

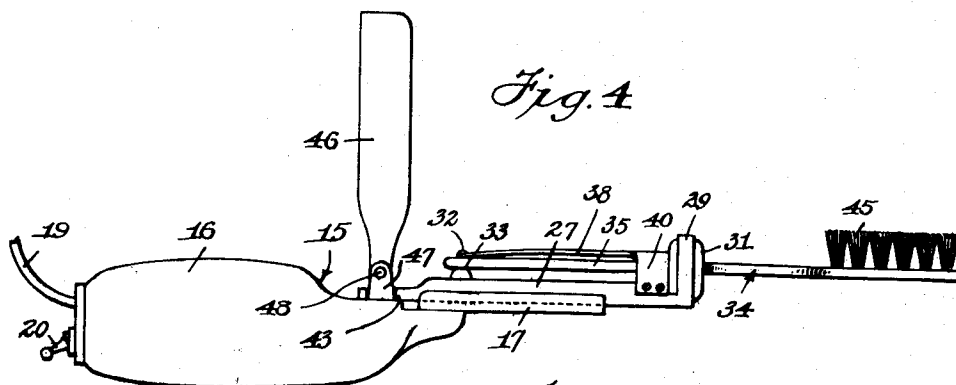
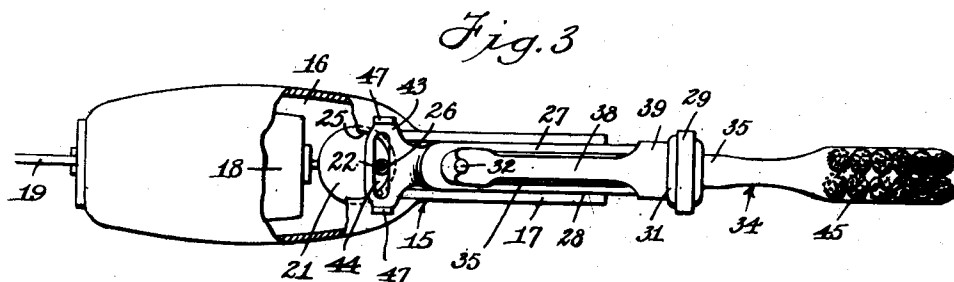
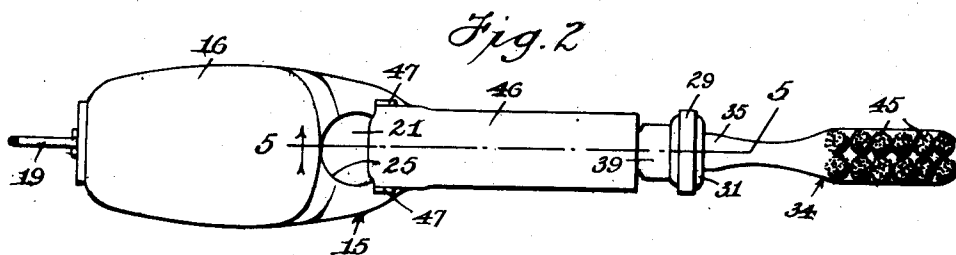
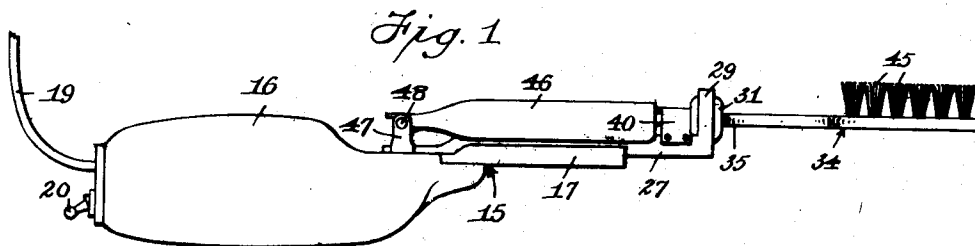
July 14, 1953

