A. DU PUY.

BRUSH.

APPLICATION FILED MAY 17, 1913.

1,128,667.

Patented Feb. 16, 1915.

2 SHEETS—SHEET 1

Fig. 1.

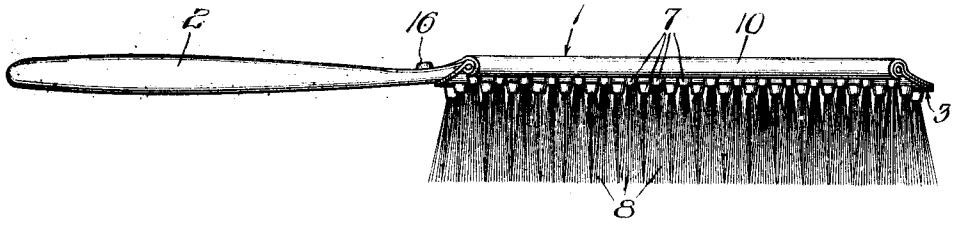


Fig. 2.

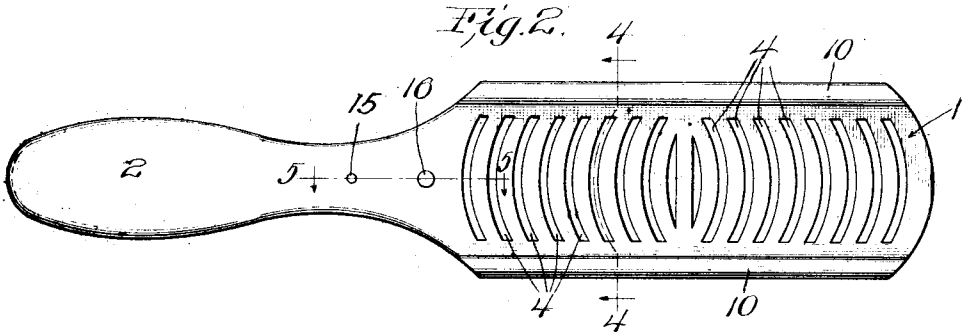


Fig. 3.

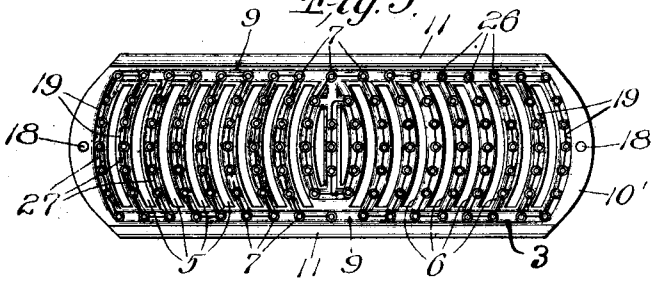
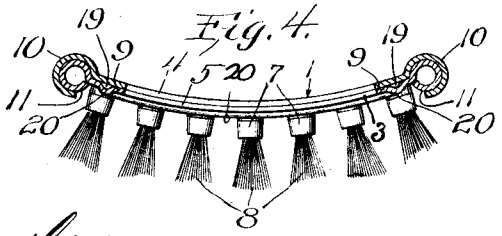


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

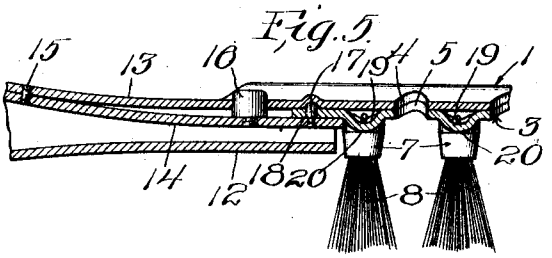


Fig. 6.

