Jan. 12, 1960 H. KELLER 2,920,334

PLASTIC BRUSH CONSTRUCTION

Filed July 13, 1956

Fig. 1.

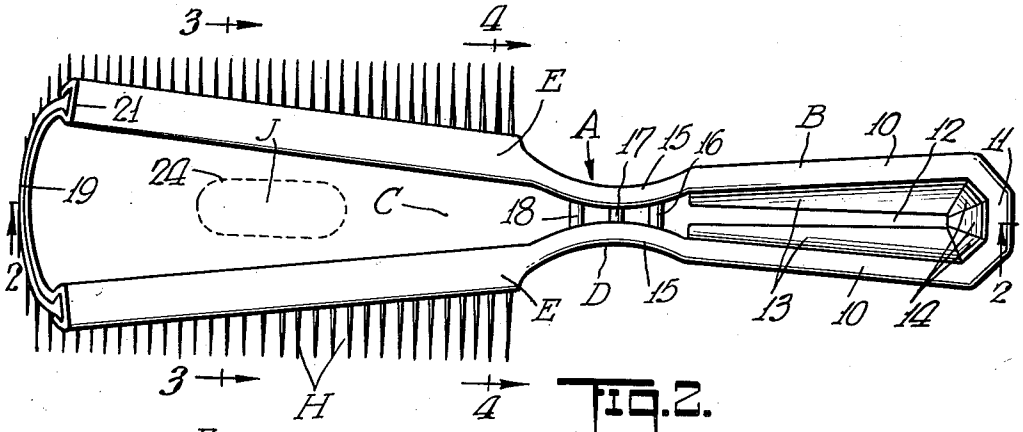


Fig. 2.

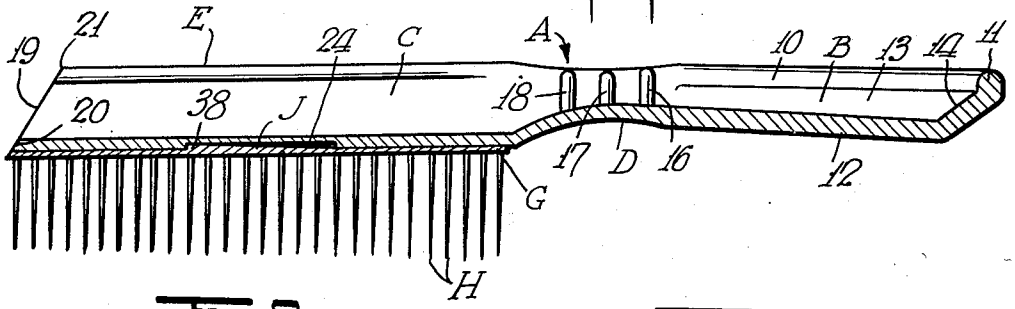


Fig. 3.

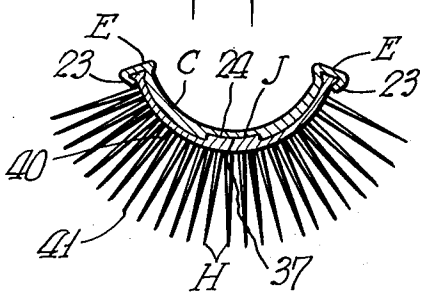


Fig. 4.

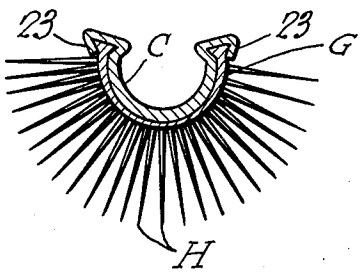
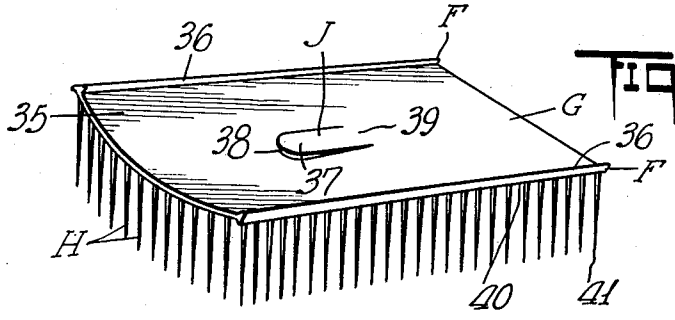


Fig. 5.



