J. SPEESE.

BRUSH.

APPLICATION FILED SEPT. 7, 1910. RENEWED JAN. 7, 1915.

1,130,442.

Patented Mar. 2, 1915.

2 SHEETS—SHEET 1.

FIG. 1.

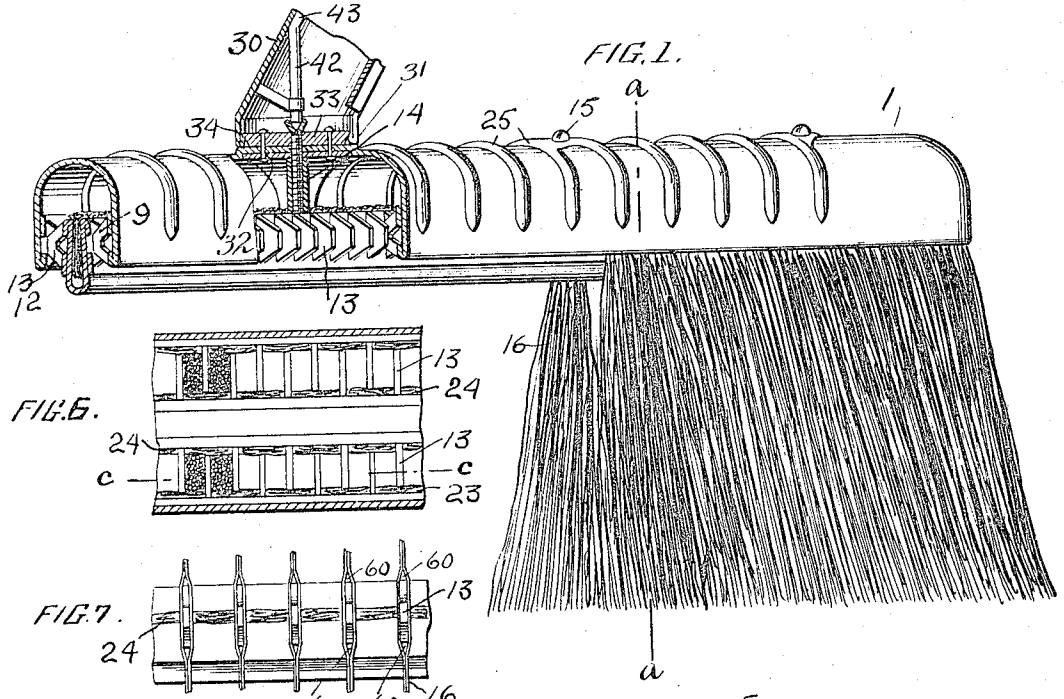


FIG. 6.

FIG. 7.

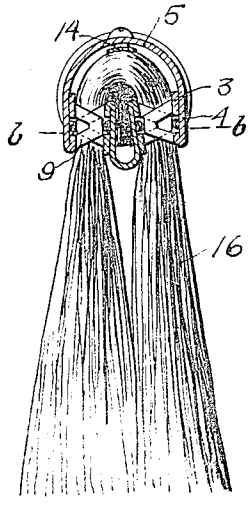


FIG. 2.

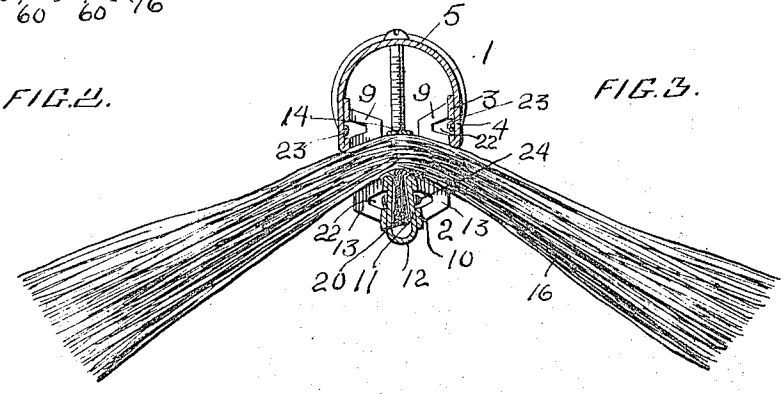


FIG. 3.

FIG. 4.

