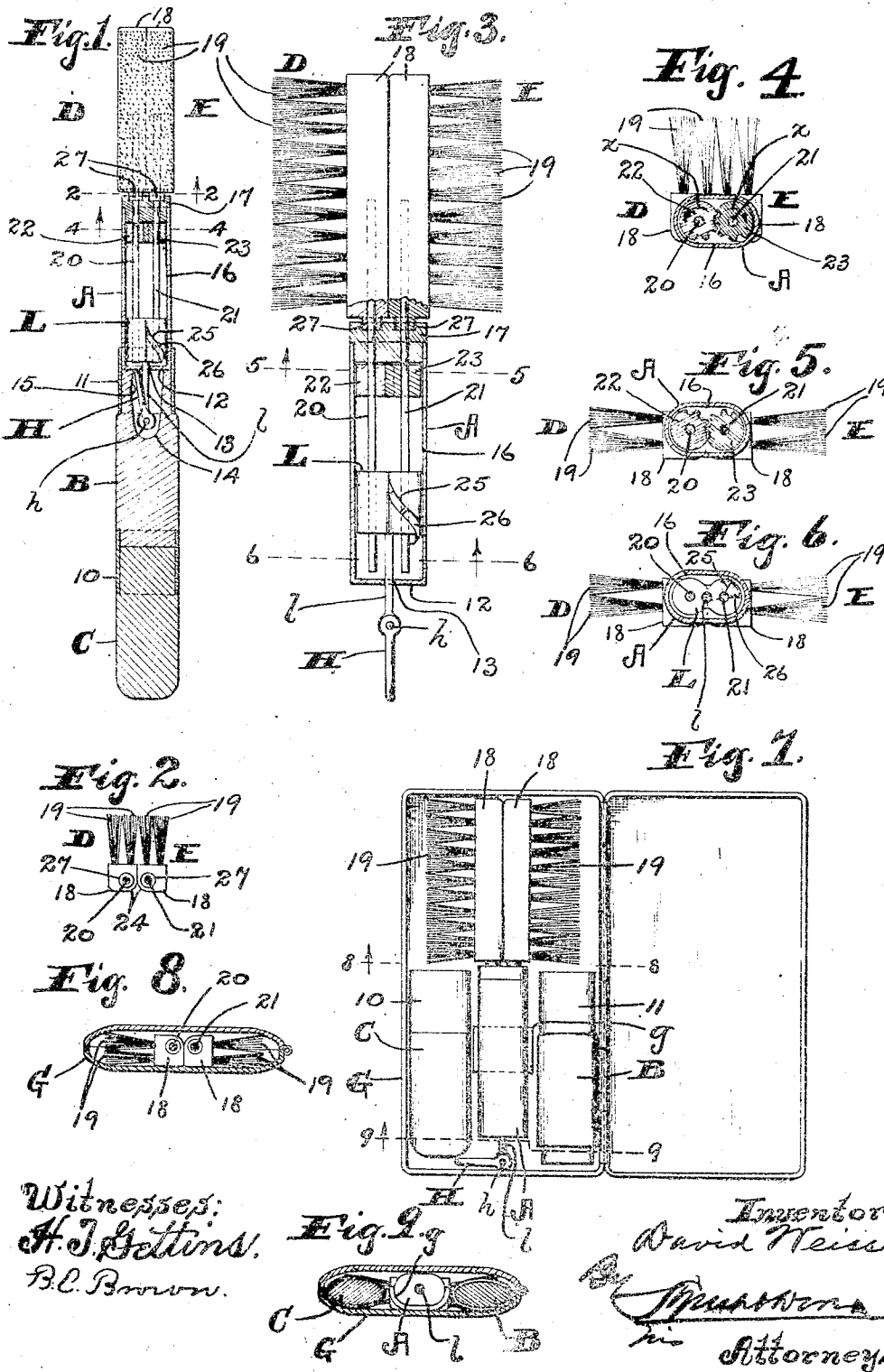


D. WEISS.
TOOTH BRUSH.

APPLICATION FILED APR. 29, 1912.

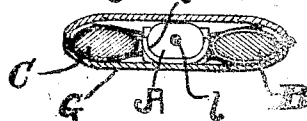
1,060,962.

Patented May 6, 1913.



Witnesses:
H. J. Gettins.
B. C. Brown.

Fig. 9.



Inventor:
David Weiss
By Spurlock
Attorneys

UNITED STATES PATENT OFFICE.