G. B. UBEL
HOLDER FOR ELECTRICALLY-OPERATED
TOOTHBRUSHES AND THE LIKE

2,644,972

Filed May 13, 1948

2 Sheets-Sheet 1



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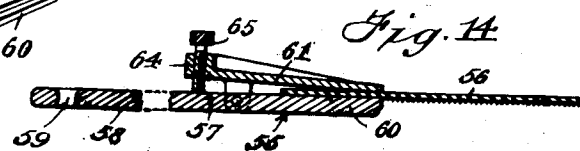
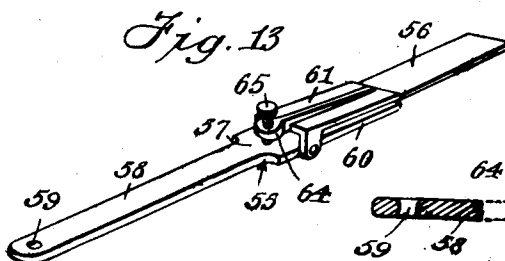
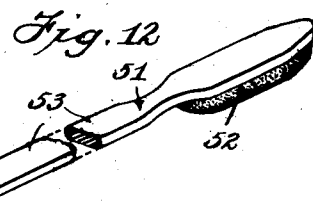
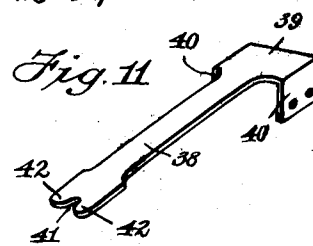
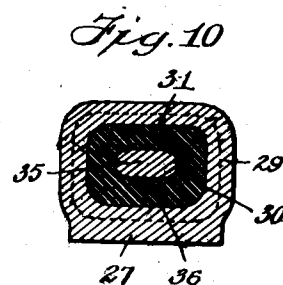
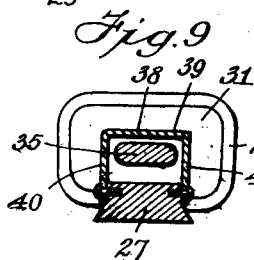
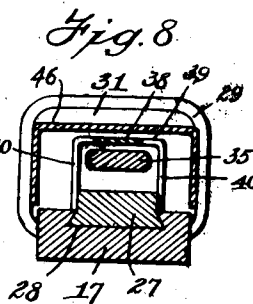
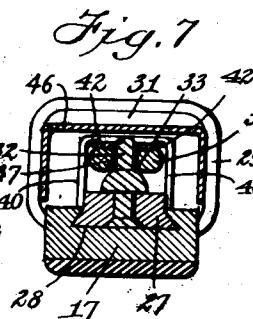
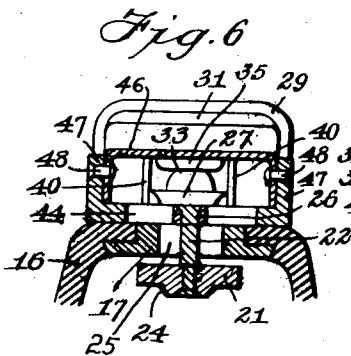
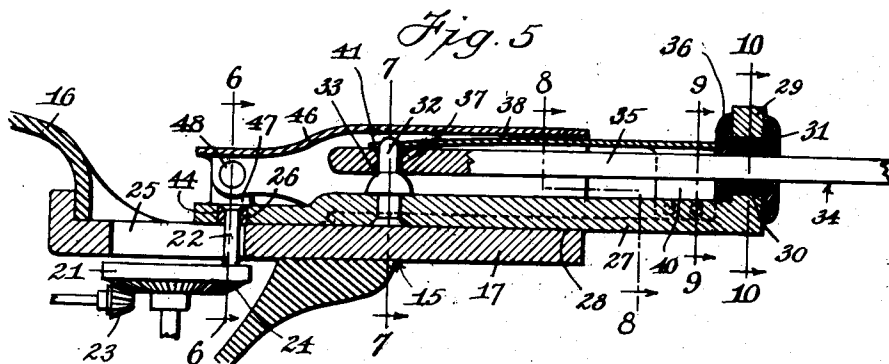
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,644,972

HOLDER FOR ELECTRICALLY OPERATED
TOOTHBRUSHES AND THE LIKE

George B. Ubel, Buffalo, N. Y.

Application May 13, 1948, Serial No. 26,816

6 Claims. (Cl. 15—22)

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This invention relates to a holder for electrically operated tooth-brushes, nail-files, nail-polishers, and the like.

Its primary object is to provide a holder for tooth-brushes and other toilet articles usually dependent upon reciprocating movement when in action and which embodies means for firmly holding the tooth-brush or similar object in a manner to permit the same to be directed to any region of the tooth structure in the same manner as the conventional tooth-brush is operated manually, or around the edges of finger nails when a nail file is used, or over the surfaces of the finger nails when a polisher is used.

Another object of my invention is to provide a holder so designed and constructed that tooth-brushes, nail-files, or polishers can be easily and quickly interchanged, and when using a nail-file an adapter utilized for connection to the holder in a manner similar to the connection made by means of the handle of a conventional tooth-brush.