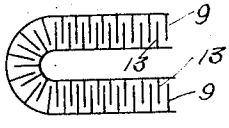
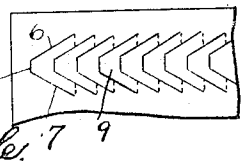


FIG. 5.



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2 SHEETS—SHEET 2.

FIG. 8.

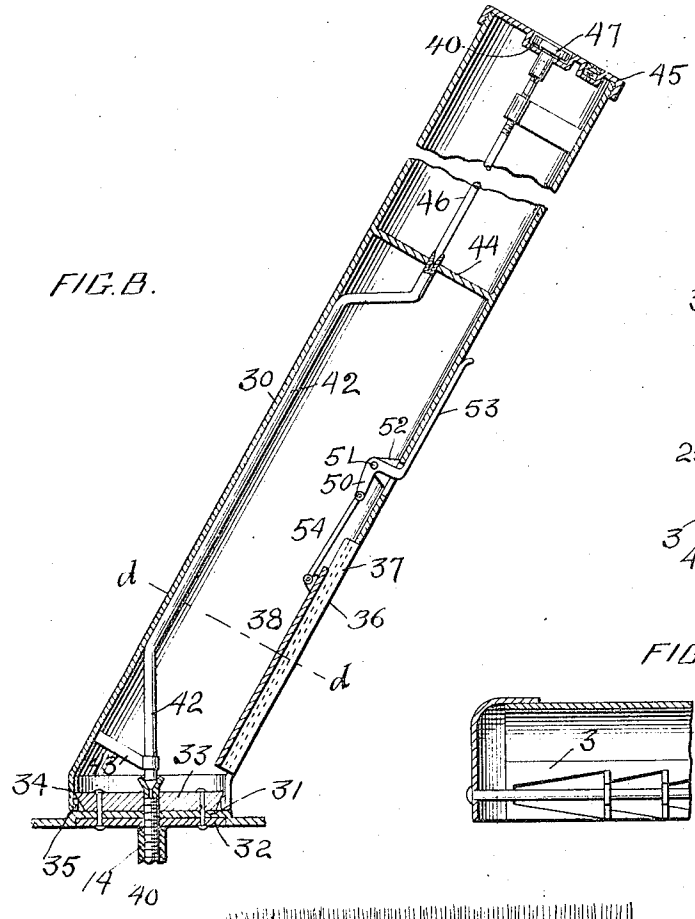
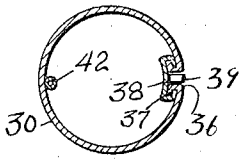


FIG. 9.



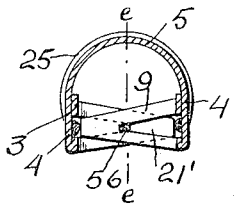


FIG. 11.

FIG. 12.

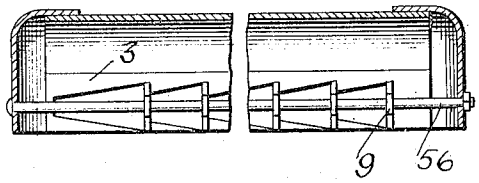
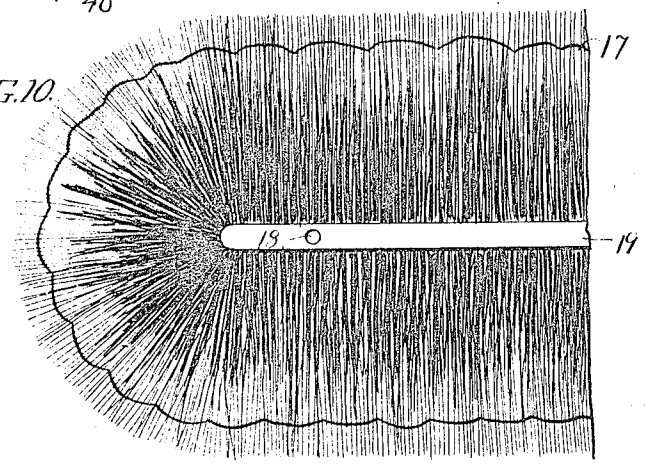


FIG. 10.



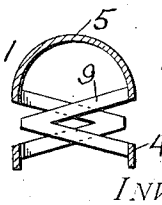


FIG. 13.

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BRUSH.

