June 17, 1958 J. R. BRENNAN 2,838,763

BRUSHING DEVICE

Filed Feb. 17, 1955

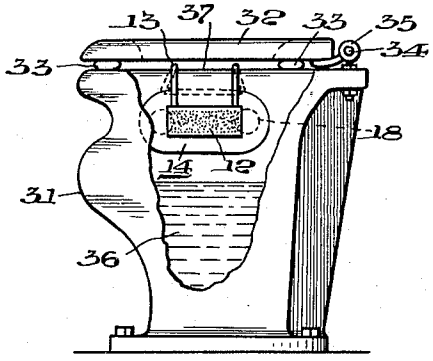


Fig. 4.

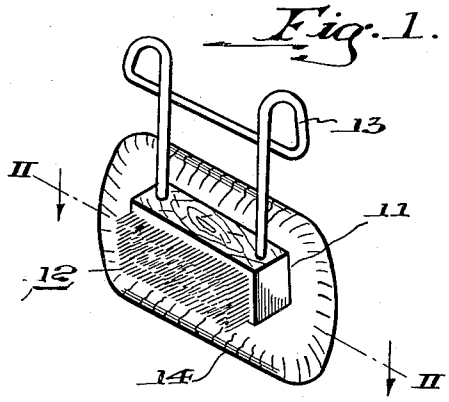


Fig. 1.

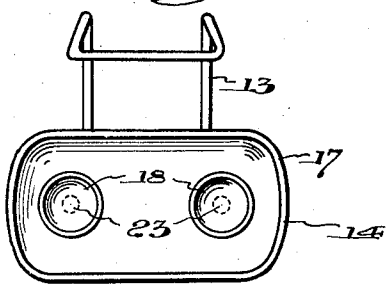


Fig. 3.

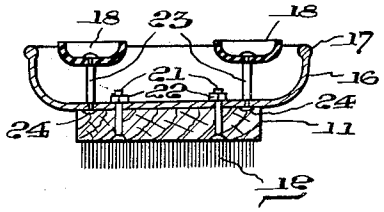


Fig. 2.

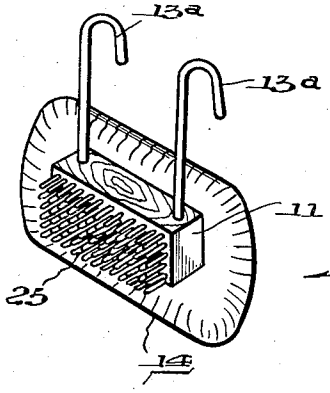


Fig. 5.

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United States Patent Office 2,838,763 Patented June 17, 1958

2,838,763

BRUSHING DEVICE

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Application February 17, 1955, Serial No. 488,913

12 Claims. (Cl. 4—1)

This application is concerned with a new brushing device. It is further concerned with the combination of the hereinafter described brushing device and a toilet bowl to provide a means of easily removing fecal matter from diapers.

It is an object of this invention to provide a new brush which has a plurality of different type support means, particularly vacuum cup and hanger support means. A further object of this invention is to provide a brush having a plurality of different type support means, namely vacuum cup and hanger support means, and in addition a skirt adapted to embrace and protect said vacuum support means by cooperation with the surface to which the vacuum cup support means is attached.

It is a still further object of this invention to provide a new combination of a brush having a plurality of different type support means and a toilet bowl; said brush being mounted on the inside of said bowl above the water-line thereof in such a manner as to provide a readily available brushing surface without in any manner interfering with the usual function of said bowl. It is yet another object of this invention to provide the aforesaid brush and combination thereof with a toilet bowl in which said brush is self-sterilizing.

These and other objects of this invention will become apparent in view of the following description.

Figure 1 is a perspective view of the brush, including the skirt.

Figure 2 is a section along the line II—II of Figure 1.

Figure 3 is a rear view of the brush showing the vacuum cup support means and the interior surface of the skirt.

Figure 4 is a cutaway view of a toilet bowl showing the brush of Figure 1 attached to the inside of said bowl.

Figure 5 is a perspective view of a modification of the brush of Figure 1 in which the bristles are replaced by cylindrical shaped projections.