DAVID WEISS, OF CLEVELAND, OHIO.

TOOTH-BRUSH.

1,060,962.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed April 29, 1912. Serial No. 693,809.

To all whom it may concern:

Be it known that I, DAVID WEISS, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Tooth-Brushes; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in tooth-brushes, and pertains more especially to a tooth-brush having a brush-proper composed of two tooth-brushing sections which have their bristle-carrying stocks arranged forward of the forward end of the handle of the brush and normally side by side and have their tufts of bristles projecting in the same direction in the normal position of said sections and may be swung laterally and outwardly to render the brush capable of being inclosed in a shallow pocket-case.

One object of this invention is to inclose within the handle of the brush the mechanism whereby said brushing-sections may be swung laterally and outwardly and thereby protect said mechanism against injury and exclude dust and dirt from said mechanism.

Another object is to lock said mechanism in the normal position of said brushing-sections, and to have the locking means employed in locking said mechanism contained within the handle of the brush so as to protect said locking means against injury.

Another object is to render the mechanism employed to swing said brushing sections laterally and outwardly and the means for locking said mechanism in the normal position of said brushing sections simple in construction, reliable in their operation, and not liable to get out of order.

Another object is to have said locking means only rendered accessible by the separation of sections instrumental in forming the handle of the brush.

With these objects in view, and to the end of attaining any other advantages hereinafter appearing, this invention consists in certain features of construction, and combinations and arrangement of parts, hereinafter described, pointed out in the claims, and illustrated in the accompanying drawings.

In said drawings, Figure 1 is a side elevation, largely in central section, of my improved sectional tooth-brush. Fig. 2 is a transverse section on line 2—2, Fig. 1. Fig. 3 is a side elevation, largely in central section, of the forward end-section of the handle and connected tooth-brushing sections and shows said brushing sections in the position into which they are swung preparatory to placing said handle-section and connected brushing-sections into a pocket-case. Fig. 4 is a transverse section on line 4—4, Fig. 1. Fig. 5 is a transverse section on line 5—5, Fig. 3. Fig. 6 is a transverse section on line 6—6, Fig. 3. Fig. 7 is a side view of an opened pocket-case in which the forward end-section of the handle and connected brushing sections and the intermediate handle-section and rear end-section of the handle are compactly arranged. Figs. 8 and 9 are transverse sections on line 8—8 and line 9—9 respectively, Fig. 7, except that in Figs. 8 and 9 the pocket-case is shown closed. The tooth-brush is shown full size in Figs. 1, 2, 7, 8, and 9, whereas Figs. 3, 4, 5, and 6 are drawn on an enlarged scale.

Referring to said drawings, A indicates the forward end-section of the sectional handle of my improved tooth-brush; B, the intermediate section of the handle, and C, the rear end-section of the handle. The handle-sections A, B and C are arranged in line endwise. The rear end-section C of the handle is provided at its forward end with a tubular coupling-member 10 embracing and thereby connected to the rear end-portion of but removable from the intermediate handle-section B to render said rear end-section removable from said intermediate section preparatory to placing said rear end-section in a pocket-case G shown in Figs. 7, 8 and 9. The intermediate handle-section B is provided at its forward end with a tubular coupling-member 11 embracing and thereby connected to the rear end-portion of but removable from the forward end-section A of the handle to render said intermediate section removable from the said forward end-section preparatory to placing said intermediate section in the pocket-case G shown in Figs. 7, 8 and 9, and I would here remark that said case is provided centrally with a guide *g* for said forward handle-section

tion. The forward end-section A of the handle is shown composed of a hollow shell which is provided at the rear end of said handle-section with a head 12 provided centrally with a hole 13 which is in registry with a cavity 14 formed in and centrally of the forward end-portion of the body of the intermediate handle-section B. Said forward end-section of the handle is therefore provided interiorly with a chamber 16 which extends longitudinally of said handle-section. Said forward end-section of the handle is provided at its forward end with a head 17.