1,130,442. Specification of Letters Patent. Patented Mar. 2, 1915.

Application filed September 7, 1910, Serial No. 580,844. Renewed January 7, 1915. Serial No. 1,048.

To all whom it may concern:

Be it known that I, JASPER SPEESE, a citizen of the United States, residing at West Milton, in the county of Union, State of Pennsylvania, have invented certain new and useful Improvements in Brushes, of which the following is a description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to brushes for sweeping or cleaning floors or other surfaces and has for its object to produce a brush of simple, strong and inexpensive construction in which the bristles are firmly held in such a way as to be readily removable for renewal or for other reasons and which is particularly adapted for use as a renovator or fountain brush, that is a brush in which cleaning or other liquid is supplied to the brush as it is used, for the purpose of moistening the dust and causing it to be collected without flying into the air.

A further object of the invention is to provide means for supplying the liquid to the brush in such manner that it will be evenly and uniformly supplied throughout.

With these and other objects hereinafter explained in view my invention consists in the construction hereinafter described and claimed.

Referring to the drawings: Figure 1 is a perspective view partly broken away of a fountain brush embodying my invention; Fig. 2 is a cross-sectional view on line *a—a* of Fig. 1; Fig. 3 is a cross-sectional view similar to Fig. 2 but showing the parts separated for the insertion of the bristles or fibers which form the brush; Fig. 4 is a diagrammatic view showing the arrangement of the tongues on the inner and outer members of the casing; Fig. 5 is a view of a portion of the blank from which the outer casing is formed; Fig. 6 is a horizontal sectional view on line *b—b* of Fig. 2 on an enlarged scale; Fig. 7 is a vertical sectional view on line *c—c* of Fig. 6 on an enlarged scale; Fig. 8 is a vertical sectional view of the brush handle; Fig. 9 is a cross-sectional view on line *d—d* of Fig. 8; Fig. 10 is a plan view of the mat of bristles; Fig. 11 is a cross-sectional view similar to Figs. 2 and 9 showing a further modification; Fig. 12 is a longitudinal sectional view on line *e—e* of Fig. 12, and Fig. 13 is a cross-sectional view similar to Figs. 2 and 11 showing a further modification.

In the drawings 1 indicates the outer member of the brush back and 2 indicates the inner member. The outer member 1 is formed of a blank of sheet metal comprising inner side portions 3, outer side portions 4 and back portion 5. In the inner side portions 3 which form the edge portions of the blank a series of slits 6, 7 are formed, the slits being both at an acute angle to the longitudinal line of the blank and coming together at 8 to form tongues 9, the point 8 being preferably slightly within the angle formed by the adjacent pair of slits 6, 7. The tongues 9 are bent at right angles to the body of the blank forming a series of parallel tongues extending throughout the length of the blank, as shown in Fig. 1.

In forming the outer member 1 from the blank having the tongues 9 formed therein the inner side portions 3 are bent over so as to lie against the outer side portions 4 and the blank is then bent into the form of an inverted U. As shown in Fig. 4 the tongues 9 then extend inward in two rows from the inner side portions 3 toward each other. The inner member 2 is also formed from a blank of sheet metal and has outer side portions 10, and inner side portions 11 and bottom portion 12. Tongues 13 corresponding to the tongues 9 of the inner side portion of the outer member 1, are formed in the outer side portions 10 of the inner member, these tongues being of the same size and formed in the same way by slitting and bending up as the tongues 9 and spaced apart the same distance but so arranged that when the inner member is in position within the outer member the tongues 13 will each extend between two tongues 9.

The inner sides 11 of the inner member, with the bottom 12 form a trough extending the length of the inner member. For the purpose of holding the inner member in place within the outer member there are provided at suitable intervals screw-threaded sockets 14 extending downward into the trough formed by the inner sides 11 and bottom 12 the sockets extending above the upper edges of the trough thus formed but not extending to the bottom 12 sufficient space below the lower ends of the sockets being left to permit of free flow of liquid

from one end of the trough to the other. Screws 15 extend downward through the back portion 5 of the outer member into the sockets 14 and serve to draw the inner member into place and hold it.

The bristles or brush fibers 16 are formed of any suitable material and are preferably arranged to form a mat as shown in Fig. 10 held together by a row of stitches 17. On the line of the longitudinal center of this mat are formed openings 18 corresponding in position to the position of the screw-threaded sockets 14. These openings may be formed in a strip of fabric 19 stitched to the mat along its central line.