One of the objects of this invention is realized by providing a brush conveniently the size of a hand brush having hanger support means therefor and vacuum support means, the latter being disposed on the back of said brush. Another object is realized by providing in combination a brush, hanger support means therefor comprising a loop of flexible wire attached thereto and vacuum support means disposed on the back of said brush.

A further object of this invention is realized by providing, in combination, a brush having hanger support means and vacuum support means, the latter being disposed on the back of said brush, and an impervious flexible skirt member which is integral with, or attached to, said brush and is disposed around the perimeter of said brush and embracing said vacuum support means and adapted to cooperate with a surface to which said vacuum support means is attached to form a seal with said surface. In one form the hanger support means comprises a flexible wire loop attached to said brush. It will be realized that the bristles in particular and even the

entire brush in any of the aforedescribed embodiments of this invention can be of a self-sterilizing material.

Yet further objects of this invention are realized by providing the aforedescribed brushing devices in combination with a toilet bowl in which the vacuum support means is attached to the inside wall of said bowl so as to support the brush above the water-line of said bowl, and in which the hanger support means cooperates with the rim of said bowl to provide support for the brush and cooperate with the vacuum support means.

Referring to the drawings, there is illustrated in Figure 1 a brush having a base **11** and bristles **12**. Attached to the base **11** is the hanger support means **13** which, for example, can be a flexible wire loop bent, as shown, to conform to the rim of a toilet bowl. Further there is shown the skirt **14**, which, as shown in Figure 2, has a curved portion **16** and terminates in the welt-like element **17**. The skirt **14** is attached to the base **11** by means of the bolt **21** and nut **22** arrangement, although it will be realized that the skirt **14** can be made integral with the base **11**. Further shown in Figure 2 are the vacuum cups **18** which are supported by the rods **23** which are attached to the skirt **14** by the rivets **24**. It will be realized that the cups **18** can be formed so that their bases are integral with the base **11** or skirt **14**. It is to be noted that the skirt **14** embraces the vacuum cups **18** and that, when these cups are pressed against a surface to be attached thereto, the welt-like element **17** of the skirt **14** will contact said surface and cooperate therewith to form a seal.

In Figure 3 there is shown a rear view of the brush of Figure 1, illustrating the hanger **13**, the skirt **14** with the welting **17**, the vacuum cups **18** and, in dotted lines, the support rods **23** for said cups.

Figure 4 illustrates the combination of a brush of this invention and a toilet bowl, which combination provides a readily available brushing surface on the inside of said bowl which does not interfere with the normal function of said bowl. This brushing surface finds particular utility in removing fecal matter from diapers, especially those of new-born infants. As shown in Figure 4 the bristles **12** of the brush are supported above the water-line of the bowl **31** by the hanger in cooperation with the rim **37** and with the vacuum cups **18** (shown in dotted lines) embraced by the skirt **14**. The hanger **13** ts in the space between the seat **32** and the rim **37** caused by the spacers **33**. When the seat **32** is raised on its hinge **35** by pivoting at **34** the brush can be removed upon breaking the vacuum of the cups **18**.

Figure 5 illustrates a different embodiment of the brush of this invention in which are shown the hanger elements **13***a*, the skirt **14** and the base **11** to which are attached the rod-like projections **25** which replace the bristles **12** of the brush shown in Figure 1. Otherwise the features of the brushes of Figures 1 and 5 are identical.

It is to be realized that, while the two embodiments of the invention illustrated in the drawings each have the skirt element **14** shown, the invention is not limited in all its aspects thereto, since much of the advantage of the invention may still be attained with this element omitted. That is, the essential elements are the base **11**, the bristles **12**, or projections **25**, the hanger **13**, the vacuum cups **18** and suitable supports **23** therefor. The skirt **14**, however, is of particular advantage in that, when the brush is affixed to the inside of the toilet bowl, it forms a seal with the surface of the bowl to protect the vacuum support means and to present a surface free of nooks or crannies in which fecal matter might lodge, which, obviously, is most objectionable. In another particularly advantageous embodiment of this invention the skirt **14** itself functions as the vacuum support means. In this embodiment, referring to Figure 2, the elements **18** and

23 are omitted and the skirt 14 made of, for example, rubber and sufficiently stiff to function as a vacuum support means for the base 11.

