

April 8, 1952

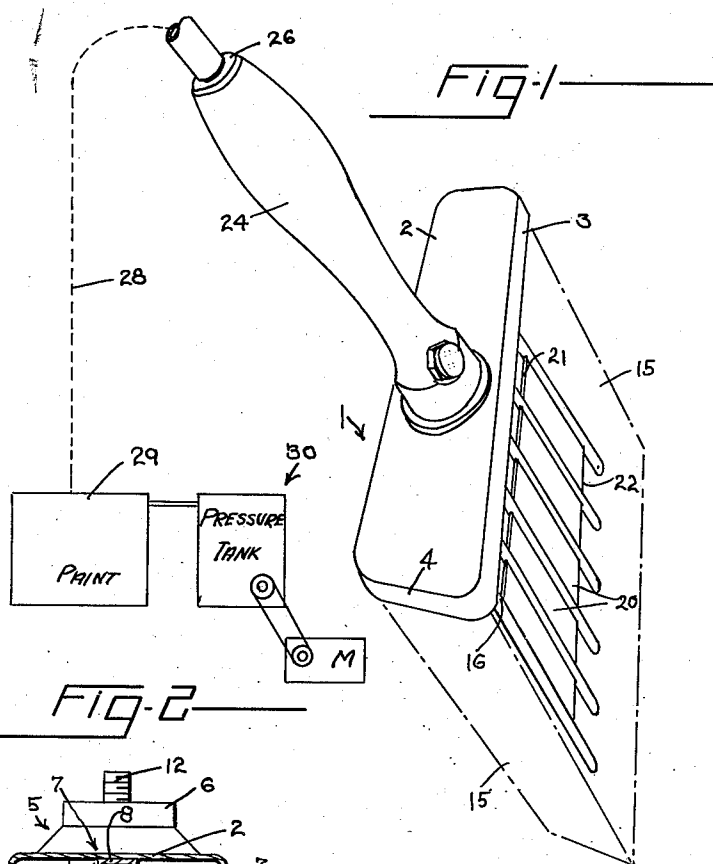
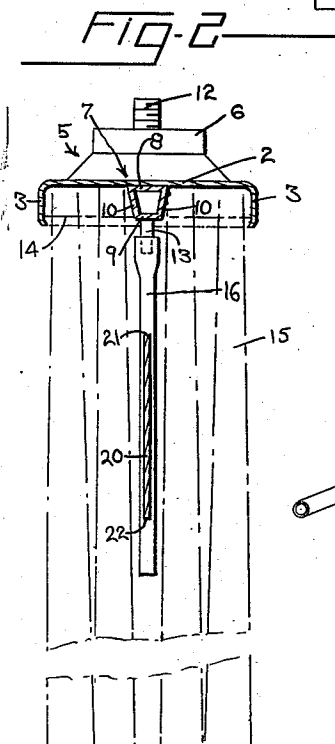
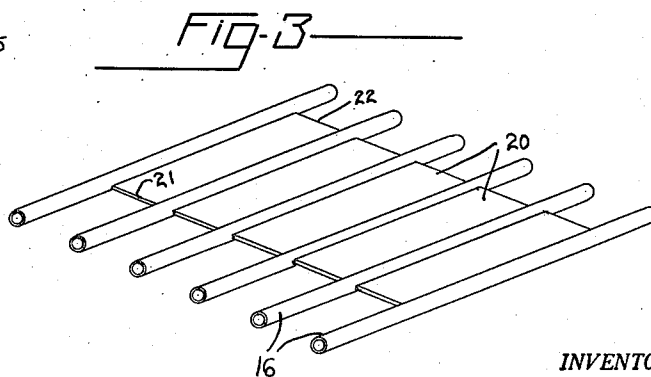
O. P. MAGOON

