

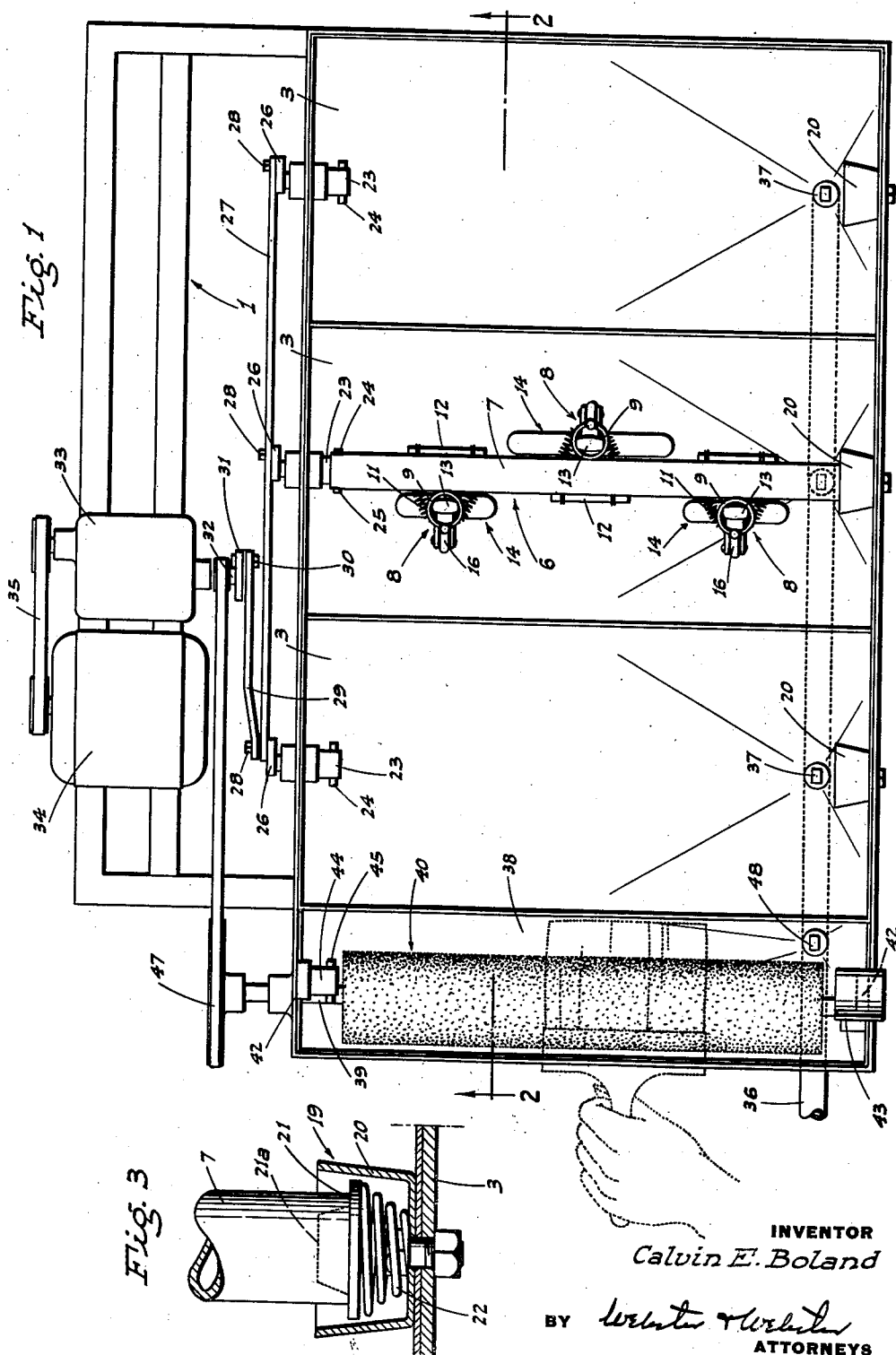
June 2, 1953

C. E. BOLAND
MACHINE FOR CLEANING PAINTBRUSHES, INCLUDING
LIQUID TANKS AND BRUSH HOLDERS THEREABOVE

2,640,489

Filed Feb. 27, 1951

2 Sheets-Sheet 1



June 2, 1953

C. E. BOLAND
