

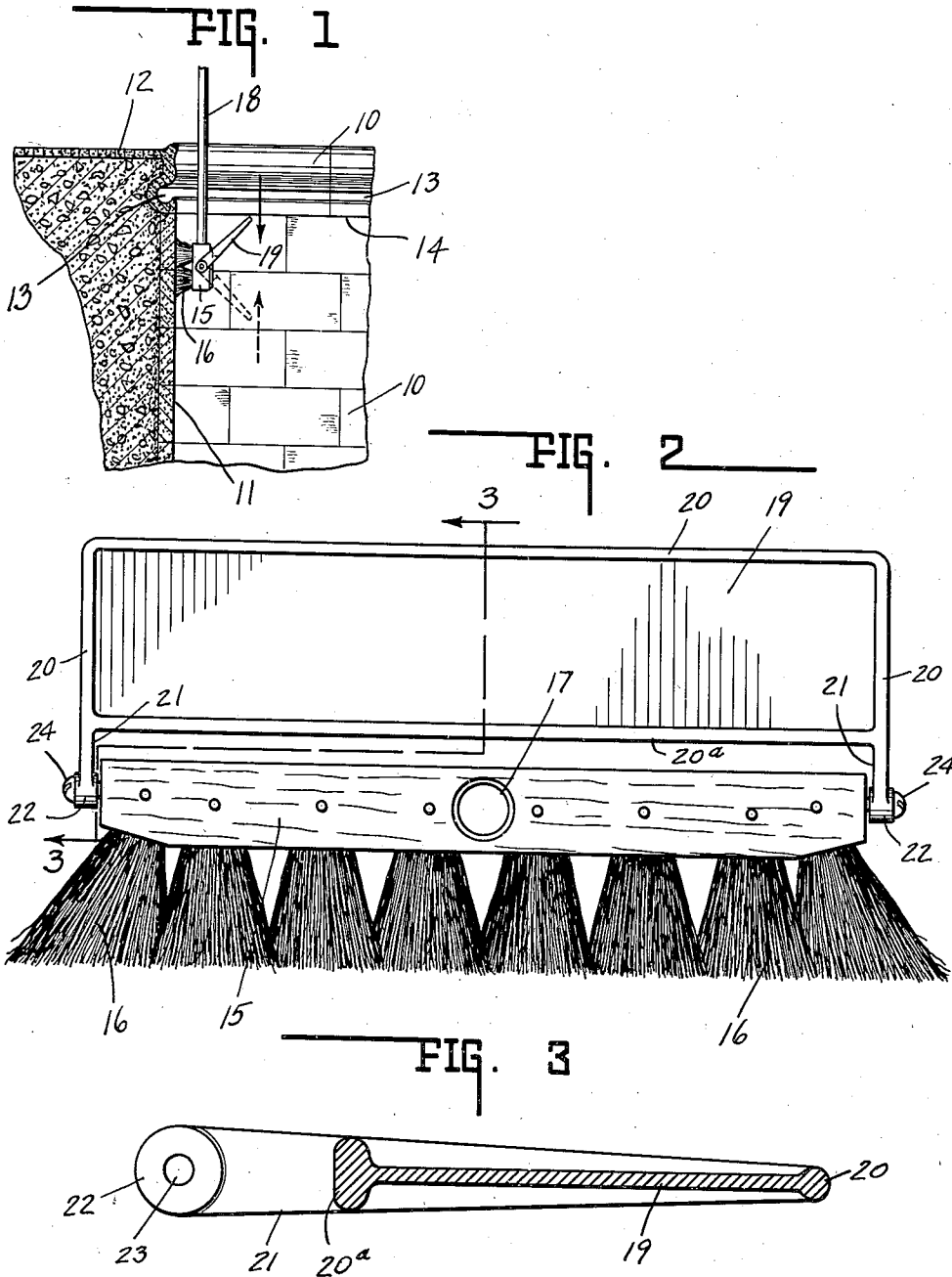
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BLADED BRUSH FOR POOLS AND THE LIKE

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BLADED BRUSH FOR POOLS AND THE LIKE

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5 Claims. (Cl. 15—160)

This invention relates to a brush structure peculiarly adapted for the cleaning of the walls and the bottom or floor of swimming pools, liquid containing pits and structures of similar character wherein the liquid is retained in the tank, pool or pit during the cleaning operation.