A further object of my invention is to provide a holder of the kind mentioned which encloses any suitable electric motor, a novel attaching means for a tooth-brush or the like, and motor-driven means between the motor and said attaching means whereby the rotary motion of the motor is converted into reciprocating motion for said attaching means, sometimes hereinafter referred to as a holding member.

A still further object is to provide a simple and inexpensive device for the purpose mentioned which will enable a tooth-brush or the like to be easily attached thereto and as readily removed therefrom and when using a tooth-brush so that the brush can be conveniently cleaned; and to provide means for preventing fluid from the brush-head of the tooth-brush reaching the actuating mechanism of the device or the attached end of the tooth-brush handle.

With the above and other objects in view, my invention consists in the novel construction, and in the arrangement and combination of parts to be hereinafter described and more particularly pointed out in the subjoined claims.

In the drawings,

Fig. 1 is a side elevation of my improved holder, a tooth-brush being shown attached thereto.

Fig. 2 is a top plan view of the same.

Fig. 3 is a similar view showing the shield or cover of the holder removed and a portion of the casing or handle of the holder broken away to illustrate parts of the mechanism within the same.

Fig. 4 is a side elevation of the device, showing the shield or cover elevated to illustrate parts normally covered thereby.

Fig. 5 is an enlarged longitudinal section taken on line 5—5, Fig. 2, looking in the direction of the arrow crossing said line.

Fig. 6 is a transverse section taken on line 6—6, Fig. 5, looking in the direction of the arrow crossing said line.

Fig. 7 is a transverse section taken on line 7—7, Fig. 5, looking in the direction of the arrow crossing said line.

Fig. 8 is a transverse section taken on line 8—8, Fig. 5, looking in the direction of the arrow crossing said line.

Fig. 9 is a transverse section taken on line 9—9, Fig. 5.

Fig. 10 is a transverse section taken on line 10—10, Fig. 5.

Fig. 11 is a detached perspective view of the spring retainer member.

Fig. 12 is a detached perspective view of a nail-polisher designed for use with my invention, the handle of the same being broken away to indicate additional length.

Fig. 13 is a perspective view of an adapter designed to clamp a strip of emery paper or the like, serving as a nail-file.

Fig. 14 is an enlarged longitudinal section taken centrally through the adapter illustrated in Fig. 13, the handle of the adapter being broken away to indicate additional length.

While my invention is primarily designed as a holder for a tooth-brush to be actuated under reciprocating movement, it will be apparent from the drawings hereof that other toilet articles, or servicing elements as they may be termed, may be substituted for a tooth-brush when such articles are equipped with handles similar to those of tooth-brushes, or are used in connection with adapters which include handles of such type.

The reference numeral 15 designates the holder, considered as a whole, which includes a hollow structure or casing 16 conformed to conveniently fit the hand, said holder having a brush or article supporting element 17 extending a distance outwardly from one end thereof.

The hollow structure or casing 16 serves as a handle or grip element for the holder and it is preferably made of plastic material, although any other suitable material may be employed for the same.

The brush or article-supporting member 17, which is in the form of an arm, is secured to the hollow structure or casing in any suitable

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manner, so long as a rigid and unyielding connection is provided between the two.

Within the casing or handle 16 any suitable electric motor, such as shown at 18 (Fig. 3), is arranged and current is supplied thereto by means of lead-in and return wires within a current-conducting cord 19, the current passed therethrough being controlled by any means, such as a switch, the handle 20 of which is shown projecting outwardly from the inner end of the casing or handle 16 (see Fig. 1).

In the drawings I have shown a disk 21 provided with an actuator-pin 22 arranged off center and projecting upwardly therefrom, said disk being rotated by the motor 18 through the medium of gears 23-24, or in any other suitable manner, all movable parts of the mechanism between said actuator-pin 22 and the motor being suitably journaled. The actuator pin 22 extends upwardly through an opening 25 in the article supporting member 17 and it has at its upper end a roller 26 for a purpose to appear hereinafter.

On the article supporting element 17 a reciprocating article or brush holding member 27 is mounted which is preferably in the form of a bar fitting into a guide groove 28 formed lengthwise in the supporting member 17, the side walls of said groove being undercut or dovetailed as best shown in Figs. 7 and 8, and the lower portions of the opposite side or edge walls of said brush holding member being flared downwardly to fit the undercut or dovetailed walls of said groove and thus assure sliding retention of the brush holding member 27 to the supporting member 17.