2,591,845

PAINTERBRUSH

Filed Dec. 13, 1947

2 SHEETS—SHEET 1



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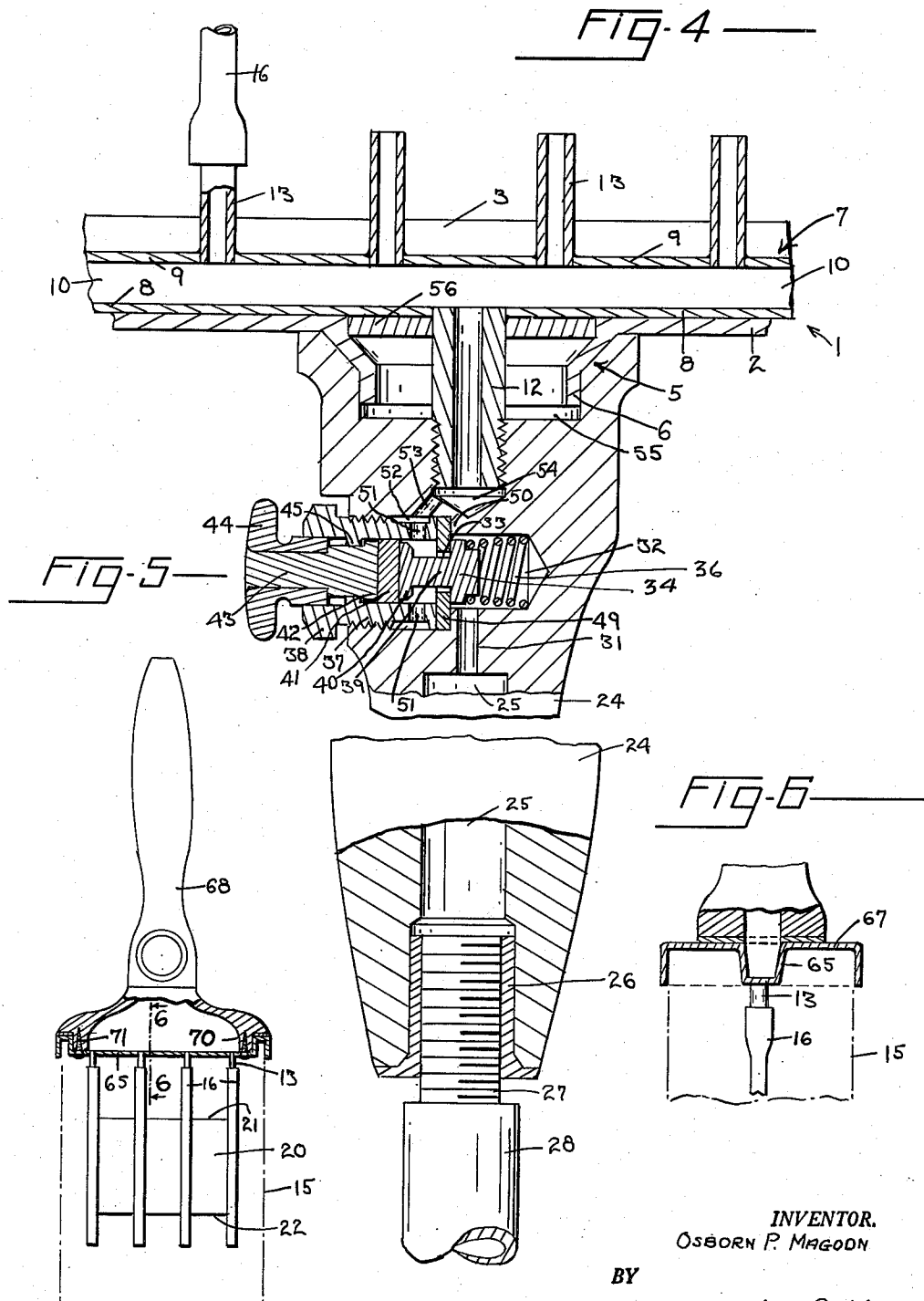
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UNITED STATES PATENT OFFICE

2,591,845

PAINTBRUSH

Osborn P. Magoon, Alameda, Calif.

Application December 13, 1947, Serial No. 791,531

6 Claims. (Cl. 15—128)

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This invention relates to a paint brush of the fountain type in which paint is fed under pressure to the bristles.

One of the objects of the invention is the provision of a paint brush of the above type so constructed as to supply paint to the tips of the bristles whereby their bases will be relatively clear of surplus paint, and which brush is as readily and easily manipulated as a brush of the conventional non-fountain type and which brush will produce a more uniform painting job than heretofore.