The brush-proper of my improved tooth-brush comprises two tooth-brushing sections D and E. Each brushing section comprises a stock 18 and tufts 19 of bristles. It will be observed therefore that said brushing sections are normally parallel and correspondingly arranged side by side. The stocks 18 are arranged at the forward end of and in line endwise with the forward end-section A of the handle and side by side and flush at their faces when the brushing sections D and E are in position ready for use, as shown in Figs. 1 and 2, and the tufts 19 of said stocks project from said faces in the same direction in said position of said brushing sections, as shown in Fig. 2. The stock 18 of the brushing section D is provided with a shaft 20. The stock 18 of the brushing section E is provided with a shaft 21. The shaft of each stock 18 extends from said stock into and longitudinally of the chamber 16 in the forward end-section A of the handle and extends through and has bearing in the forward head 17 of said handle-section and extends into proximity to the rear head 12 of said handle-section. The shafts 20 and 21 are parallel and spaced laterally, and two gears 22 and 23 arranged within the chamber 16 are mounted on the shafts 20 and 21 respectively at the inner side of the head 17. The gear on each shaft is soldered or otherwise attached to said shaft.

Preferably the stocks 18 have their adjacent sides abutting against each other, as shown in Fig. 2, when the brushing sections are in position side by side and ready for use, and said stocks are rounded or contoured, as at 24, at their backs and at said sides, as shown in Fig. 2, as required to render said brushing sections capable in said position of being swung laterally and outwardly into the position shown in Figs. 3, 5 and 6. The gears 22 and 23 mesh with each other and establish operative connection between the shafts 20 and 21, and obviously the brushing sections D and E are swung laterally and outwardly and independently of the handle during their rotation in the direction indicated by the arrows α in Fig. 4.

As shown in Figs. 4 and 5, the gear 23 has

three teeth and the gear 22 two teeth, and the non-toothed portion of each gear is as large diametrically as the toothed portion of said gear and has such dimensions circumferentially of the axis of said gear that the gears rotate exactly one-fourth of a rotation in either direction. It will be observed therefore that the shafts 20 and 21 have their operation limited to one-fourth of a rotation in either direction, and that said shafts rotate when operated simultaneously but in opposite directions respectively. It will be observed also that during the rotation of the shafts in the direction indicated by the arrows α in Fig. 4 the brushing sections D and E are swung laterally and outwardly from the position shown in Figs. 1, 2 and 4 into the position shown in Figs. 3, 5, and 6, and said sections are actuated into the position shown in Figs. 3, 5 and 6 preparatory to placing the forward end-section of the handle and connected brushing sections, upon detaching the intermediate handle-section from said forward end-section, into the pocket-case G shown in Figs. 7, 8 and 9, and it will be observed that the brushing sections, when they have been swung into the position shown in Figs. 3, 5, and 6, have their backs arranged directly opposite and abutting against each other, as shown in Fig. 8, and the tufts of bristles of each brushing section are arranged at a right angle to the arrangement of said tufts of bristles in the position of said brushing section shown in Figs. 1, 2 and 4. By the construction hereinbefore described it will be observed that the stocks 18 are relatively arranged and contoured to limit the swinging of the brushing-sections from and toward each other.

Within the chamber 16 but in proximity to the head 12 and spaced from the gears 22 and 23 is arranged a slide L which (see Figs. 3 and 6) is slidably mounted on and shiftable endwise of the shafts 20 and 21. Said slide is therefore movable endwise of the forward outer handle-section A. Said slide is provided with a stem l which extends loosely through the hole 13 in said head and into the cavity 14 in the intermediate handle-section B, and said stem is provided within said cavity with a link or locking member H which is pivoted at one end, as at h , to the outer end of said stem and in its operative position, shown in Fig. 1, is arranged longitudinally of but diagonally relative to said stem and projects from said end of said stem toward said head and presses somewhat against the outer side of said head and thereby positively locks the slide against movement toward the brushing-sections D and E when said brushing sections are in position side by side and ready for use, as shown in Figs. 1, 2 and 4. The cavity 14 (see Fig. 1) has a wall 15 ar-

ranged to prevent accidental loosening of the locking member H relative to the head 12.