INVENTOR
Harry Keller
BY
ATTORNEY

United States Patent Office 2,920,334 Patented Jan. 12, 1960

2,920,334

PLASTIC BRUSH CONSTRUCTION

Harry Keller, New York, N.Y.

Application July 13, 1956, Serial No. 597,634

1 Claim. (Cl. 15—187)

The present invention relates to a plastic brush construction and it particularly relates to an all-plastic tuft and handle construction in which the tuft structure and the handle structure are of different types of plastic materials.

It is among the objects of the present invention to provide a simple, artistic, inexpensive, and durable tufted brush construction in which the entire brush construction, including the tufts as well as the handle and back, are formed of plastic materials which are rigidly assembled together and may be readily sanitized and will be suitable for male and feminine use.

Another object is to provide a novel plastic brush construction in which the stiff, hard, molded back and handle construction of plastic may be readily assembled with a soft, flexible plastic tuft construction in a substantial, permanent unit which may be used for long periods of time.

Another object is to provide a novel all-plastic brush construction which may be readily sanitized by hot water or antiseptics and which may be made of light weight plastic materials, while providing sufficient durability and strength to be used either as a machinery brush or as a usual hand brush.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects, it has been found most satisfactory, according to one embodiment of the present invention, to provide a novel hand and back construction, preferably of channel shape, which may be molded of a relatively stiff plastic, such as styrene resin, or, more preferably, methyl methacrylate resins which are generally known under the trade name of Lucite or Plexiglas.

In the preferred form, the back consists of a semicircular cross-section channel with grooves on the side thereof, which form reception channels.

These grooves may be parallel or they may be convergent toward the handle, and desirably the front edge of the handle is beveled so that the base of the channel will project beyond the ends of the grooves or channels.

These grooves or channels at the edge of the main channel desirably extend about 220 to 320 degrees as contrasted to the main channel of the back which is limited to a circumference of 180 to 220 degrees.

The main channel back has a device with neck portion which joins it to a channel cross-section handle portion. The device with neck portion desirably has a series of transverse webs or veins which reinforce the neck and give it a stronger and more artistic appearance.

The handle is desirably divergent toward its end portion, and has a beveled finish which will enhance the natural refractive effect of the methyl methacrylate resin.

A particular feature of the present invention resides

in the provision of a flexible, molded bristle or tuft construction of a resin of the nature of polyethylene resin, which may be molded so that there are a series of closely spaced, elongated, flexible bristle members, integrally formed from and projecting upwardly from a flexible back.

This thin, flexible back has side ridges or enlargements which closely conform to and fit inside of the grooves or channels on the side edges of the back portion of the molded plastic brush construction.

If desired, the flexible back may have a greater width than the spacing around the periphery of the stiff molded back portion, so that the bristles will be caused to project more sharply from the flexible back. It has been found desirable to roughen the enlargements, or provide serrations thereon, so that the flexible brush member will be more firmly held in position when its enlargements are forced into and slid into the rests or grooves.

In one preferred form of the invention, the back of the channel which forms the brush has a recess in which is locked a shoulder or projection or protuberance on the flat portion which carries the bristles. This protuberance or projection will lock with the projection and hold the bristles permanently in position after the flexible tuft structure is seated in the brush back structure.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claim hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

Fig. 1 is a back plan view of the brush, showing the plastic back and handle and the tufted construction inserted in position therein.

Fig. 2 is a transverse sectional view upon the line 2—2 of Fig. 1.

Fig. 3 is a transverse sectional view upon the line 3—3 of Fig. 1.

Fig. 4 is a transverse sectional view upon the line 4—4 of Fig. 1.

Fig. 5 is a perspective view of the molded tuft construction before it is inserted in the back of the handle and back construction.

Referring to Figs. 1 to 5, there is shown a main molded combination back and handle construction A, which may be formed of methyl methacrylate resins, such as Lucite or Plexiglas.

This stiff, ridged, integrally molded member has the handle channel B, the back channel C, and the narrow neck portion D.

At each side of the back portion C are the engagement grooves or channels E. These engagement grooves or channels E receive the side projections F of the flexible tufted back G. The tufted back G has integrally molded therewith the brushes or projecting fingers H. The locking arrangement J consists of a cooperating recess on either the back C or the back G, and a shoulder or partial projection on the other element which will permit the assembly, but will prevent dismantling or disassembly.

Referring to Figs. 1 and 2, the sides of the handle have enlarged portions or beads **10** and **11**, which, together with the beveled faces **12**, **13** and **14**, will give an attractive refractive effect, particularly when the handle is molded of methyl methacrylate resins, such as Lucite or Plexiglas.

