said receptacle between two opposite sides thereof, vertical parallel flanges on the ends of said sheet extending toward the adjacent end of said receptacle for insuring a constant size for the second compartment.

9. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to the bottom surface of an applicator resting upon said float when the latter is depressed, vertically disposed partition means dividing said receptacle into a first compartment underlying said float and a second compartment, a container in said second compartment having a soil precipitating additive therein, means providing communication between the interior of said container and the interior of said receptacle, said partition means including a sheet extending across said receptacle between two opposite sides thereof, vertical parallel flanges on the ends of said sheet for engagement with an end wall of said receptacle for insuring constant horizontal positioning of the float and partition whereby the size of the compartments will be maintained substantially constant, said partition means being supported by said float.

10. A container for applying a treating agent to the bottom surface of an applicator comprising a receptacle for receiving a treating agent therein and including side, end and bottom walls but with an open top, a float received in said receptacle and adapted to be supported by the treating agent therein, said float having passages therethrough whereby treating agent will be discharged therethrough to the top surface of said float when the latter is depressed and thereby apply treating agent to the bottom surface of an applicator resting upon said float when the latter is depressed, vertically disposed partition means being carried by said float at one end thereof and dividing said receptacle into a first compartment underlying said float and a second compartment, a container in said second compartment having a soil precipitating additive therein, means providing communication between the interior of said container and the interior of said receptacle, said partition means including a sheet extending across said receptacle between two opposite sides thereof, floats secured to said partition means for maintaining said one end of said float level with the other end thereof.

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