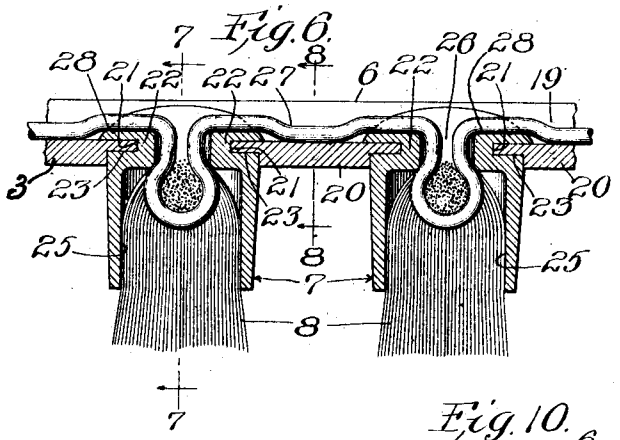


Fig. 7.

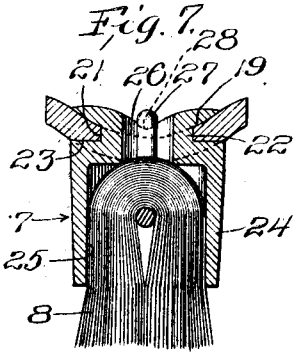


Fig. 10.

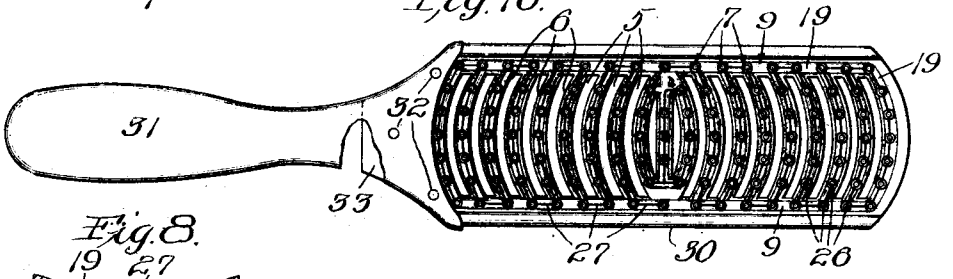


Fig. 8.

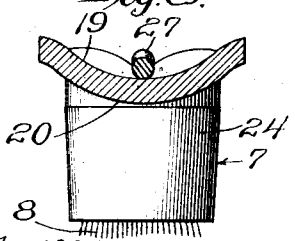
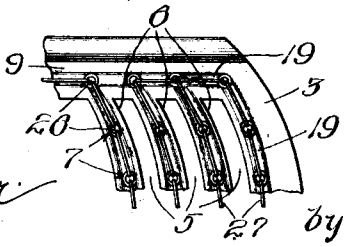


Fig. 9.



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UNITED STATES PATENT OFFICE.

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BRUSH.

1,128,667. Specification of Letters Patent. Patented Feb. 16, 1915.

Application filed May 17, 1913. Serial No. 768,206.

To all whom it may concern:

Be it known that I, ALFRED DU PUY, a citizen of the United States, and a resident of Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brushes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of toilet or hand brushes in which the brush body or bristle-holding part or member of the brush is made of metal and consists of a plurality of connected bars severally carrying the tufts of bristles and having between them slots or openings adapted to facilitate the cleansing of the bristles by water or otherwise.

The object of the present invention is to improve the construction of brushes of the kind referred to in several particulars, as will hereinafter appear, and it includes improvements in the structure of the bristle-holding member itself and the means for connecting the bristles therewith, and also improvements in the construction of brushes of that kind in which the brush includes a brush-back and a bristle-holding member made as a part separate from, and adapted for detachable connection with, such brush-back.

The invention consists in the matters hereinafter described and more particularly pointed out in the appended claims.

In the accompanying drawings illustrating my invention Figure 1 is a side view of a hair or like brush constructed in accordance with my invention; Fig. 2 is a top plan view thereof; Fig. 3 is a top plan view of the bristle holder removed from the brush back; Fig. 4 is an enlarged transverse sectional view taken on the curved line 4—4 of Fig. 2; Fig. 5 is an enlarged fragmentary detail sectional view taken on line 5—5 of Fig. 2, illustrating the spring controlled locking device for detachably connecting the bristle holder with the brush back; Fig. 6 is an enlarged detail view of a section of the bristle-holding member, showing the manner in which the bristle-holding nipples are secured to the bristle-holding member, and the bristle-holding wire holding a tuft or bundle of bristles in each of said nipples; Fig. 7 is a vertical sectional view taken on line 7—7 of Fig. 6; Fig. 8 is a transverse section taken on line 8—8 of Fig. 7; Fig. 9 is an enlarged fragmentary top plan view of the bristle-holding member, showing the grooves or channels in the rear surface of the bristle-holding member and the wires resting in said grooves; and Fig. 10 is a top plan view of a brush in which the bristle-holding member constitutes in itself the back of the brush.