Conveniently, for the purpose of this invention, the base of the brush can be the size of an ordinary hand brush. That is, approximately four inches long by one and three-quarters inches wide. The bristles conveniently can be about one-half inch long, and preferably are not so stiff as to cause spattering of material from the diaper which is being rubbed against said bristles while the bristles can be of natural origin, such as, for example, animal bristles, it is preferred that they be of plastic. Especially useful are nylon bristles which can be rendered self-sterilizing by treatment with an aryl mercuric compound as described in D'Alelio, 2,507,299. Further the base and the skirt can be of a plastic material such as nylon which can be rendered self-sterilizing as described above.

It will be realized that the hanger element 13 is best constituted of a non-corrosive metal, or should be coated, preferably with a plastic capable of being rendered self-sterilizing, to prevent rusting. On account of the diversity of shapes encountered in the rims and the like of toilet bowls it is preferred that the hanger 13 be flexible so as to insure ease of attachment of the vacuum cups and that the hanger be bendable or otherwise conformable to conform to the contour of the bowl and its rim and thus present no obstacle to the normal function of the bowl. However, pre-shaped, non-flexible hanger elements are contemplated.

Referring to Figure 5, it is to be noted that the projections 25 are rod-like in shape and are of a suitable material such as plastic or rubber. The rod-like shape is merely illustrative as it will be realized that any finger-like projection, whether conical, pyramidal, or the like in shape will function to present a brushing surface suitable for the purposes of this invention.

These projections or nibs can be made of a variety of plastics, both theromoplastic and thermosetting materials, as can the base of the brush. For the skirt there can be used such varied materials as rubber or the thermoplastics or impregnated fabric materials of sufficient stiffness to provide a seal as aforedescribed with the surface to which the vacuum cups are attached.

As has been mentioned above the combination of the brush and toilet bowl finds particular utility in removing fecal matter from diapers. The removal of such material from the diaper before storage either for laundering or collection by a diaper service is essential both from an esthetic and a health standpoint. The problem is particularly difficult in dealing with the soiled diapers of new-born infants since the consistency of the fecal matter is such that it is not removed merely by sloshing the diaper in the water of the toilet bowl. In the absence of the present invention it has been necessary to resort to grasping the diaper in both hands and rubbing it with repeated dipping in the water of the bowl to accomplish the cleaning operation. In the course of this operation it is necessary to flush the toilet one or more times which is done with a hand possibly soiled by contact with the diaper, and often contaminating the flushing lever, thus making it necessary to clean said lever afterwards.

In utilizing the present invention, as can be seen in Figure 4, the soiled diaper, held by one hand, first can be sloshed in the water 36 of the bowl 31. Then the wet diaper can alternately be rubbed against the bristles 12 and dipped into the water 36 until clean. In the course of this operation as fecal matter is removed from the diaper and falls into the water 36 it is desirable to flush the toilet to remove said matter. This can be done conveniently, and without danger of contaminating the flushing lever, by use of the free hand which has not had contact with the soiled portions of the diaper.

When the diaper is cleaned satisfactorily it can be used to slosh water on the brush and to remove any particles of fecal matter from the bristles thereof. This has been found in actual use of the device to be sufficient to render the device sanitary and, at all times, free of objectionable odors. It will be realized that the skirt member 14 can be cleaned in a similar manner in the event any particles are retained thereon. The cooperation of the skirt 14 with the inside wall of the bowl forms a seal which protects the vacuum cups and their support elements from contamination by contact with the diaper contents.

It will be noted that the projections 25 shown in Figure 5 or other finger-like projections as described above can be similarly cleaned.

It is, of course, possible that the vacuum cup support means might fail to remain fixed in relation to a localized area on the bowl allowing the brush to slide down the inside bowl wall as a result of the rubbing of the soiled diaper against the brushing surface. If this were to occur at the moment of flushing with the vacuum support means the sole support means, the brush might be flushed into the sanitary drain and clog it. However, as the present invention provides a plurality of different support means, particularly a vacuum and hanger support combination, the hanger prevents the brush device from sliding along or falling into the bowl and being flushed along towards the drain. Thus the two different support means cooperate to provide support and protection against a clogged drain.