Another object of the invention is the provision of a fountain type paint brush for supplying paint under pressure to the bristles, and which brush has a flattened body of bristles that may be flexed in any direction with substantially the same ease as a conventional brush and without streaking the paint.

An additional object of the invention is the provision of a fountain type brush that is adapted to be under instant control (as to the feeding of paint to the bristles) by the thumb of the hand grasping the handle, and which brush is easily cleaned and is constructed for discharge of the paint to be spread at points adjacent the tip ends of the bristles.

Heretofore various types of fountain paint brushes have been constructed, but said brushes have not been favorably accepted by the trade for various reasons, principal among which are: (1) pumping means including a flexibly mounted brush head have been awkward to handle; (2) the bristles tend to spread; (3) paint conducting tubes or conduits have been so constructed as to preclude efficient "edge-wise" use of the brush in painting; (4) the paint conducting tubes have been independently movable in the bristles resulting in lack of uniform delivery of paint and streaking where the tubes touch the surface during painting; (5) the paint has been discharged into the body of bristles at their bases instead of adjacent the tips, thus loading the brush with an excess of paint that unnecessarily increases its weight and makes the brush difficult to clean.

The present invention overcomes all of the above objections, and the provision of structure for so overcoming said objections is an object of the invention.

Heretofore one of the additional objections to fountain type brushes has been the fact that where a reservoir for paint is provided adjacent the bristles, the same tends to cause a spreading of the bristles. This is true whether the reservoir is in the rubber or composition material in which

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the bristles are imbedded at their base ends, or whether the reservoir is outside said material. It is more pronounced where the reservoir is outside the material, but in either instance it is objectionable. To overcome this tendency for the bristles to spread, attempts have been made to hold the bristles in a compact body by wire or other resilient retainers engaging the outer surface of the brush. These have not been satisfactory inasmuch as they restrict the desired flexibility of the bristles and also tend to obstruct cleaning of the bristles. With the present invention the reservoir is imbedded within the material in which the base ends of the bristles are imbedded and the said reservoir is so shaped as to permit the bristles to return to their normal compact position instead of spreading.

Other objects and advantages will appear in the description and in the drawings.

In the drawings, Fig. 1 is a perspective view of a brush illustrating the invention, with the paint supply system diagrammatically shown and with the body of bristles indicated in dot-dash lines so as not to cover up the structure illustrating an important part of the invention.

Fig. 2 is a cross sectional view taken through a brush head transversely of its length, with the handle removed, the bristles being indicated in dot-dash lines.

Fig. 3 is an enlarged isometric view of the flexible paint conduits for conducting paint to the bristles.

Fig. 4 is an enlarged fragmentary sectional view of the valve means for controlling paint to the bristles, and of the associated parts, only one of the flexible paint conduits being indicated in elevation.

Fig. 5 is a side elevational view of a smaller paint brush (for use with lead-oil paint) and in which structure the reservoir is integral with the head.

Fig. 6 is a sectional view taken along line 6—6 of Fig. 5.

In detail, the brush illustrated in the drawings (Figs. 1 to 4) comprises a head 1 that is in the form of an elongated channel having a base 2, side walls 3 and which channel is closed at its ends by end walls 4.

Centrally between the end and side edges of base 2 the latter is preferably formed with a circular opening, and an annular flange 5 around said opening extends from said base in a direction away from the outwardly opening side of the channel. This flange is of generally frusto-conical shape adjacent said base, with the smaller

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diameter end spaced outwardly of said base, and a cylindrical section 6 extends from said smaller diameter edge (Figs. 2, 4).

Extending longitudinally of channel centrally between sides 3 thereof and preferably terminating an equal distance from ends 4, is a paint reservoir 7. This reservoir in Figs. 1 to 4 has flat opposed top and bottom sides respectively numbered 8, 9 and flat side walls 10 (Fig. 2). The brush shown in Fig. 4 is inverted with bottom wall 9 uppermost.

Centrally between the ends of the top wall 8 of said reservoir is a short metal tube 12 rigidly secured at one end in an opening formed in said top wall. The outer end of tube 12 is externally threaded.

Along the bottom side 9 of said reservoir is a row of metal pipes 13 respectively secured at one of their ends in openings formed in said bottom side 9. These pipes are also relatively short and preferably of the same length, and the internal diameter of said pipes is substantially less than that of the reservoir.