In the trough formed in the inner member 2 by the inner side portions 11 and bottom 12 is placed a strip or body of absorbent material 20 such as lamp wicking extending nearly but not quite to the bottom 12. By reason of the fact that the points 8 at which the slits 6 and 7 come together is slightly within the angle formed by the next pair of slits 6 and 7, the tongues 9 will each have a notch 21 at its base, and as the tongues 13 are formed in the same way they will each have a notch 22 at its base. These notches 21 will, when the tongues 9 are bent up, permit a cord or strip 23 of absorbent material to be run through them from end to end of the outer member. The notches 21 at the bases of the tongues 13 of the inner member will in the same way permit a cord or strip of absorbent material 24 to be run through them from end to end.

In assembling the brush the mat is placed on the inner member 2 with the upper ends of the sockets 14 extending through the openings 18 the bristles or brush fibers lying between the tongues 13. The inner member is then placed within the outer member 1 and drawn up into place by the screws 15 and the tongues 9 of the outer member entering between the tongues 13 separate the bristles or brush fibers lying between adjacent tongues. The mass of bristles or brush fibers in the mat is such that the space between the inner side portions 3 of the outer member 1 and the outer side portions 10 of the inner member 2 will be completely filled, so that when the inner member is in position the bristles or brush fibers will be firmly clamped and held.

The trough formed in the inner member by the inner side portions 11 and bottom portion 12 is supplied with liquid in any desired manner and the liquid is taken up by the absorbent material by capillary attraction and fed to the bristles or brush fibers being distributed evenly throughout the mass of bristles or brush fibers. The tongues 13 extending through the mass of bristles will separate them into bunches and by reason of the bristles being somewhat stiff the bunches will be slightly separated for a short distance above and below the edges of the tongues thus forming a minute channel 60 through the mass of bristles which by reason of the inclination of the upper edge of the tongues will be inclined downward and outward. More or less of the liquid from the trough will follow this channel and will flow over the sides of the tongues and be distributed through the mass of bristles it being understood that by reason of the fact that the bristles are round in cross section or nearly so there will always be minute interstices between them however closely they are bunched. Practically every bristle will thus receive more or less of the liquid. More or less of the liquid will flow along this channel 60 to the absorbent strip 23 and will be supplied by it to the outer layer of the bristles. More or less of the liquid will also flow over the edge of the trough down the outer surfaces of the side portions 10 and 11 of the inner member to the absorbent cord or strip 24 and will be supplied to the bristles. Each of the bunches of bristles between two adjacent tongues 13 will thus be supplied on all four sides with liquid and as the tongues 13 are necessarily near together each bunch of bristles will be very small so that the distribution of liquid throughout the brush will be uniform.

In order to strengthen the outer member and hold it rigidly in the inverted U shape shown it is provided with ribs or corrugations 25 extending across the back 5 and part-way down the outer side portions 4.

While it is not material to the broad invention above set forth what means are used for supplying the oil to the trough of the inner member 2, I prefer to arrange the oil reservoir in the brush handle shown.

The handle here shown consists of a tube 30 connected at its lower end with the back of the brush in such a manner that the angle of the brush may be varied. In the construction shown the back 5 of the outer member 1 is flattened as shown at 31 at a point preferably midway of its length and the flattened portion 31 is strengthened by a plate 32 secured to it on the inside. To the outer face of the flattened part 31 is secured a frusto-conical plate 33 with its base upward so as to form at its edge an annular groove between it and the plate 32. The tube 30 which forms the handle has a vertical portion 34 at its lower end to which is connected, at a slight angle, the main portion of the handle. The lower edge of the vertical portion 34 is turned inward as shown at 35 to engage the annular groove surrounding the plate 32.