It is obvious that certain variations can be made in the above-described embodiments of this invention without departing from the scope thereof.

What is claimed is:

1. A brush having hanger support means therefor and vacuum cup support means disposed on the back of said brush, said hanger support means being adapted to provide support in a direction substantially parallel to a surface to which said vacuum cup support means is attached.

2. In combination, a brush, hanger support means therefor comprising a loop of conformable wire, and vacuum cup support means disposed on the back of said brush, said hanger support means being adapted to provide support in a direction substantially parallel to a surface to which said vacuum cup support means is attached.

3. In combination, a brush having self-sterilizing nylon bristles, hanger support means comprising a loop of conformable wire and vacuum cup support means disposed on the back of said brush, said hanger support means being adapted to provide support in a direction substantially parallel to a surface to which said vacuum cup support means is attached.

4. In combination, a brush having hanger support means therefor and vacuum cup support means disposed on the back of said brush, and an impervious, flexible skirt member disposed about the perimeter of said brush and embracing said vacuum cup support means and adapted to cooperate with a surface to which said vacuum support means is attached to form a seal with said surface.

5. In combination, a brush having hanger support means comprising a loop of flexible wire attached to said brush, vacuum cup support means disposed on the back of said brush, and an impervious, flexible skirt member disposed about the perimeter of said brush and embracing said vacuum support means and adapted to cooperate with a surface to which said vacuum support means is attached to form a seal with said surface.

6. In combination, a brush having self-sterilizing nylon bristles, hanger support means comprising a loop of flexible wire attached to said brush, vacuum cup support means disposed on the back of said brush, and an impervious, flexible skirt member disposed about the perimeter of said brush and embracing said vacuum support means and adapted to cooperate with a surface to which said vacuum support means is attached to form a seal with said surface.

7. In combination, a toilet bowl and brush disposed on a vertically inclined surface of the inside of said bowl

and above the water-line thereof, said brush having vacuum support means on the back thereof cooperating with the interior surface of said bowl to support said brush and a hanger means for said brush cooperating with the rim of said bowl to support said brush.

8. In combination, a toilet bowl and a brush having vacuum support means on the back thereof cooperating with a vertically inclined interior surface of said bowl at a point above the water line to support said brush and a hanger means for said brush comprising a loop of flexible wire cooperating with the rim of said bowl to support said brush.

9. In combination, a toilet bowl and a brush having self-sterilizing nylon bristles, vacuum support means on the back of said brush cooperating with a vertically inclined interior surface of said bowl to support said brush above the water-line of said bowl and a hanger means for said brush comprising a loop of flexible wire cooperating with the rim of said bowl to support said brush.

10. In combination, a toilet bowl and a brush disposed on the inside of said bowl and above the water-line thereof, said brush having hanger support means cooperating with the rim of said bowl, vacuum cup support means disposed on the back of said brush cooperating with the interior surface of said bowl, and an impervious, flexible skirt member disposed about the perimeter of said brush and embracing said vacuum support means and cooperating with the interior surface of said bowl to form a seal therewith.

11. In combination, a toilet bowl and a brush disposed on the inside of said bowl and above the water-line thereof, said brush having hanger support means comprising a loop of flexible wire cooperating with the rim of said bowl to support said brush, vacuum cup support means disposed on the back of said brush cooperating with the interior surface of said bowl, and an impervious, flexible skirt member disposed about the perimeter of said brush and embracing said vacuum support means and cooperating with the interior surface of said bowl to form a seal therewith.

12. In combination, a toilet bowl and a brush having self-sterilizing nylon bristles, disposed on the inside of said bowl and above the water-line thereof, vacuum support means on the back of said brush cooperating with the interior surface of said bowl to support said brush, hanger means for said brush comprising a loop of flexible wire cooperating with the rim of said bowl to support said brush, and an impervious, flexible skirt member disposed about the perimeter of said brush and embracing said vacuum support means and cooperating with the interior surface of said bowl to form a seal therewith.

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