The reservoir 7 is imbedded in the rubber or composition material that fills the channel of the head, indicated in dot dash lines at 14 in Fig. 2, the bristles 15 being also imbedded at their base ends in said rubber or the like for firmly securing said bristles to said head.

It has already been mentioned that heretofore difficulty has been encountered in preventing the bristles from spreading out, and that various means have been employed to prevent this.

In the present invention, the opposite sides 10 of the reservoir are divergently slanted in direction toward the base 2 transversely of the length of the reservoir. This has been found to prevent the objectionable spreading of the bristles oppositely outwardly, whereas if the sides 10 are parallel, the desired compact outer edge on the body of bristles will not be maintained. Where the sides of the reservoir are slanted as above described, the desired edge is maintained.

When the reservoir is imbedded in the rubber or other suitable material that carries the bristles, the tube 12 extends through the central opening in the base 2, and the row of pipes 13 project oppositely therefrom centrally within the body of bristles 15. These pipes 13, being relatively short, project only a short distance into the bristles, and on each pipe is secured one end of a flexible tube 16 of suitable material resistant to disintegration under the influence of paint.

These tubes 16 each extend to a point spaced from the outer ends of the bristles 15, and adjacent pairs of said tubes are each connected by a web 20. Webs 20 are in a common plane bisecting the body of bristles and bisecting the tubes of said row, and as said web is relatively thin as compared with the diameter of the respective tubes, the result is that the tubes project from opposite sides of the webs thus forming parallel ribs extending longitudinally of the bristles projecting oppositely outwardly of opposite sides of the webs.

The webs 20 terminate at their upper and lower ends in edges 21, 22 respectively that are substantially spaced from the outer ends of pipes. The webs 20 are formed integrally with tubes 16 and are of the same material.

Referring to Fig. 4 the brush is provided with a tubular handle 24, having a passageway 25 therein extending longitudinally therethrough.

The outer end of said handle may have an internally threaded sleeve 26 within said passageway

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way coaxial therewith and rigid with said handle. This sleeve is adapted to receive the threaded fitting 27 that is on one end of a flexible hose 28 connecting the said passageway with a supply 29 (Fig. 1) of paint under pressure, the container for supply being in turn connected with any suitable means 30 for maintaining the paint in the container under suitable pressure.

The end of passageway 25 adjacent the head of the brush is reduced as at 31 (Fig. 4) and this reduced portion opens into an enlarged chamber 32 one side of which is provided with an outlet 33 that is normally closed by a valve element 34 under the influence of a spring 35 reacting between said element and the side of chamber 32 opposite outlet 33.

Outlet 33 communicates between chamber 32 and the hollow inner end of a sleeve 37 that is threadedly secured within a side of the handle. The outer end of said sleeve has a hexagon or square head 38 for turning the same.

The valve element 34 has a stem 39 extending through outlet 33 and spaced from the edges of the latter, and the end of stem 39 opposite the element 34 is enlarged as indicated at 40. Said enlarged end 40 engages a sealing disk 41 that has a snug but slidable sealing contact at its edges with the hollow cylindrical interior of sleeve 37.

The side of disk 41 that is opposite the side engaged by the enlarged end of the stem is engaged by the enlarged end 42 of a plunger 43 that extends out of the sleeve 37 and that is provided with a thumb depressible button 44 at its end that projects from the sleeve. The interior of sleeve 37 is formed with a radially inwardly projecting flange 45 that engages the enlarged end 42 of plunger 43. This flange acts as a stop for limiting outward movement of the plunger and button 44.

The outlet 33 is formed in a disk 49 that is held between the inner end of sleeve 37 and a shoulder 50 formed in the handle around the side of chamber 32 adjacent said disk.

The inner hollow end of sleeve 37 adjacent disk 49 is formed with a plurality of outlets 51 that open into an annular chamber 52 around said inner hollow end, and a duct 53 communicates between said chamber 52 and the reduced diameter end portion 54 of an outwardly opening recess in the forward end of handle 24, said forward end of said handle being preferably enlarged to accommodate the valve means, chambers, etc. above described.

This reduced diameter end portion 54 is internally threaded for threaded engagement with the threaded end of tube 12.