The brush, shown in the accompanying drawings as embodying my invention, comprises a back or body 1, a handle 2 connected with and extending from said back 1, and a bristle-holding member 3 removably secured to the front side of said brush back by suitable means to be hereinafter described.

The brush back 1, as well as the bristle-holding member 3, are made of sheet metal by a swaging or stamping operation. Both the brush-back 1 and bristle-holding member 3 are transversely curved in form and have like curvature. Each of said parts is provided with a plurality of slots indicated by 4 in the case of the brush back 1, and by 5 in the case of the bristle-holding member 3. The slots 5 in the bristle-holding member 3 correspond in form and size with the slots 4 in the brush back 1 and the slots in the two parts register with each other when the bristle-holding member is secured to the brush back. By reason of the slotted construction described in the bristle-holding member 3, the latter consists, in effect, of a series of parallel bars 6, 6, connected with each other at their ends by integral parts of the said bristle-holding member. Each of said bars 6 is provided with a plurality of longitudinally spaced tubular studs or nipples 7, 7, in which are severally inserted or secured the bunches or tufts 8, 8 of bristles.

In the specific construction shown in the drawings, the slots 4 in the brush back 1, and also the slots 5 in the bristle-holding member 3 extend transversely of these parts, as shown, and the bars 6 are connected at their inner ends with longitudinal marginal members or strips 9, 9, also preferably provided with bristle-holding nipples 7, 7 carrying bunches of bristles 8, 8.

In order to provide means for detachably connecting the bristle-holding member 3 with the brush-back 1, a construction is pro-

vided as follows: The lateral or longitudinal margins of the sheet metal brush back 1 are provided with flanges 10 formed by bending the sheet metal body of said back 1 and shaped to constitute inwardly facing grooves or channels, adapted to receive the lateral edges of the sheet metal bristle-holding member 3, so that said bristle-holding member may be applied to and removed from the brush back 1, by sliding the parts endwise relatively to each other. As shown in the drawings, the lateral edges of said sheet metal bristle-holding member 3 are provided with longitudinally extending enlarged parts or ribs 11, formed by bending said lateral edges into tubular form. The flanges 10 of the brush back are made to correspond in form with said ribs 11. The said ribs 11 serve to stiffen and strengthen the side margins of the bristle-holding member, and to thereby prevent distortion or bending of the same when separated from the brush back.

Devices are provided for detachably securing the bristle-holding member 3 to the brush back 1, when the brush is in use, which are constructed as follows: The handle 2 is hollow and made of sheet metal, its lower wall 12 being spaced from its upper wall 13, as shown in Fig. 5. The brush back 1, as shown in Figs. 1, 2 and 3, is connected with and forms a continuation of the upper wall 13 of said hollow handle 2. Said lower wall 12 of said handle 2, as shown in Fig. 5, terminates slightly beyond the point where the brush back 1 joins said handle 2 and forms therewith a space into which the end of the bristle-holding member 3 extends when said bristle-holding member is in place on the brush back 1. Said bristle-holding member 3 is preferably made alike at both ends so as to be reversible. Located within the hollow handle 2 is a spring member 14 having the form of a leaf-spring which is rigidly secured at one end to the upper wall 13 of said handle 2 by a rivet 15 or other suitable fastening means. The opposite or free end of said spring member 14 overlaps the end of said bristle-holding member 3 when the latter is in place on the brush back. Said spring member 14 is provided adjacent its free end with a button or thumb-piece 16 which projects through an aperture provided therefor in the inner or rear wall 13 of said hollow handle 2. Said spring member 14 is provided between its free end and said button 16 with a lug or stud 17 adapted to enter an aperture 18 provided at the end of said bristle-holding member 3. Said stud 17, by engaging said aperture 18, holds the bristle-holding member 3 in place on the brush back 1. By depressing the button or thumb-piece 16, the lug or stud 17 is withdrawn from the aperture 18, and said bristle-holding member 3 may then be disconnected from the brush back 1 by sliding said bristle-holding member endwise thereof until its lateral edges or margins become disengaged from the flanges 10 of said brush back.