In order to provide for engaging and disengaging the inturned edge 35 with the annular groove, the vertical portion 34 is split as shown at 36 the split extending up a

short distance on the main portion of the handle and being wider at its lower end than at its upper end. At the edges of the split 36 the metal is rolled inward as shown to form ribs or ways 37. A slide 38 having its edges adapted to engage the ways 37, and having a stud 39 thereon extending between the ways 37 is arranged within the tube 30 the parts being so arranged that when the slide is pushed downward it will cause the edges of the slit to be brought toward each other and cause the inturned edge 35 to grip the periphery of plate 33, while when drawn upward the stud 39 will cause the edges of the slit to separate, thus loosening the grip of the edge 35 on the plate 33, thus enabling the handle to be swung at any desired angle to the brush or to be removed from the brush if desired. Through the center of the plate 35, the flattened portion 31 and the strengthening plate 32 a hollow screw 40 extends into one of the sockets 14 carried by the inner member 2. The upper end of this hollow screw is reamed out to form a conical seat for the conical lower end of an oil supply tube 42. The lower portion of this oil supply tube is vertical and is held in vertical position by a bracket 43 secured within the tube 30. From the brackets 43 the oil supply tube leads upward preferably along the inner wall of the tube 30 to a diaphragm 44 which forms the bottom of an oil reservoir formed at the upper end of the handle. The oil reservoir is closed at its outer end by a cap 45 which forms the end of the handle. The supply of oil is controlled by a needle valve 46 which may be arranged at any desired point of the oil supply pipe being here shown as located within the oil reservoir and arranged to be operated by a thumb nut 47 arranged in a diaphragm 48 in the center of the cap 45.

The slide 38 may be operated by any convenient means to open and close the slit 36 but I prefer to use the means here shown consisting of a lever 50 pivoted at 51 in lugs 52 within the tube 30 arranged to be operated by a handle 53 extending through an opening in the tube 30. To the lever 50 one end of a link 54 is pivoted the other end being pivoted to the slide. The point at which the link is pivoted to the lever is so located that when the handle 53 lies flat against the tube 30 pointing toward the upper end, the upper end of the link will be slightly toward the base of the lugs 52 from a line joining the other end of the link with the pivot of the link, thus being slightly past the center so that it will be held locked.

While in the construction above described it is intended to use the brush as a fountain brush, the construction by which the bristles or brush fibers are held in position are well adapted for a simple and strong dry brush. In constructing a dry brush the tongues 9 on the inner side portions 3 may be made long enough to extend to the opposite side of the outer member 1, as shown in Fig. 11 the inner member being dispensed with. In making the tongues of this length their points necessarily overlap the base of the adjacent tongues forming, when the tongues are bent at right angles to the plate from which they are formed, deep notches 21′ the parts being so proportioned that the notches 21′ of the tongues on one side will, when the outer member is bent to inverted U form, overlap the notches of the tongues on the other side forming a passage through which a rod 56 may be run from end to end of the brush thus holding the sides together and locking the bristles or brush fibers in position. The rod 56 should have a head at one end and a screw-thread at the other to engage a nut in the end of the brush.

In Fig. 13 I have shown a further modification in which the upturned inner side portions 3 are dispensed with the tongues 9 being formed in the outer side portions 4, and extending to the opposite side portions 4.

The bristles from which the brush is made may be of any suitable material, fiber, hair or other hair like or bristle like material, and it will of course be understood that the term "bristles" as used in the description or claims is intended to include any material either animal or vegetable capable of use in a brush in place of bristles or any mixture of such materials.

The liquid to be used with the brush may be any solution of chemicals, hydrocarbon or other oil or water.

It will of course be understood that I do not desire to be limited to the precise construction or arrangement shown or described, it being clear that many changes in details of construction and arrangement may be made without departing from the spirit of the invention.

Having thus described my invention, what I claim is:

1. In a brush, a casing comprising an inner member having tongues projecting outwardly from its sides and an outer member of inverted U shape in cross-section adapted to receive the inner member into the space between its sides, having tongues projecting inwardly from its sides, the tongues on the inner member being arranged to extend into spaces between the tongues of the outer member.

2. In a brush, a casing of sheet metal bent into the shape of an inverted U having the lower portion of its sides bent inward and upward to rest against the upper portion of its sides and provided with tongues formed integral therewith and extending in-

ward adapted to engage a mass of bristles between the sides of the casing.

3. In a brush, a casing comprising an outer member, and an inner member formed of sheet metal bent into U form, the upper portion of the sides being bent downward to rest against the lower portion of the sides and provided with tongues formed integral therewith adapted to engage a mass of bristles between the inner and outer members.

This specification signed and witnessed this 7th day of Sept. A. D. 1910.

JASPER SPEESE.

In the presence of—

CHAS. E. RIORDAN,

A. P. GREELEY.