The narrow neck portion D also has side beads **15** and the transverse reenforcing webs **16**, **17** and **18**.

The main channel structure forming the back of the

brush has its forward end cut off obliquely, as indicated at 19, so that the edge 20 will terminate in front of the ends 21 of the channels or grooves E.

The channels or grooves E may be divergent toward the end 20, as indicated in Fig. 1, or they may be parallel. And, as shown in Figs. 3 and 4, their outer edges 23 are turned inwardly so that they extend around the channels on arcuate designs of much more than 180 degrees, and desirably from 250 to 300 degrees.

These channels may be interiorly serrated or ridged so as to more firmly grip the tufted construction G.

The central portion of the back is provided with a recess 24, which forms part of the locking arrangement J.

The flexible, integrally molded tuft arrangement G consists of a thin sheet of polyethylene material 35, which has side enlargements or ridges, which should conform to the interior shape of the grooves or receptacle members E on the side edges of the back C of the handle A.

The spacing between the ridges or enlargements 36 may be such that they will closely conform to the back C of the brush when the enlargements 36 are forced into and pushed together in the channels E—E. However, if desired to give a more flexible construction, the spacing between the enlargements or projections 36 may be greater than the periphery of the back C of the channels E, so that the flexible back 35 will bulge away from the back structure.

On the back of the brush there is provided a wedge 37 which forms part of the locking portion J, which has a high portion or shoulder at 38 and which merges with the back at 39.

In view of this construction, the portion 39 will slide past the opening or recess 24, but the shoulder 38 will lock in the recess, as indicated at 38 in Fig. 2 and prevent dislodgement of the pliable and flexible tuft structure G.

The tufts or bristles H are of maximum diameter at their junction at the back G and gradually become thinner outwardly.

In other words, they are of maximum thickness at 40 and minimum thickness at 41. At the same time, at 40 they will be integrally joined with the thin backing 35 and will reenforce said backing.

When the backing 35, by means of the projections 36, is inserted in the channels E—E, the bristles will all be forced into a rigid pattern, as shown in Figs. 3 and 4, and they will be caused to project relatively stiffly outwardly from the longitudinal center line of the handle and back combination A.

It is thus apparent that the applicant has provided a novel, all-plastic brush construction, in which relatively flexible, integrally molded bristles or tufts may be readily assembled with a rigid handle and back to give an artistic, durable and sanitary household and bathroom brush.

The brush, being entirely of plastic materials, will be less expensive than animal bristle brushes and will be more sanitary, and there is no danger of the bristles falling out or becoming bent or misaligned, as is true of animal bristles, which must be laboriously mounted in a special foundation.

As many changes could be made in the above plastic brush construction, and many widely different embodiments of this invention could be made without department from the scope of the claim, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed, what is claimed is:

An all-plastic brush construction comprising a rigid back and handle, said back having side edges, containing grooves running the length thereof, converging towards said handle and having a tranversely curved channel between said side edges, the radius of curvature of said channel decreasing in the direction of said handle, a flexible rectangular brush member, having integral bristles projecting from one surface thereof and having projections along the longitudinal edges thereof, carried by said back, the longitudinal projections of the brush being received in the grooves of said back so as to cause said flexible brush member to conform to the curvature of said channel with the longitudinal edges of said flexible brush member tapering in the direction of the handle, the construction and arrangement being such that the bristles fan out laterally to a greater extent going from the front of the brush towards said handle, and means for locking said flexible brush member to said back, said means comprising a recess in said back and a wedge in said flexible brush member, said wedge having a shoulder adapted to retain said wedge in said recess and prevent the dislodgement of said flexible brush member from said back.

References Cited in the file of this patent

UNITED STATES PATENTS

959,574	Moore	May 31, 1910
1,567,507	Howard	Dec. 29, 1925
2,397,471	Cox	Apr. 2, 1946
2,471,855	Bird	May 31, 1949
2,648,082	Teetsel	Aug. 11, 1953
2,651,810	Snyder	Sept. 15, 1953
2,706,825	Blakeman	Apr. 26, 1955
2,741,786	Bressler	Apr. 17, 1956

FOREIGN PATENTS

1,065,687	France	Jan. 13, 1954
1,085,091	France	July 21, 1954

OTHER REFERENCES

Shure Co. Catalogue, No. 158, Spring-Summer 1953, page 429, Fig. 6A113.