It is well known that in the storage or retention of certain liquids, including water, in tanks such as swimming pools, pits and the like that there accumulates from the water upon the bottom and side walls a deposit which tenaciously adheres to side walls and bottom. In filtration systems, this deposit is of "sludge" character. In swimming pools and the like, it is of slime character. With other liquids and in other or similar containers, the deposits are of comparable character. It is, of course, readily understood that it is inconvenient or undesirable to drain such containers, such as pits, tanks, pools and the like, for cleaning purposes, except at infrequent intervals.

The present invention is directed to a brush device whereby the walls and bottom or floor of the container set forth may be readily cleaned of the deposit accumulated thereon and when so cleaned this deposit so removed from the walls collects upon the bottom of the container and when the bottom or floor is cleaned the deposit may be moved to the lowest and deepest end which is usually provided with a drain arrangement and drained therefrom with a minimum amount of loss of the liquid in the container.

The present invention is directed primarily to causing the surface engaging portion of the brush structure to be automatically maintained in engagement with the surface in the movement of the brush to and fro upon the said surface and such maintenance is of a forceful character so that removal of the deposit is effected and thus the wall and/or bottom is freed therefrom and such deposit, when freed, as before mentioned, may be positioned adjacent the drain for subsequent removal as set forth.

The chief feature of the invention consists in providing the brush structure with a cooperating vane which is preferably tiltably supported by a portion of the brush to reverse its position in a reversal movement of the brush when moving in a to and fro direction for cleaning purposes. This vane utilizes the resistance of the liquid to movement in the cleaning of the surface so that a portion of the force or resistance is translated from a direction parallel to the direction of the movement of the brush to a direction tending to force the brush into engagement with the sur-

face being cleaned by the movement of the brush.

Other objects and features of the invention may be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawing, the following description and the claims.

In the drawing, Fig. 1 is a sectional view of a portion of a swimming pool, the brush being shown in elevation, the arrows indicating the movement of the brush and the full and dotted line positions of the vane corresponding to the full and dotted line arrow direction indicated movements. Fig. 2 is a side elevation of the brush looking toward the handle receiving end thereof with the vane in the median position. Fig. 3 is a transverse sectional view taken on broken line 3—3 and in the direction of the arrows, same being enlarged.

In the drawing, 10 indicates one side wall of a swimming pool or the like, 11 an adjacent side wall transverse thereto. 12 indicates the top of the side wall or pool. 13 indicates a conventional scupper arrangement. 14 indicates the tank or pool liquid level.

The brush includes a brush back 15 to which is suitably secured a bristle arrangement 16 herein shown in the form of bobs. The bristles are of a relatively stiff character which do not readily soften in water, unless submerged therein for a considerable period of time. These bristles are preferably of fiber. They may, however, be of metal wire character or other well known fibrous material. The back 15 is provided with an opening 17, herein shown of threaded character and adapted to threadingly receive a handle 18 (see Fig. 1) of the desired length.

Adjacent and longitudinally coextensive with the brush back 15 is a blade or vane portion 19, substantially imperforate, defined by a rim portion 20 which herein is shown as of minimum height (see Fig. 3) at its outer or remote end and of progressively increasing height at the side portions and of the greatest height at the side opposite the free edge. This vane is of substantially non-corrosive material, such as aluminum. The rim portion is positioned on opposite sides of the blade 19 and forms oppositely directed open pocket arrangements on opposite sides of the blade structure.

The side portions of the rim 20 are extended as at 21 and terminate in the enlargements 22 which are apertured as at 23. The apertures 23 are in longitudinal alignment. The arm portions 21 with the enlargements 22 endwise straddle the

brush back 15. Screws, bolts or the like 24 serve to secure the vane structure to the brush back. Usually the latter is of wood and therefore slightly buoyant. The handle, if of wood, is also buoyant. The bristles, if of fiber, are also slightly buoyant. For that reason, it is preferred, but not essential, that the vane structure be of metal character so as to partly neutralize this buoyancy. Furthermore, the vane structure, being positioned chiefly upon the side opposite the bristle arrangement, does to that extent counterbalance the bristle arrangement and thus the brush may be more readily manipulated in the liquid for cleaning purposes. The vane structure, as shown in Figs. 2 and 3, is substantially imperforate. This insures that the maximum resistance of the water, incident to brush movement, is effective through the vane arrangement. If desired, however, the vane may be suitably perforated, but not to that degree which would very seriously affect its resistance force transmitting action feature.