Upon removal of the intermediate handle-section B from the forward outer end-section A of the handle access is had to the locking member H and by swinging said locking member away from the head 12 so as to unlock the slide and thereby permit movement of the slide toward the brushing sections said stem may be manipulated to actuate the slide toward said brushing sections. The slide L is provided with a slot 25 arranged spirally of the shaft 21 and extending from within the forward end-portion of the slide at a point centrally between the shafts 20 and 21 to the rear extremity of the slide, and the shaft 21 is provided with a tongue or projecting member 26 which engages said slot and is arranged correspondingly spirally of said shaft. During the shifting of the slide endwise in one direction the shaft through the medium of its projecting member 26 and one of the side walls of the slot 25 is rotated in one direction, and during the actuation of the slide endwise in the opposite direction said shaft through the medium of said projecting member and the opposite side wall of said slot is rotated in the opposite direction, and the relative arrangement of the parts is such that movement of the slide toward the brushing sections D and E results in the rotation of the shafts in the direction indicated by the arrows *x* in Fig. 4 so as to swing said brushing sections from their normal and operative position shown in Figs. 1, 2 and 4 laterally and outwardly into a position in which they lie in the same plane as shown in Figs. 3, 5, and 6, and thereby render said sections capable of being inclosed in the shallow case G shown in Figs. 7, 8, and 9. I would here remark that each stock 18 is preferably provided at its forward end with a circular lug 27 which surrounds and is concentric relative to the shaft of said stock and has bearing in the head 17 of the forward end-section A of the handle. The lugs 27 of the stocks 18 cover and thereby conceal the shafts 20 and 21 at the forward end of the forward end-section A of the handle.

By the construction hereinbefore described, it will be observed that the mechanism employed in operating the shafts 20 and 21 of the brushing-sections and comprising the gears 22 and 23, the projecting member 26 of the shaft 21 and the slide L, are inclosed within the forward handle-section A so as to exclude dirt and dust from said mechanism and protect said mechanism against injury.

It will also be observed that the locking member H is inclosed within the handle where it is protected against injury, and

that said locking member is only accessible upon removing the intermediate handle-section from the forward handle-section.

It will also be observed that my improved mechanism for operating the brushing sections and the means employed for locking said mechanism in the normal position of the said brushing sections are exceedingly simple and durable in construction, reliable in their operation and not liable to get out of order.

What I claim is:

1. In a tooth-brush, the combination, with a handle, and two suitably supported brushing sections arranged at the forward end of the handle and adapted to be swung laterally, said brushing-sections being in position side by side when ready for use and adapted in said position to be locked against swinging laterally and outwardly but free when unlocked to be swung laterally and outwardly into a position back to back, of mechanism for swinging said brushing sections laterally, and means for positively locking said mechanism against swinging the brushing sections laterally and outwardly into their last-mentioned position, said locking means being adapted to be rendered inoperative preparatory to swinging said brushing sections into said last-mentioned position.

2. In a tooth-brush, the combination, with a handle, and two suitably supported brushing-sections arranged at the forward end of the handle adapted to be swung laterally side by side when ready for use and adapted to be locked in said position but free when unlocked to be swung laterally and outwardly into a position back to back, and mechanism for swinging said brushing sections laterally, of means for positively locking said mechanism against swinging the brushing sections laterally and outwardly into their last-mentioned position, said locking means being arranged within the handle and adapted to be rendered inoperative preparatory to swinging said brushing-sections into said last-mentioned position.

3. In a tooth-brush, the combination, with a handle having an interior chamber extending longitudinally of said handle, and two suitably supported brushing sections arranged at the forward end of said handle, said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly, of a slide arranged within the aforesaid chamber and movable endwise of the handle, and means whereby said brushing sections are swung laterally and outwardly during the movement of the slide endwise of the handle in the required direction.

4. In a tooth-brush, the combination, with

a handle, two suitably supported brushing sections arranged at the forward end of said handle, said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide normally movable endwise of the handle, and means whereby said brushing sections are swung laterally and outwardly during the movement of the slide endwise of the handle in the required direction, of means for locking said slide against movement in said direction.

5. In a tooth-brush, the combination, with a handle-section having an interior chamber extending longitudinally of said handle-section; two suitably supported brushing sections arranged at the forward end of said handle-section, said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within and movable endwise of the aforesaid chamber, means whereby the said brushing sections are swung laterally and outwardly during the movement of the slide toward said sections, and means for locking said slide against movement toward said brushing sections.

6. In a tooth-brush, the combination, with a handle-section, two suitably supported brushing-sections arranged at the forward end of said handle-section, said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly, and mechanism whereby said brushing sections may be swung laterally and outwardly, which mechanism is arranged within the handle, of means for locking said mechanism against swinging said brushing sections laterally and outwardly, said locking means being arranged externally of the aforesaid handle-section.