Each of the transverse bars 6, 6 and the longitudinal strips 9, 9 is provided in its rear or inner face, with a longitudinal channel or groove 19, and upon its outer or opposite face with a rounded longitudinal projection or rib 20; both the groove and rib being formed by the action of the dies used in stamping or swaging the sheet metal in the formation of said member. The channels or grooves in the bars 6, 6 open at each end into the channels or grooves in the strips 9, 9, as best shown in Fig. 9.

In order to provide for the attachment of the nipples 7, 7 to the bars 6, 6 and the strips 9, 9, a construction in these parts is provided as follows: Each bar 6 6 and each strip 9, 9 is provided with a row of longitudinally spaced holes or apertures 21, arranged centrally along and opening through the longitudinal channels and ribs. Each of said nipples 7, 7 consists of a metal tube, provided at one end with a part 22 of reduced diameter; a shoulder 23 being formed at the inner end of such part 22. (See Figs. 6 and 7.)

The nipples 7, 7 are secured to the bars 6, 6 and the strips 9, 9 by inserting the reduced parts 22 of the nipples into the holes or apertures 21 formed in the said bars and strips. The reduced part 22 of each nipple is made originally of sufficient length to extend beyond the inner face of the bar or strip to which said nipple is to be secured when the shoulder 23 is in contact with the outer face thereof. The nipples are permanently secured in place by expanding or riveting the ends of said reduced parts against the inner faces of the bars or strips. In order that the shoulder 23 of the nipples may seat itself firmly on the outer surface of the convex rib 20, the latter is countersunk at the convex side of the rib 20 in such a manner as to form an annular, flat seat for said shoulder 23. (See Figs. 6 and 7.) The outer or larger part 24 of each tubular stud or nipple 7, 7 is provided with an axially arranged, outwardly opening recess or chamber 25, which is made of proper size or diameter to receive the bundle or tuft 8 of the bristles. The reduced part 22 of each nipple 7, 7 is provided with an axially arranged aperture or hole 26 much smaller in diameter than the recess 25, and extending through the said reduced part 22 into the said recess 25. The bundles or tufts 8, 8 of bristles are secured in said nipples 7, 7, as follows: Each bundle or tuft of bristles is folded upon itself to form a looped end, and such looped end is inserted into said recess 25. Each bunch or tuft 8 of bristles

is held or confined in place within the bristle-holding recess 25 by a wire 27, which passes from the inner or rear side of said bristle-holding member 3 through said aperture 26 into said recess 25, and is inserted or looped through the looped end of the bunch or tuft 8 of bristles and then passes from said recess 25 backwardly or inwardly through said aperture 26. (See Figs. 6 and 7.) The wire thus arranged serves both to draw the bunches or tufts of bristles into place within the nipples in making the brush, and to thereafter permanently hold the said bunches or tufts of bristles in engagement with the bristle-holder. Said aperture 26 is large enough in diameter to permit the passage of the two looped parts of the wire 27 through the same, but is materially smaller in diameter than said recess 25, so that the looped end of the bundle or tuft 8 of bristles will be drawn by the wire against the bottom of the recess, but cannot be drawn into said passage. In its parts which extend between the nipples, said wire 27 rests in the channels or grooves 19 in the bars 6, 6 and strips 9, 9. In order that the wire 27 may properly rest in the grooves 19, and to prevent the wire from projecting outside of said grooves when the wire passes over the inner ends of the nipple, as it enters and leaves the aperture 26, the expanded inner end of each nipple is provided with two opposite notches 28 in which said wire rests. Said notches 28 may be formed by providing a V-shaped edge on the riveting tool used to spread or upset the inner ends of said nipples. By the construction described the wire 27 is contained entirely within the grooves or channels 19, so that the wire is protected from displacement and injury, and will in no way interfere with the sliding or endwise movement of the bristle-holding member 3 with respect to the brush back 1.