MACHINE FOR CLEANING PAINTBRUSHES, INCLUDING
LIQUID TANKS AND BRUSH HOLDERS THEREABOVE

2,640,489

Filed Feb. 27, 1951

2 Sheets-Sheet 2

Fig. 2

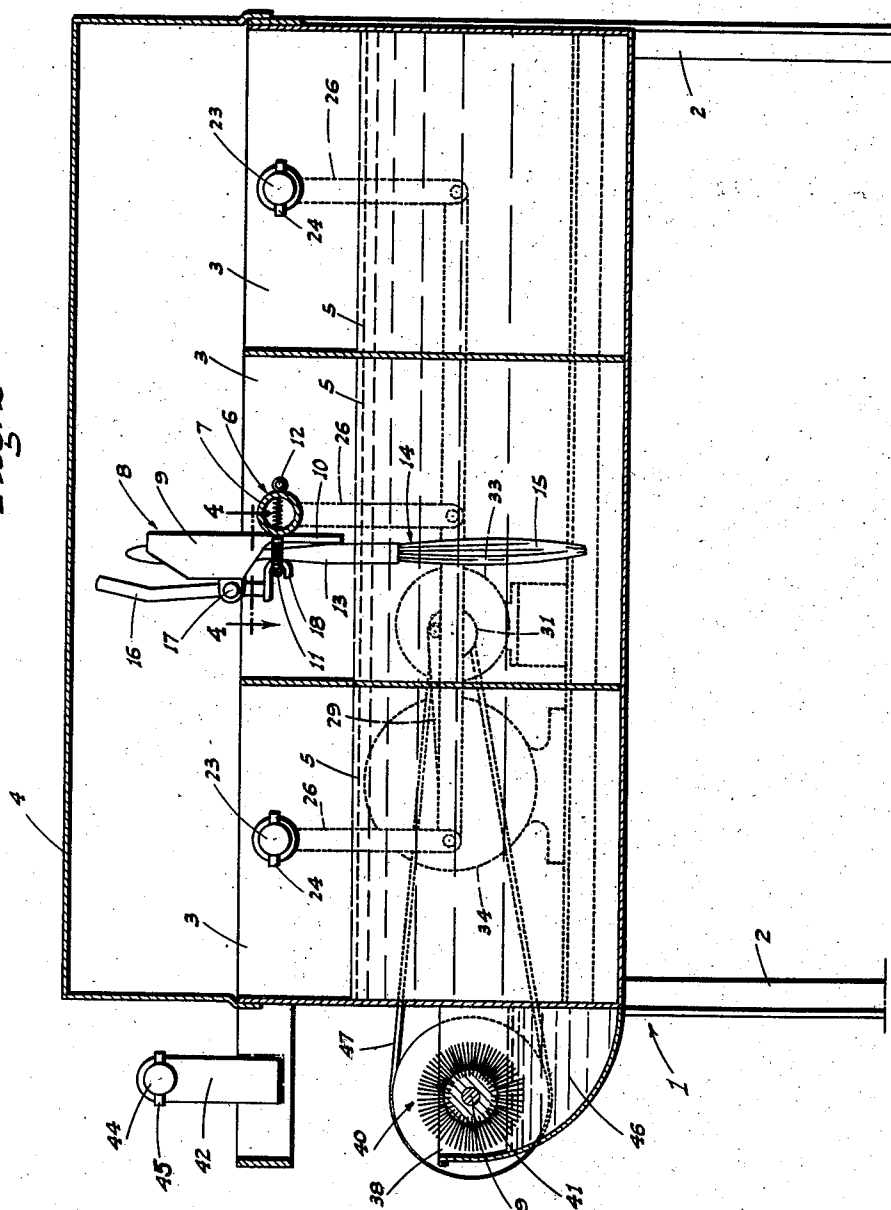
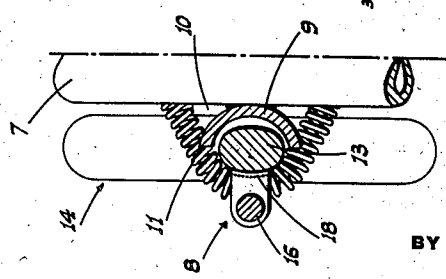