7. In a tooth-brush, the combination, with a handle-section having an interior chamber extending longitudinally of said handle-section; two suitably supported brushing-sections arranged at the forward end of said handle-section, said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within the aforesaid chamber and movable endwise of said handle-section, and means whereby said brushing sections are swung laterally and outwardly during the movement of the slide endwise of said handle-section in the required direction, of a locking member arranged externally of said handle-section and connected to the slide, which locking member in its locking position locks said slide against movement in the aforesaid direction and is movable into an inoperative position.

8. In a tooth-brush, the combination, with a handle-section having an interior chamber extending longitudinally of said handle-section; two suitably supported brushing sections arranged at the forward end of said handle-section, said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within the aforesaid chamber and movable endwise of said handle-section, and means whereby said brushing sections are swung laterally and outwardly during the movement of the slide endwise of said handle-section in the required direction, of another handle-section removably attached to the first-mentioned handle-section at the rear end of said first-mentioned handle-section, said second-mentioned handle-section being provided in its forward end-portion with a cavity, and a locking member arranged within said cavity and connected to the slide, which locking member in its locking position locks the slide against movement in the aforesaid direction, and is movable into an inoperative position upon detaching the second-mentioned handle-section from the first-mentioned handle-section.

9. In a tooth-brush, the combination, with a handle-section having an interior chamber extending longitudinally of said section; two suitably supported brushing sections arranged at the forward end of said handle-section and said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within and movable endwise of the aforesaid chamber, and means whereby said brushing sections are swung laterally and outwardly during the movement of the slide toward said brushing sections, of another handle-section removably attached to the first-mentioned handle-section at the rear end of said first-mentioned handle-section, said second-mentioned handle-section being provided in its forward end-portion with a cavity, and a locking member arranged within said cavity and connected to the slide and adapted to lock the slide against movement toward the brushing sections, said locking member being accessible upon detaching the second-mentioned handle-section from the first-mentioned handle-section.

10. In a tooth-brush, a handle comprising two end-sections and an intermediate section arranged in line endwise and detachably connected together, the forward end-section of the handle having an interior chamber extending longitudinally of said end-section, and the intermediate handle-section being provided in its forward end-portion with a cavity; two suitably supported brushing sections arranged at the forward end of said forward end-section of the handle, said

brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within the aforesaid chamber and movable endwise of the handle, which slide is provided with a stem extending into the aforesaid cavity, and means whereby said brushing sections are swung laterally and outwardly during the movement of the slide endwise of the handle in the required direction.

11. In a tooth-brush, a handle comprising two end-sections and an intermediate section arranged in line endwise and detachably connected together, the forward end-section of the handle having an interior chamber extending longitudinally of said end-section; two suitably supported brushing sections arranged at the forward end of said forward end-section of the handle, said brushing sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within the aforesaid chamber and movable endwise of the handle; means whereby said brushing sections are swung laterally and outwardly during the movement of the slide endwise of the handle in the required direction, and a locking member connected to the slide, which locking member in its locking position locks the slide against movement in the aforesaid direction, and is movable into an inoperative position upon detaching the intermediate handle-section from the forward end-section of the handle.

12. In a tooth-brush, a handle comprising two end-sections and an intermediate section arranged in line endwise and detachably connected together, the forward end-section of the handle having an interior chamber extending longitudinally of said end-section, and the intermediate handle-section being provided in its forward end-portion with a cavity; two suitably supported brushing sections arranged at the forward end of said forward end-section of the handle, said brushing section being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within the aforesaid chamber; means whereby said brushing sections are swung laterally and outwardly during the movement of the slide toward said brushing sections, and a locking member connected to the slide and adapted to lock the slide against movement toward the brushing sections, said locking member being accessible upon detaching the intermediate handle-section from the forward end-section of the handle.

13. In a tooth-brush, the combination, with a handle-section comprising a shell

which is provided at its rear end with a head, said shell having an interior chamber which extends longitudinally of said handle-section; two suitably supported brushing sections arranged at the forward end of said handle-section, said brushing-sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within the aforesaid chamber and movable endwise of said handle-section, which slide is provided with a stem extending through the aforesaid head beyond the outer side of said head, and means whereby the brushing sections are swung laterally and outwardly during the movement of the slide toward said sections, of a locking member arranged externally of said handle-section and connected to the aforesaid stem, which locking member abuts in its locking position against the outer side of the aforesaid head and is movable to render it inoperative.