As shown in the drawings, the grooves in the bars 6, 6 extend into the grooves in the side strips 9, 9, so that the wire may extend from the groove in one bar to the next and so on, and also so that the said same wire may be used for securing the bundle of bristles in the nipples on the strips 9, 9. To prevent displacement of the wire 27 at the point where it turns from the grooves in each bar 6, 6 into the groove in each strip 9, 9, the apertures 21 in said strips 9, 9 are located at the intersection of the said grooves, so that the wire will extend into the nipples secured in said apertures and be held at such point.

By reason of the slotted or skeleton form of the bristle-holding member 3, the same with its bristles may be readily cleansed by holding said bristle-holding member beneath a faucet and permitting the water to run through said slots therein. Moreover, by reason of the slotted or skeleton form of the brush back 1, as shown in Figs. 1, 2 and 3, with which the slots 5 in the bristle-holding member 3 register when said bristle-holding member is secured to the said back, the brush back with the bristle-holding member attached may be held beneath the faucet and the water permitted to run through said registering slots, for cleansing the bristles, without removing the bristle-holding member from the brush back. Furthermore, the making of the brush back 1 of slotted form gives lightness of weight to the brush when the same is made of metal.

In Fig. 10 of the drawings, I have shown a brush in which the back employed in the brush shown in the preceding figures is omitted and a bristle-holding member 30, made like that heretofore described, in itself constitutes the back or body of the brush, and is provided with a handle 31 directly secured thereto. As shown in said Fig. 10, the handle 31 is made of sheet metal and is hollow in construction and is secured to the bristle-holding member 30 by means of rivets 32 inserted through the handle 31 and a tongue 33 in the inner end of the bristle-holding member which extends into the adjacent end of said hollow handle 31. The bristle-holding member 30, except for its tongue 33, is identical in construction with the bristle-holding member 3 hereinbefore described and the corresponding parts are indicated by similar reference characters.

It is to be understood that the details of construction in the brush illustrated may be changed or variously modified without departure from the spirit of my invention, and I do not wish to be limited to the exact details of construction and arrangements shown, except as pointed out in the appended claims.

I claim as my invention:

1. A brush comprising a back provided with channeled edges and a bristle-holder detachably secured to said back by means of ribs on said bristle-holder, having sliding engagement with said channeled edges, said back and bristle-holder being provided with registering slots.

2. A brush comprising a brush back consisting of sheet metal bent at its side margins to form inwardly facing, longitudinal channels and a bristle-holder, the body of which consists of sheet metal, and provided at its sides with enlarged parts adapted to enter and slide endwise in said channels, said back and bristle-holder being provided with registering slots.

3. A brush comprising a brush back, having inwardly facing, longitudinal channels at its side margins, and a bristle-holder, the body of which consists of sheet metal, said sheet metal body being provided at its margins with longitudinal ribs adapted to enter

and slide endwise in said channels, said ribs being formed by bending the side margins of said body into tubular form.

4. A brush comprising a sheet metal back having at its side margins longitudinal flanges forming inwardly facing channels, a bristle-holder consisting of a sheet metal body and bristle-holding nipples secured in said body, said sheet metal body being provided at its side margins with longitudinal ribs adapted to enter and slide endwise in said channels, said ribs being formed by bending the side margins of said body inwardly, and means for detachably locking said bristle-holder from endwise movement relatively to the brush back.

5. A brush comprising a sheet metal brush back, provided at its side margins with longitudinal, inwardly facing channels, a bristle-holder consisting of a sheet metal body and tubular, bristle-holding nipples secured in said body, the side edges of said bristle-holder adapted to enter and slide endwise in said channels, and said brush back and bristle-holder being provided with registering slots.