At the outer end of the brush holding member 27, a loop-like upward extension or housing 29 is formed, it having an opening 30 therethrough into which is fitted a rubber or other compressible or yielding gripping or sealing element 31.

Extending upwardly from the brush holding member 27, a distance in rear of the sealing element 31, is a retainer stud 32 which is enlarged at a medial portion to form an upwardly-facing shoulder 33, and it has its lower portion entered in said brush holding member and its lower extremity upset to firmly secure the same to said brush holding member.

34 designates a tooth-brush provided with the conventional long handle 35 which is passed through an opening 36 in the sealing element 31 in a manner to have all portions of the walls of said opening contact said handle; the latter being provided with an opening 37 at its inner end, usually adapted for suspending the tooth-brush from a hook or the like. When securing the tooth-brush to the holder, the opening 37 in the handle 35 receives the upper portion of the retainer stud 32, the upper extremity of which is preferably rounded, as shown in Figs. 5 and 7, and projects upwardly above the upper surface of said handle. When the handle is so positioned, it rests upon the upwardly-facing shoulder 33 of said retainer stud and is firmly anchored by said retainer stud and the loop 29.

In order to retain the handle of the tooth-brush against the shoulder 33 and to prevent wobbling movement thereof, a spring retainer-member 38 is provided, it being in the form of a resilient elongated strip of material, such as best shown in Fig. 11. Said retainer member is widened at one end, as at 39, and provided at said end with depending ears 40 so that a saddle-like terminal is provided which straddles the brush holding member 27 adjacent the sealing

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element 31, said ears being securely fastened to opposite sides of the brush holding member 27 by means of screws or otherwise.

The opposite end of this spring retainer-member is provided with a notch 41 to form a fork-like terminal, the notch receiving the upwardly-projecting extremity of the retainer stud 32 while the tines 42 of this fork-like terminal lie at opposite sides of said extremity in contact with the upper face of the handle of the tooth-brush and force the underside of said handle in firm contact with the shoulder 33 on said stud.

It will be understood therefore that the tooth-brush being passed through the sealing element 31 and being firmly attached at its inner end to the holding member, is capable of movement only in the direction of its length and it may here be stated that the sealing element 31, being constructed of rubber or similar resilient material, impinges against the handle of the tooth-brush peripherally at all points around the same; thus the brush holding member 27, so termed because it holds the handle of the tooth-brush to the supporting member 17 so as to move therewith, is provided at its inner end with a widened portion 43 (see Fig. 3) having a transversely-disposed slot 44 therein into which the actuator-pin 22; and more particularly the roller 26 on said pin projects, the roller 26 on said pin rotating while in contact with the elongated transversely-disposed side walls of said slot to diminish the friction which would otherwise be created at this point.

It will be apparent, therefore, that when the disk 21 is rotated, the actuator-pin 22 which projects eccentrically from said disk travels through a circular path and thus moves the brush-holding element 27 outwardly and inwardly under reciprocating movement, causing the tooth-brush to have a reciprocating motion imparted thereto, under speed found most desirable, so that the bristles 45 of the brush move in contact with the teeth or the gums of the person controlling the manipulation of the device. It is, of course, understood that the mechanism for transferring motion from the motor shaft to the brush holding member 27, may be varied, depending on the speed with which the tooth-brush is to be reciprocated, and any mechanism capable of converting rotary motion into reciprocating motion may be employed between the brush holding member and the motor. The brush holding member 27 and parts carried thereby may, under the terms of the claims hereof be considered the attaching means for the tooth-brush.

It is also my purpose to provide means for enclosing parts of the attaching means and a portion of the tooth-brush handle extending inwardly from the sealing element 31, and for this purpose I provide an elongated cover or shield 46 which is of substantially U-formation in cross section so as to provide a top wall, and spaced-apart side walls which depend from said top wall at opposite sides of the anchored portion of the handle of the tooth brush. Said cover or shield is of a length only slightly shorter than the brush holding member 27. The inner end of this cover or shield is pivotally secured to opposite ends of the widened portion 43 at the inner end of the reciprocable brush holding member 27. For this purpose ears 47 extend upwardly from said widened portion to enable pivots 48 to be passed therethrough and through the sides of the cover at their inner ends. These pivots are tightened in the side walls of the shield 46 and in the ears

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47 extending upwardly from the widened portion 43 at the inner end of the brush member 27 so that the shield will be retained in closed position by the friction between such parts, or it may be otherwise retained in such position.