With reference to the foregoing, it is to be observed (see Fig. 1) that the brush is to be moved downwardly and when so moved the vane assumes the full line position. Continued movement of the brush downwardly is resisted by the water bearing on the vane and the transverse component of this resisting force is directed toward the wall 11 so that the brush is automatically forced into engagement with the wall in its downward movement for cleaning said wall. At the end of the stroke when the brush is elevated, the vane in the upward movement of the brush assumes the dotted line position (see Fig. 1) and the resistance of the water through its transverse component applied through the vane again serves to force the brush bristles into wall engagement. Thus, as the brush is reciprocated up and down, the vane structure serves to force the brush into wall engagement. This action takes place whether the brush be moved lengthwise of the wall or upon the bottom of the tank or well or any other surface, so long as the brush moves in a liquid medium.

As shown in Fig. 1, the movement of the vane from one extreme position to the other is approximately 90 degrees and the extreme end of the movement is limited by the bridge or rim portion 20a (see Fig. 3) engaging the side face of the brush back opposite the bristle supporting face.

While the invention has been illustrated and described in great detail in the foregoing description, the same is to be considered as illustrative and not restrictive in character.

The several modifications described herein as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. A wall and floor cleaning handle type brush for cleaning tanks et cetera, while filled including a brush back from one face of which projects a bristle arrangement, and a tiltable vane positioned in opposed relation to the bristle arrange-

ment and tiltable in opposite directions in reverse movement of the brush for forcing same into tank contact for tank cleaning, the vane being of open pocket character upon opposite sides thereof.

2. A wall and floor cleaning handle type brush for cleaning tanks et cetera, while filled including a brush back from one face of which projects a bristle arrangement, and a tiltable vane positioned in opposed relation to the bristle arrangement and tiltable in opposite directions in reverse movement of the brush for forcing same into tank contact for tank cleaning, the vane being of weighted character for counterweighting purposes, said vane being of the open pocket character on opposite sides thereof.

3. A wall and floor cleaning handle type brush for cleaning tanks et cetera, while filled including a brush back from one face of which projects a bristle arrangement, and a tiltable vane positioned in opposed relation to the bristle arrangement and tiltable in opposite directions in reverse movement of the brush for forcing same into tank contact for tank cleaning, the brush back being of elongated character and the vane having an axis parallel to the longitudinal bristle exposing face of the back, the vane including arm portions projecting therefrom and sufficiently spaced to endwise straddle the elongated back, and means pivotally connecting the straddling arms to the opposite ends of the brush.

4. A wall and floor cleaning handle type brush for cleaning tanks et cetera, while filled including a brush back from one face of which projects a bristle arrangement, and a tiltable vane positioned in opposed relation to the bristle arrangement and tiltable in opposite directions in reverse movement of the brush for forcing same into tank contact for tank cleaning, the brush back being of elongated character and the vane having an axis parallel to the longitudinal bristle exposing face of the back, the vane including arm portions projecting therefrom and sufficiently spaced to endwise straddle the elongated back, and means pivotally connecting the straddling arms to the opposite ends of the brush, the edge of the vane adjacent the brush back being spaced from the face of back opposite the bristle supporting face thereof, sufficient to permit vane and back engagement, approximately 45 degrees upon either side of a central transverse plane through the back and including the pivotal axis.

5. A device for cleaning tanks, et cetera, while filled, including a handle and a back of generally oblong shape and from one face of which project cleaning means, and a tiltable vane structure positioned in opposed relation to the cleaning means and including a pair of arms projecting therefrom for straddling the back at the ends thereof and pivotally supporting the vane on the back, the vane edge closest the back being arranged for contact with the back for limiting tilting movement of the vane in either direction, said vane tilting in a trailing direction relative to movement of the cleaning structure, the water forcing the latter in the direction of the cleaning means.

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