6. A brush comprising a brush back, a hollow handle attached to said back, a removable bristle-holder having longitudinal sliding engagement with the brush back, a leaf spring within said handle attached at one end to the same and provided at its opposite end with a button which projects through an aperture in the back, and a stud on said spring adapted to engage an aperture in the bristle-holder.

7. A brush comprising a bristle-holding member made of sheet metal and provided with longitudinal grooves in its rear face and with apertures spaced longitudinally of said grooves, a plurality of nipples each provided with a part of reduced diameter at its inner end which is inserted in one of said apertures and held therein by riveting, said nipples being provided in their outer ends with bristle-receiving recesses and at their inner ends with apertures smaller than and opening into said recesses, folded tufts of bristles having their folded ends inserted in the bristle-receiving recesses of the nipples, and wires extending along and within said grooves, said wires having loops which extend through said apertures into said bristle-receiving recesses and are engaged with the looped ends of the tufts of bristles within said recesses.

8. A brush comprising a sheet metal bristle-holding member consisting of a plurality of connected bars and slots therebetween, said bars having longitudinal grooves in their rear faces and being provided with apertures spaced longitudinally thereof centrally of said grooves, a plurality of tubular nipples, the inner ends of which are reduced in diameter and secured in said apertures by riveting, said nipples being provided in their outer ends with bristle-receiving recesses and at their inner ends with apertures smaller than and opening into said recesses, tufts of folded bristles having their folded ends inserted in the bristle-receiving recesses and wires extending along and within said grooves, said wires having loops which extend through said apertures into the bristle-receiving recesses and engage the looped ends of said tufts of bristles within said recesses.

9. A brush comprising a sheet metal bristle-holding member, provided with a plurality of bars and slots therebetween, said bars having longitudinal grooves in their rear faces and corresponding ribs on their front faces and being provided with apertures spaced longitudinally thereof centrally of said grooves and ribs, nipples provided at their inner ends with parts of a reduced diameter which are inserted in said apertures and held therein by riveting, said nipples being provided at their outer ends with bristle-receiving recesses and at their inner ends with apertures smaller than and opening into said recesses; the said apertures being countersunk at the outer faces of the ribs to form seats for the nipples, folded tufts of bristles having their folded ends inserted in the said bristle-holding recesses, and wires extending along and within said grooves and having loops which extend through said apertures into said recesses and are engaged with the looped ends of the tufts of bristles within said recesses.

10. A brush comprising a sheet metal bristle-holding member, provided with a plurality of bars and slots therebetween, said bars having longitudinal grooves in their rear faces and corresponding ribs on their front faces and being provided with apertures spaced longitudinally thereof centrally of said grooves and ribs, nipples provided at their inner ends with parts of a reduced diameter which are inserted in said apertures and held therein by riveting, said nipples being provided at their outer ends with bristle-holding recesses and at their inner ends with apertures smaller than and opening into said recesses; folded tufts of bristles having their folded ends inserted in the said bristle-holding recesses, and wires extending along and within said grooves and having loops which extend through said apertures into said recesses and are engaged with the looped ends of the tufts of bristles within said recesses, the inner ends of said nipples being provided with notches in alinement with the said grooves.

11. A brush comprising a handle, a back secured to said handle and provided with

channeled edges, a bristle-holder removably mounted beneath said back by guide rods inserted and having sliding engagement in said channels, said back and bristle-holder being provided with registering slots therein, means for engaging said bristle-holder to retain the said holder beneath the back within said channels.

12. A body portion for a sanitary brush comprising a handle, a back extending therefrom, said back being provided with the edges thereof bent downward and inward to thereby form retaining channels, a bristle-holder provided at its side margin with longitudinal ribs adapted to engage said channels, said back and said bristle-holder being provided with registering slots extending transversely thereof, said back being provided with an aperture therein, a resilient spring member secured to said handle and provided with a button extending through said aperture, said resilient member being provided adjacent one end with a latch-member, adapted to engage said bristle-holder.

13. A brush, comprising a bristle-holding member made of sheet metal and provided with a plurality of apertures therein, a plurality of nipples, each provided with a part of reduced diameter at its inner end which is inserted in one of said apertures and held therein by riveting, said nipples being provided in their outer ends with bristle-receiving recesses and at their inner ends with apertures smaller than and opening into said recesses, folded tufts of bristles having their folded ends inserted in the bristle-receiving recesses of the nipples, and wires having loops which extend through said apertures into said bristle-receiving recesses and are engaged with the looped ends of the tufts of bristles within said recesses.