The enlarged outer and outwardly opening portion 55 of the recess in the forward end of handle 24 is formed to closely receive the flange 5 on base 2 of the head 1 of the brush, the contour of the said portion 55 being complementary to that of the exterior of flange 5 including the cylindrical portion 6 of the latter.

By the foregoing structure, the handle 24 is readily screwed to the head for holding the head 1 tightly to the handle. It is to be noted that a washer 56 within the enlarged frusto-conical end of the flange 5 bears against the side 3 of the reservoir 7 and the tapered inner side of flange 5. Thus upon tightening the handle the force transmitted through tube 12 to the reservoir will pull the reservoir against said washer which in turn will be pulled against the flange 5 that is exteriorly backed by the handle.

The above structure will preclude detrimented

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strains being placed on the reservoir yet the same will be held tightly in place, and the portion of the handle that encloses the flange 5 will brace or stabilize the head, so that the latter will not tend to loosen or break from the head. The brush head must be rigid with the handle with no flexing, wobbling or looseness of said head. Any such looseness is highly objectionable to the workman and results in inferior work.

In operation, the painter has full control of the admission of paint to the reservoir, and from there to the tip ends of the bristles for the reason that the thumb depressible button 44 is accessible to the thumb of the hand of the painter grasping handle 24 in a normal manner for painting.

It is clear that the reservoir 7 will not become loose, or turn, since it is set in the rubber or compound 14. Nor is there any detrimental strain on the reservoir.

The spacing of the webs 20 from the head of the brush permits the tubes 16 to freely flex when the brush is moved edgewise of the flat body of the bristles in painting in corners, grooves, etc. This free flexing would not be possible if the web were continuous to the base or reservoir or sufficiently close to restrict the flexing of the tubes.

The webbing holds the tubes 16 centrally within the brush so as to insure uniform distribution of the paint to the bristles irrespective of how the brush is used. If they were not connected, they would become displaced within the body of bristles and would not uniformly distribute the paint. Furthermore, in the absence of the webs 20, the tubes 16 would be free to come to the surface where they would make streak marks on the paint that is deposited on the surface being painted.

The outer ends of the tubes 16 must, however, be free to flex, which freedom is permitted by terminating the outer edge of the webs a substantial distance from the outer ends of the tubes. As the bristles wear down, the painter may clip off the outer ends of the tubes to the desired length, and if the bristles are worn to the webs, the webs can also be cut away along their outer edges to permit the desired flexing of the outer ends of tubes 16.

It is further to be noted that the ribs formed by the tubes projecting from the flat sides of the webs function to hold the tubes as a unit in a proper position within the body of bristles. This is because the bristles at opposite sides of the webs 20 lie in the spaces between the ridges formed by the tubes of each adjacent pair.

The fact that the tubes 16 terminate at points adjacent the tip ends of the bristles prevents the caking of paint in the bristles at their base ends, and also makes the brush much lighter. The paint is required only at the tip ends of the bristles, and any other paint in the brush is surplus. While some paint will possibly tend to flow along the bristles toward the base in certain painting operations, the amount is negligible.

The invention as illustrated in Figs. 1 to 4 inclusive is applicable to any size brush, although the one shown in said drawings is the type generally used for indoor painting, in which the body of the bristles is about six inches in length longitudinally of the head.

For painting with a lead oil paint, a shorter brush is preferable, and in the brush shown in Figs. 5, 6 in which a shorter or narrower brush is illustrated, the reservoir 65 is formed integrally with the channel members, being a central depression in the base 67. The handle 68 is flared at its lower end to follow the marginal portions

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of the base around the reservoir and has projections 70 that fit in the ends of said reservoir. Machine screws 71 extend through the rubber or material in which the bristles are held and into said projections 70 for tightly holding the handle to the brush head. Thus the handle forms the upper side of the reservoir.

Except for the above differences, the invention is substantially the same as already described, and the elements that are the same as those described for Figs. 1 to 4 are similarly numbered.

The sides of the reservoir 65 are slanted the same as sides 10 in Fig. 2, and therefore they function in the same manner for permitting the bristles to move inwardly toward each other at opposite sides of a plane bisecting the head longitudinally thereof.