The casing or handle 16 of the device will be of a shape to permit its being easily and conveniently gripped by the user and to enable the tooth-brush to be given a rotary or oscillating manual movement, such movement being used preferably without utilizing the reciprocating movement for which the device is mainly designed. To accomplish this, it is simply necessary to throw the lever 20 of the switch into "off" position and when so used, the device can be as conveniently employed for brushing the teeth under movement lengthwise of the same, thus enabling the bristles of the brush to more effectively enter spaces between the teeth, and at the same time treat the gums in a manner that is considered highly desirable.

The current-conducting cord 19 will be of considerable length so that it can be easily plugged into any conventional socket conveniently at hand and it is simply necessary to position the brush at the region of the tooth structure within the mouth without movement of the device under manual effort, since when the switch provided within the casing or handle of the device is actuated to lead current to the motor, the brush will reciprocate in a direction transversely of the teeth, the device being moved only so that the brush will successively operate against different regions of the tooth structure until the entire tooth structure is thoroughly cleaned.

If, however, the cleansing operation is to include movement of the brush-head of the tooth-brush in the direction of the length of the teeth, the entire device may be used, after shutting off the current, in the same manner as when gripping the handle of a conventional tooth-brush. For example, when oscillating the device manually, the bristles of the brush will be moved in the direction of the length of the teeth and will enter the spaces between the teeth more effectively than under motion crosswise of the teeth and consequently under both reciprocating and oscillating movement, a thorough cleansing of the teeth is assured.

The sealing element 31, in addition to serving as a supplemental retainer for the handle of the tooth-brush, also serves to prevent fluid which may pass along the outwardly-projecting portion of the tooth-brush handle from reaching that portion of the handle extending from the sealing element to the retainer stud 32. In this manner the moving parts of the device are kept in dry condition, thereby preventing rust and undue friction between the moving parts of the device.

While this invention is particularly designed for use as a tooth-brush holder, it may as hereinafter stated, be utilized for holding and manipulating nail-polishers, such as shown in Fig. 12, and nail-files, such as shown in Figs. 13 and 14, since all of such articles are toilet articles or servicing elements and are so basically referred to in some of the subjoined claims, the brush-heads of tooth-brushes, the padded heads of nail-polishers, and the nail-files may therefore be termed servicing portions of such articles or elements. The nail-polisher shown in Fig. 12 is designated by the numeral 51, it being of the conventional type and having a polisher or buffer-head 52 and an elongated handle 53 provided with an opening 54 which is designed to receive

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the stud 32 of the holding member 27 in the same manner as the opening 37 in the handle of the tooth-brush 34.

An adapter 55 may also be utilized for holding or clamping the usual sand-paper strip used as a nail-file, the strip or file being designated by the numeral 56. This adapter comprises an elongated member 57 fashioned to provide a handle 58 with an opening 59 at one end and an integral clamping jaw 60 at its other end. A movable clamping jaw 61 is pivotally secured to the jaw 60 near its inner end, and between the jaws 60 and 61 the strip of sand-paper or other filing material is clamped.

The movable jaw 61 has an inwardly extended lug 64 through which a screw 65 is passed, which screw, when tightened, causes the outer end of the movable jaw to be clamped against the strip 56 and hold the same securely in the adapter.

The opening 59 in the handle 58 is to receive the stud 32 of my improved holder so that the adapter is retained on the holding member 27 of said holder in the same manner as the tooth-brush 34.

Having thus described my invention what I claim is:

1. An electrically-operated toilet-article holder, comprising a casing formed to fit the hand so as to serve as a grip element and having a supporting-arm extending outwardly from one end of said casing and provided with a groove extending along the upper face thereof, an article-holding member slidably mounted in said groove and adapted for reciprocating movement therein, said holding member having a loop-like housing at its outer end, a resilient sealing member fitted in said loop-like housing and having an opening therein, a toilet article having a handle passed through the opening of said resilient sealing member while compressing the latter to assure a snug fit therewith and having a servicing portion at its outer end, said handle extending inwardly and outwardly from said resilient sealing member and having its inner end attached to said holding member, and electrically-operated means within said casing having operative connection with said holding member to cause the latter and the toilet article carried thereby to be reciprocated.