Fig. 4



INVENTOR
Calvin E. Boland

BY *Wm. W. Winters*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,640,489

MACHINE FOR CLEANING PAINTBRUSHES,
INCLUDING LIQUID TANKS AND BRUSH
HOLDERS THEREABOVE

Calvin E. Boland, Visalia, Calif.

Application February 27, 1951, Serial No. 213,011

4 Claims. (Cl. 134—86)

1

The present invention is directed to, and it is a major object to provide, a novel power actuated device operative to effectively wash the paint from brushes after use thereof; the device cleaning paint brushes better than by hand, accomplishing the task more rapidly, and increasing brush life by reason of less wear and tear thereon.

Another object of the invention is to provide a paint brush cleaner which imparts a movement to brushes, supported with the bristles in a solvent, which produces a cleaning action that minimizes the undesirable retention of oils and inert matter in the heel of the brush and assures that the bristles remain clean and flexible throughout their length.

A further object of the invention is to provide a paint brush cleaner which comprises a plurality of tanks for cleaning solvent, and a brush holder adapted to support the brushes in successive tanks for cleaning; there being a novel arrangement whereby the brush holder is releasably mounted in each tank, and power oscillated when so mounted.

An additional object of the invention is to provide novel power mechanism for oscillating each brush holder when mounted in position in a tank.

A still further object is to provide a novel brush holder for use in the device; such brush holder being formed so that brushes can be readily placed in said holder or removed therefrom, and when in place being firmly engaged.

It is also an object of the invention to provide a paint brush cleaner which is designed for ease and economy of manufacture; the device being simple in structure, and embodying a minimum of parts requiring servicing or especial maintenance.

Still another object of the invention is to provide a practical and reliable paint brush cleaner, and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a plan view of the power actuated, paint brush cleaner.

Fig. 2 is a longitudinal sectional elevation on line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary plan view, partly in section, of one of the spring socket units.

Fig. 4 is an enlarged fragmentary sectional plan view of one of the brush holders taken on line 4—4 of Fig. 2.

2

Referring now more particularly to the characters of reference on the drawings, the device comprises an upstanding, portable frame, indicated generally at 1, which frame includes corner legs 2 whereby to support, a distance above the floor, a plurality of open-topped tanks 3 arranged on the frame in a row; such row of tanks being normally enclosed within a longitudinally extending, removable cover 4 of inverted box-like configuration.

The purpose of the cover 4 is to prevent splashing of solvent from the tanks 3 when the device is in operation; each tank having solvent 5 therein up to a level adjacent, but short of, the top of said tank.

The numeral 6 indicates, generally, a brush holder, of which there may be one or more for use in the device simultaneously.

Each brush holder 6 comprises a cross shaft 7, which shaft is adapted to extend from end to end of each tank 3 above the solvent 5 in supported and driven relation, as will hereinafter appear.

At spaced points in the length thereof, and alternately on opposite sides, the cross shaft 7 is fitted with a plurality of clamp units, each indicated generally at 8.

The clamp units 8 each comprise an upstanding, paint brush handle receiving sleeve 9 disposed laterally of but affixed to the cross shaft 7, with a backing plate 10 projecting downwardly in integral relation from the back side of said sleeve.

A tension spring 11 is connected at opposite ends to the cross shaft 7 by passing therethrough as shown, and being attached at the free ends to a longitudinal anchor pin 12 on the opposite side of the cross shaft.

Intermediate its ends the tension spring 11 encircles the backing plate 10, whereby when the handle 13 of a paint brush 14 is projected upwardly into the sleeve 9, and beneath said spring, the latter firmly engages the handle against the backing plate 10. This maintains the brush 14 in fixed position in the clamp unit 8, and so that the bristles 15 are submerged in the solvent 5 when the brush holder 6 is in place in one of the tanks 3.