It is to be understood that the drawings merely show a preferred form of the invention and are not necessarily to be considered restrictive thereof. The brush may be larger or smaller as desired, to fit the circumstance. While the present valve is preferable, it is obvious that it may be modified.

25 I claim:

1. In a paint brush having a head, a body of bristles projecting from said head with the base ends of the bristles secured thereto, a paint reservoir carried by said head, a row of spaced flexible conduits extending from points closely adjacent said reservoir to points within said body adjacent the tip ends of said bristles for supplying paint from said reservoir to said tip ends, said conduits being cylindrical tubes disposed in a common plane, and a flexible web having its sides parallel with said plane and within said body and connecting said tubes, said web being spaced from the outer ends of said tubes whereby said outer ends are free to flex in any direction.

2. In a paint brush having a head, a body of bristles projecting from said head with the base ends of the bristles secured thereto, a paint reservoir carried by said head, a row of spaced flexible tubes extending from said reservoir to points within said body adjacent the tip ends of said bristles for supplying paint from said reservoir to said tip ends, and means spaced from opposite ends of said tubes and within said body and connecting said tubes, said tubes being in a row disposed in a common plane, and said means being a flexible web having its sides parallel with said plane and at least one of the sides of said tubes respectively projecting outwardly of one of the sides of said web.

3. In a paint brush having a head, a body of bristles projecting from said head with the base ends of the bristles secured thereto, a paint reservoir carried by said head, a row of spaced flexible conduits extending from said reservoir to points within said body adjacent the tip ends of said bristles for supplying paint from said reservoir to said tip ends, said conduits being longitudinally disposed within a common plane, a flat flexible web positioned with its sides parallel with said plane and connecting each adjacent pair of conduits in said row with two opposite sides of each such pair projecting outwardly of said sides of such web whereby said projecting sides of said conduits will provide parallel spaced ridges extending longitudinally of said bristles.

4. In a paint brush having a head, a body of bristles projecting from said head with the base ends of the bristles secured thereto, a paint reservoir carried by said head, a row of spaced, flex-

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ible conduits extending from said reservoir to points adjacent the tip ends of said bristles for supplying paint from said reservoir to said tip ends, said reservoir being formed with elongated spaced side walls extending longitudinally of said row of conduits, said side walls extending convergently in direction toward the tip ends of said bristles, the said head of said brush including portions extending over and into engagement with the oppositely outwardly facing sides of said reservoir, the base ends of said bristles being imbedded in said portions.

5. In a paint brush having a head, a body of bristles projecting from said head with the base ends of the bristles secured thereto, a paint reservoir carried by said head, a row of spaced, flexible conduits extending from said reservoir to points adjacent the tip ends of said bristles for supplying paint from said reservoir to said tip ends, said reservoir being formed with elongated spaced side walls extending longitudinally of said row of conduits, said side walls extending convergently in direction toward the tip ends of said bristles, the said head of said brush including portions extending over and into engagement with the oppositely outwardly facing sides of said reservoir, the base ends of said bristles being imbedded in said portions, said portions being provided with extensions to form an outer casing extending oppositely outwardly from said opposite sides of said reservoir and over all of said portions of said brush except the side from which said bristles project and the sides engaging said opposite sides of said reservoir.

6. In a paint brush having a head, a body of bristles projecting from said head with the base ends of the bristles secured thereto, a paint reservoir carried by said head, a row of spaced, flexible conduits extending from said reservoir to points adjacent the tip ends of said bristles for

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supplying paint from said reservoir to said tip ends, said reservoir being formed with elongated spaced side walls extending longitudinally of said row of conduits, said side walls extending convergently in direction toward the tip ends of said bristles, the said head of said brush including portions extending over and into engagement with the oppositely outwardly facing sides of said reservoir, the base ends of said bristles being imbedded in said portions, said reservoir including a bottom wall connecting said spaced side walls along their convergently disposed edges, said bottom wall having a row of spaced, short rigid pipes secured thereto and projecting therefrom, and said conduits being secured at one of their ends to the pipes of said row for receiving paint ejected through said pipes, a flat sided web connecting each adjacent pair of conduits in said row with the sides of each web disposed wholly within the laterally projected area between the opposed sides of each such adjacent pair.

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