14. A brush comprising a handle, a back, a bristle holder mounted therebeneath and longitudinally slidable with respect thereto, a resilient latch member within the said handle and adapted to engage said bristle holder, said back and bristle holder provided with registering slots therein, the said latch member adapted to hold the said slots in registration.

15. A brush comprising a handle, a back with channeled edges, a bristle holder removably mounted beneath said back by guide rods engaging said channels, said back and bristle holder being provided with registering slots therein, means for engaging said bristle holder to retain the said holder beneath the back within said channels.

16. A brush comprising a handle, a back having at its side margins longitudinal flanges forming inwardly facing channels, a bristle holder provided at its side margins with longitudinal ribs adapted to enter and slide endwise in said channels, a leaf spring secured at one end to said handle and provided at its opposite end with a button adapted to project through an aperture in said back, and a catch adjacent the end of said spring adapted to engage an aperture in said bristle holder.

17. A body portion for a sanitary brush comprising a handle, a back extending therefrom, said back being provided with the edges thereof bent downward and inward to thereby form retaining channels, said back being provided with slots extending transversely thereof, the center slot being straight and the remaining slots convex with relation thereto, said back at its handle end provided with an aperture therein, a resilient spring member secured within said handle and provided with an upstanding button extending through said aperture, said resilient member being provided adjacent one end with a latch member.

18. In a brush the combination of a body portion, and a removable bristle holder, said bristle holder comprising a perforated plate, bristle holding studs secured therein, the edges of said perforated plate enlarged and adapted to engage said body portion.

19. A removable bristle holder in combination with a brush body, said bristle holder comprising a plate, means for removably securing said bristle holder in said brush body, tubular studs secured within suitable apertures in said plate, said plate provided upon its upper surface with grooves extending between said tubular studs, adapted to accommodate therein bristle holding wires.

20. In a sanitary brush the combination with a body portion, said body portion provided with transverse slots therein, the side edges of said body portion overhanging to provide retaining channels, a bristle holder comprising a plate the edges of said plate provided with cylindrical guide members adapted to fit within said body portion channels to be supported thereby, said bristle holder being adapted to be removed from said body portion by longitudinal movement with respect thereto, means disposed within said body portion adapted to engage said bristle holder and prevent the longitudinal movement thereof.

21. In a sanitary brush the combination of a hollow handle, a concaved back extending therefrom and provided with transverse slots therein, the side edges of said back curled to form retaining channels, a bristle holder comprising a concaved plate the side edges thereof curved to form guide rod members adapted to slidably engage said back channels, said bristle holder plate provided with slots therein adapted to aline and register with said back slots, means dis-

posed within said handle adapted to engage said bristle holder and to hold the same stationary with respect to said back.

22. A brush comprising a perforated plate, bristle holding studs secured within said perforations, said perforated plate provided with a plurality of channels extending between said studs, means extending through said studs and lying within the said channels adapted to engage the brush bristles, and hold the same within the said studs.

23. A bristle holder comprising a plate provided with a plurality of slots extending transversely thereacross and forming in the plate a plurality of ribs, said ribs provided with a plurality of perforations extending therethrough, a plurality of bristle holding studs rigidly secured within the said perforations, and channels extending along the upper surface of said ribs and studs, and means positioned within the said channels and passing into the studs, adapted to hold the brush bristles therein.

24. A sanitary brush comprising a plate provided with slots extending thereacross forming a plurality of ribs, said ribs provided with apertures extending therethrough, channels extending along said ribs communicating with the said apertures, tubular studs rigidly secured within the said apertures communicating with said channels, means disposed within the said channels adapted to rigidly secure brush bristles to and within said tubular studs.

In testimony, that I, claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 9th day o May A. D. 1913.

ALFRED DU PUY.

Witnesses:
EUGENE C. WANN,
CHARLES H. POOLE.