To facilitate placement of the handle 13 in, and its removal from, the clamp unit 8, each of the latter is arranged as follows:

An upstanding finger lever 16 is pivoted, as at 17, adjacent but short of its lower ends, to the front of the corresponding sleeve 9. A hook 18 is fixed to the lower end of the finger lever 16 and engages the tension spring 11 centrally of its ends; whereby upon inward swinging of

3

said finger lever the hook 18 pulls on the spring 11, lengthening it so that a paint brush handle 13 can be easily placed in or removed from the sleeve 9.

Each brush holder 6 is adapted to be releasably mounted in each of the tanks 3, extending from end to end thereof above the solvent 5, as follows:

Each tank 3 is fitted, at one end and adjacent the top and centrally of its sides, with a spring socket unit, indicated generally at 19. Each spring socket unit 19 comprises a socket 20 open horizontally toward the opposite end of the tank, and a locator disc 21 is supported in said socket for shifting motion against a compression spring 22 therein; the locator disc 21 having a taper plug 21a projecting axially inwardly therefrom for engagement in the adjacent end of the cross shaft 7, which is tubular.

After the cross shaft 7 is seated against the locator disc 21, with the taper plug 21a engaging in the shaft, the latter is shifted sufficiently to place the compression spring 22 under some load, and then the opposite end of said shaft is engaged on a driving trunnion 23 which is journaled in connection with the adjacent end of each tank in axial alinement with the corresponding spring socket unit 19. A cross pin 24 on each driving trunnion 23 then engages at opposite ends in corresponding notches 25 in the adjacent end of the cross shaft 7. In this manner said cross shaft 7 may be effectively supported in position in any one of the tanks 3, and as so supported said shaft is oscillated from the driving trunnion 23 to sweep the brushes 14 back and forth in the tank so that the solvent 5 may effectively clean the paint from the bristles.

The driving trunnions 23 are simultaneously oscillated, at predetermined speed, by the following mechanism:

At their outer ends the driving trunnions 23 are fitted with depending radial crank arms 25, all of the latter being connected by a longitudinal link 27 attached to crank pins 28 projecting from the lower ends of said radial crank arms 25.

One of said crank pins 28, in addition to its connection with the link 27, is also attached to one end of a connecting rod 29 which leads to connection, at its other end, with the crank pin 30 of a limited throw crank 31 on the output shaft 32 of a reduction gear box 33.

The reduction gear box 33 is driven from a motor 34 through the medium of an endless belt and pulley unit 35; the reduction gear box 33 and motor 34 being mounted on the frame 1 beyond one end of the tanks 33.

When the device is in use, with solvent 5 in each of the tanks 3, each brush holder 6, with brushes 14 engaged by the clamp units 8, is successively mounted in the tanks 3, whereby the brushes are washed in progressively cleaner solvent.

When each brush holder 6 is mounted in one of the tanks 3, with the cross shaft 7 oscillating, the bristles 15 recurringly sweep back and forth in the solvent, producing a cleaning or washing action which is much more effective than hand cleaning of brushes. Further, as the bristles 15 do not make contact with any fixed object during the washing operation, there is a minimum of wear and tear on said bristles.

After the device has been used to clean a number of brushes, with the brush holder 6 mounted and actuated in successive tanks 3, the solvent 5 from each tank is withdrawn by means

4

of a drain pipe 36 communicating with the bottom of each tank; such drains being normally closed by a removable plug 37. In this manner the solvent from each tank may be separately removed from the device, and as so removed the solvent may be filtered in suitable manner and then returned to the tank. In this way the solvent may be reused, and the filtered-out inert matter recovered for its value.

If desired, especially when the brushes have stood several hours and the paint is surface dried or semi-scummed thereon, such brushes may first be subjected to the action of a rotary comb, as follows:

At one end of the device; i. e., beyond the row of tanks 3, a separate tank is mounted, with the upper edge or rim of said tank in a relatively low plane, as shown.