14. In a tooth-brush, the combination, with a handle-section comprising a shell which is provided at its rear end with a head, said shell having an interior chamber which extends longitudinally of said handle-section; two suitably supported brushing sections arranged at the forward end of said handle-section, said brushing-sections being in position side by side when ready for use and adapted in said position to be swung laterally and outwardly; a slide arranged within the aforesaid chamber and movable endwise of said handle-section, which slide is provided with a stem extending through the aforesaid head beyond the outer side of said head, and means whereby the brushing-sections are swung laterally and outwardly during the movement of the slide toward said sections, of a locking member arranged externally of said handle-section and pivoted at one end to the outer end of the aforesaid stem, said locking member in its operative position abutting at its other end against the outer side of the aforesaid head.

15. In a tooth-brush, the combination, with a handle, and two brushing-sections arranged at the forward end of said handle and adapted to be swung laterally and provided each with a shaft extending into said handle, the shafts of said brushing sections being spaced laterally and having bearing in the handle, each shaft being operatively provided with a gear, and the gears of the shafts meshing with each other and being inclosed within the handle, of means for preventing actuation of said shafts in the direction required to swing the brushing-sections laterally and outwardly into a position back when said brushing sections are in position side by side and ready for use, said means being adapted to be rendered inoperative preparatory to the opera-

tion of the shafts in the direction required to swing the brushing sections into their first-mentioned position.

16. In a tooth-brush, the combination, with a handle, and two brushing sections arranged at the forward end of and in line endwise with said handle and provided each with a shaft extending into the aforesaid chamber, the shafts of said brushing-sections being spaced laterally and having bearing in the handle, and two gears arranged within the handle and operatively mounted on the different shafts respectively and meshing with each other, of a slide arranged within and movable endwise of the handle, said slide having such an operative connection with one shaft that said shaft is rotated in the one direction or the other according as the slide is moved longitudinally of the handle in the one or the other direction.

17. In a tooth-brush, the combination, with a handle-section having an interior chamber extending longitudinally of said handle; two brushing sections arranged at the forward end of and in line endwise with said handle-section and provided each with a shaft extending into the aforesaid chamber, the shafts of said brushing-sections being spaced laterally and having bearing in said handle-section, and two gears arranged within the aforesaid chamber and operatively mounted on the different shafts respectively and meshing with each other, of a slide arranged within the chamber and movable endwise of said handle-section, which slide is slidably mounted on and shiftable endwise of both shafts, said slide having such an operative connection with one shaft that said shaft is rotated in the one direction or the other according as the slide is moved endwise in the one or the other direction.

18. In a tooth-brush, the combination, with a handle, and two brushing sections arranged adjacent one end and externally of the handle, each brushing section comprising a shaft extending into said handle, the shafts of the brushing section being spaced laterally and having bearing in the handle, of two gears arranged within the handle and operatively mounted on the different shafts respectively, each gear having a toothed portion and a non-toothed portion, the toothed portion of the gears meshing with each other, and the non-toothed portion of each gear ex-

tending such a distance circumferentially of the axis of the gear that the operation of the gears is limited to a fraction of a rotation in either direction, the relative arrangement of the parts being such that the brushing-sections are arranged side by side, or have been swung laterally and outwardly, according as the gears have rotated the maximum extent in the one or the other direction.

19. In a tooth-brush, the combination, with a handle, and two brushing-sections arranged at the forward end of said handle and adapted to be swung laterally, of means for preventing swinging of said brushing-sections laterally and outwardly into a position back to back when said brushing sections are in position side by side and ready for use, said means being inclosed within the handle and adapted to be rendered inoperative preparatory to the actuation of the brushing sections into their first-mentioned position.

20. In a tooth-brush, the combination, with a handle, and two brushing sections arranged adjacent one end and externally of the handle, each brushing section comprising a shaft extending into said handle, the shafts of the brushing sections being spaced laterally and having bearing in the handle, of two gears arranged with the handle and operatively mounted on the different shafts respectively, each gear having a toothed portion and a non-toothed portion, the toothed portions of the gears meshing with each other, and the non-toothed portion of each gear extending such a distance circumferentially of the axis of the gear that the operation of the gears is limited to one-fourth of a rotation in either direction, the relative arrangement of the parts being such that the brushing sections have their stocks normally arranged side by side, or have been swung into a position substantially at a right angle to their normal position, according as the gears have rotated the maximum extent in the one or the other direction.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

DAVID WEISS.

Witnesses:

B. C. BROWN,
N. L. McDONNELL.