2. An electrically-operated toilet-article holder, comprising a casing formed to fit the hand so as to serve as a grip element and having a supporting arm extending outwardly from one end of said casing and provided with a groove extending along the upper face thereof, an article-holding member slidably mounted in said groove and adapted for reciprocating movement therein, said article-holding member having a loop-like housing at its outer end and a retainer stud rising therefrom near its inner end, a resilient sealing member fitted in said loop-like housing and having an opening therein, a toilet-article having a handle passed through the opening of said resilient sealing member while compressing the latter to assure a snug fit therewith and projecting outwardly and inwardly a distance from said resilient sealing member, said handle having an opening at its inner end to receive said retainer stud and a servicing portion at its outer end, and electrically-operated means within said casing having operative connection with said article-holding member to cause the latter and the toilet-article carried thereby to be reciprocated.

3. An electrically-operated tooth-brush holder, comprising a casing formed to fit the hand so as to serve as a grip element and having a support-

ing arm extending outwardly from one end thereof and provided with a dovetail groove extending along the upper face thereof, a tooth-brush holding member having downwardly-flaring side portions fitting the dovetailed side walls of said groove and adapted for reciprocating movement therein, said tooth-brush holding member having a loop-like upward extension at its outer end, a resilient sealing member fitted into said loop-like upward extension and having an opening there-
 10 through parallel with said supporting arm, a tooth-brush having a handle passed through the opening of said resilient member and extending outwardly and inwardly a distance from the latter, said tooth-brush having a servicing portion
 15 at its outer end and an opening at its inner end, a retainer stud projecting upwardly from said tooth-brush holding member and extending into said last-mentioned opening, said retainer stud having an upwardly-facing shoulder, a spring
 20 retainer secured to said tooth-brush holding member and bearing against the inner end of said handle to maintain the latter on said retainer stud, and electrically-operated means within said casing operatively connected with the inner end
 25 of said tooth-brush holding member to cause the latter and the tooth-brush carried thereby to be reciprocated.

4. An electrically-operated toilet-article holder, comprising a casing having a supporting arm extending outwardly therefrom and provided with a dovetailed guide groove extending along the upper face thereof, an article-holding member having a portion fitting said dovetailed guide groove and adapted for reciprocating movement therein, said article-holding member having a loop-like
 30 upward extension at its outer end, a toilet-article having a handle passed through said loop-like upward extension extending outwardly and inwardly a distance from the latter, said toilet-article having a servicing portion at its outer
 35 end and an opening at its inner end, a retainer stud projecting upwardly from said article-holding member and extending into said opening, an elongated spring retainer secured to said article-holding member adjacent said loop-like upward
 40 extension and extending inwardly therefrom to said retainer stud, said elongated spring retainer being notched at its free end to straddle said retainer stud so as to maintain said handle in fixed position on said article holding member, and electrically-operated means within said casing
 45 connected to said article-holding member to cause the latter and the toilet-article carried thereby to be reciprocated.

5. An electrically-operated toilet-article holder, comprising a casing having a supporting arm extending therefrom and provided with a guide groove extending along the upper face thereof, an

article-holding member having a loop-like upward extension at its outer end and being fitted into said guide groove for reciprocating movement therein, a toilet-article having a handle fastened
 5 to said article-holding member, a U-shaped shield pivotally secured to said article-holding member at its inner end, said shield being of substantially U-formation and adapted to straddle the inner end of the handle of said toilet-article, and electrically-operated means within said casing
 10 connected to said article-holding member to cause the latter and the toilet-article carried thereby to be reciprocated.

6. An electrically-operated toilet-article holder, comprising a casing having a supporting arm extending outwardly therefrom, an article-holding member slidably mounted for reciprocating movement on said supporting arm and having an upwardly-projecting stud near its inner end and
 15 an opening at its outer end provided with yielding walls, a toilet-article having a handle passed through said opening in contact with said yielding walls and having a hole at its inner end receiving said stud, said stud having an enlargement
 20 against which the inner end of said handle downwardly bears, a spring retainer in the form of a resilient elongated strip widened at one end and provided with depending ears at said end
 25 lying against opposite sides of said article-holding member adjacent the opening therein and extending inwardly therefrom so as to terminate adjacent said upstanding stud to hold said handle
 30 against the enlargement thereof, a shield pivotally secured at its inner end to said article-holding member and extending forwardly therefrom, said shield being of substantially U-formation in cross section to provide a top and spaced-apart
 35 depending sides disposed at opposite sides of said article-holding member so as to enclose the inner end of said spring retainer and the inner end of said handle, and electrically-operated means within said casing operatively connected with
 40 the inner end of said article-holding member to cause the latter, the said shield and the toilet-article carried by said article-holding member to be reciprocated.

GEORGE B. UBEL.

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