A cross shaft 39 is journaled in connection with, and extends between, opposite ends of the tank 38 intermediate the top and bottom thereof. This cross shaft 39 is fitted with a relatively long but small-diameter rotary brush or comb, indicated generally at 40, having relatively long bristles 41.

Suitably mounted posts upstand above opposite ends of the tank 38 and carry a socket 43 and a trunnion 44 in alinement; the trunnion 44 being fixed or non-rotatable, and includes a cross pin 45.

A brush holder 6 may be mounted above the rotary comb 40 by engaging the cross shaft 7 of said holder at one end in the socket 43 and at the other end on the trunnion 44; the cross pin 45 preventing rotation of said cross shaft 7.

The rotary comb 40 is driven at relatively slow speed as hereinafter described; such rotary comb turning inwardly at the top and running at the bottom in a quantity of solvent 46 in tank 38.

To break loose and sweep away the surface-dried or semi-scummed paint from a brush, the latter is grasped in the hand and rested on the upper edge of the tank 38, as shown in Fig. 1, with the bristles of the brush in engagement with the bristles 41 of the rotary comb 40. This procedure is repeated on each side of the brush until adequate initial cleaning is accomplished. Thereafter, each brush is placed into the brush holder 6, which is mounted in spanning relation between the socket 43 and trunnion 44. By so mounting the brush holder it is in a convenient position to receive the brushes, and preparatory to the latter being cleaned in the tanks 3 in the manner previously described.

The rotary comb 40 is driven as follows:

The cross shaft 39 of said rotary comb 40 projects, at one end, from the tank 38 and is driven by an endless belt and pulley unit 47 from the output shaft 32 of the reduction gear box 33.

The tank 38 has a normally in-place drain plug 48 which permits said tank to be emptied into the drain pipe 36 when desired.

The described paint brush cleaner provides a device which is a valuable aid to a painter, especially where a substantial number of brushes are used, and which require daily cleaning.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the

appended claims.

5

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. A paint brush cleaner comprising a tank for a quantity of solvent, a cross shaft, means turnably mounting the cross shaft in the tank, means to impart oscillating motion to the shaft, and a clamp unit on the shaft adapted to releasably secure the handle of a paint brush to said shaft with the bristles depending into the solvent in the tank; said clamp unit including an upstanding sleeve to receive the brush handle from below, a backing plate depending from the sleeve, and spring means positioned to engage and urge the handle into relative forceful abutment with said backing plate.

2. A paint brush cleaner, as in claim 1, in which said spring means is a helical tension spring secured at its ends in connection with the cross shaft and thence passing about the backing plate.

3. A paint brush cleaner, as in claim 2, including an upstanding finger lever pivoted on the handle receiving sleeve for swinging of its lower end outward relative to the backing plate, and a hook on the lower end of the lever engaging the spring whereby to elongate the latter when the lower end of the lever is so swung.

4. A machine for cleaning paint brushes comprising a plurality of solvent-receiving tanks ar-

6

ranged in side-by-side relation, a cross shaft having brush clamping means thereon, means to removably mount the shaft in any tank selectively and comprising a trunnion turnably mounted in each tank at one end thereof, means between the trunnion and one end of the shaft to support the shaft in driving relation with the trunnion, and an element at the other end of the tank to removably engage and support the other end of the shaft; a power unit, and means between said unit and all the trunnions to oscillate said trunnions simultaneously and through a relatively short arc.

CALVIN E. BOLAND.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
601,508	Fellows	Mar. 29, 1898
892,104	Whelan	June 30, 1908
904,731	Singer et al.	Nov. 24, 1908
1,493,916	Brandon	May 13, 1924
1,542,025	Ballman	June 16, 1925
1,573,977	Lee	Feb. 23, 1926
1,613,396	Keller	Jan. 4, 1927
2,239,741	Schroder	Apr. 29, 1941
2,354,898	Wiksten	Aug. 1, 1944
2,449,818	Olsen	Sept. 21, 1948
2,519,259	Liebman	Aug. 15, 1950