Sept. 10, 1940. A. A. DEUTSCH 2,214,407

TOOTHBRUSH WITH BRUSH-HEAD MADE IN THREE PARTS

Filed April 1, 1937

Fig. 1

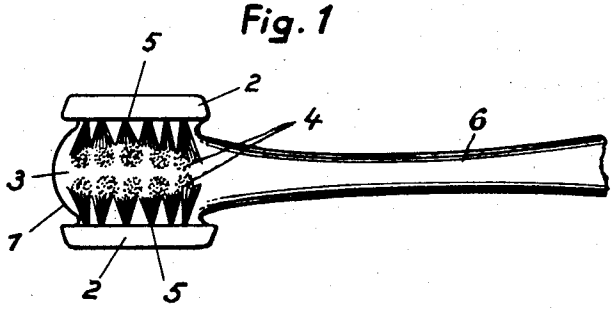


Fig. 2

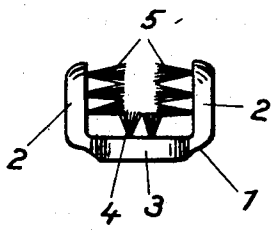


Fig. 3

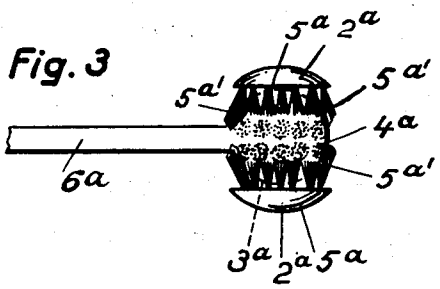


Fig. 5

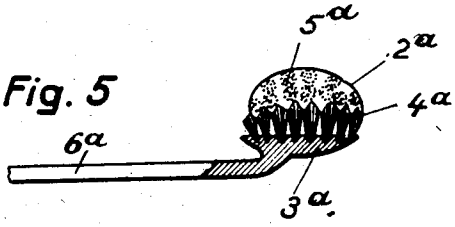


Fig. 4

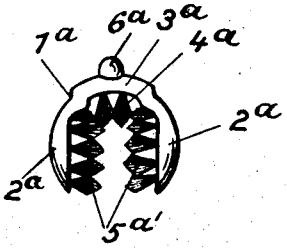


Fig. 6

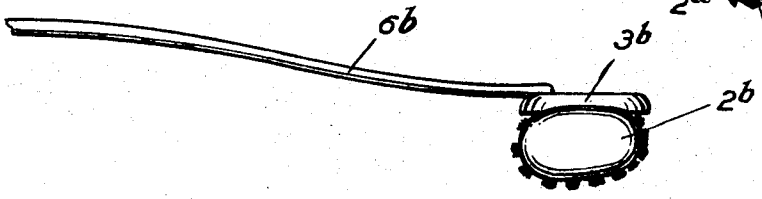


Fig. 7

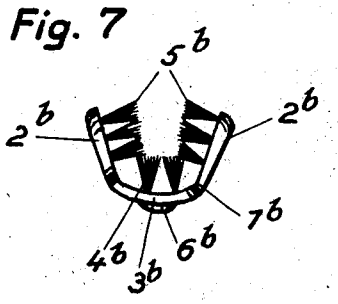
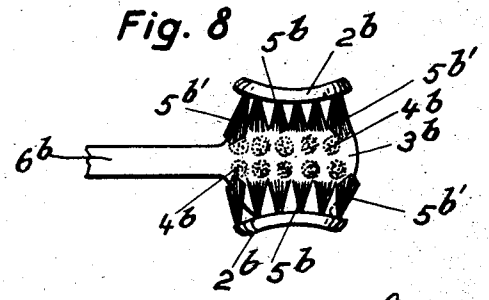


Fig. 8



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TOOTHBRUSH WITH BRUSH HEAD MADE IN THREE PARTS

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Application April 1, 1937, Serial No. 134,444
In Austria December 5, 1936

4 Claims. (Cl. 15—167)

This invention relates to a toothbrush, the brush head of which is made in two or three parts, and the improvement consists essentially in that the end bristles on the longitudinal sides of the lateral bristle carriers are longer than the middle groups of bristles in these parts.

By this construction an easier and more thorough cleaning of the teeth is obtained than by the toothbrushes having multi-part brush heads of known construction, as the longer end bristles of the lateral brush heads completely engage over the entire surface of each tooth, and during the brushing these longer end bristles penetrate into the gaps between the teeth. The bristles of the lateral brush heads also act upon the edge of the gums and massage the same. The brushing surface of the bottom parts of the toothbrush with a three-part brush head may be dome shaped, so that it may better adapt itself to the irregularities of the masticating surfaces, than a plane brush surface.

Three embodiments of the invention are illustrated in the accompanying drawing, in which:

Fig. 1 shows a top plan view and

Fig. 2 a front elevation of a toothbrush according to the invention,

Figs. 3, 4 and 5 illustrate, in top plan view, elevation, and longitudinal section, a second form of construction of the toothbrush,

Fig. 6 is a side elevation of a third form of construction,

Fig. 7 is an end view of Fig. 6, and Fig. 8 a top plan view of Fig. 6.

As shown in Figs. 1 and 2, the brush head 1 is of U-shape in transverse cross section, arms 2 extending at right angles from the bottom plate 3. The bristles in the arm 2 are of different lengths, the bristles 5, being cut so that the brush surface formed by the free ends of these bristles is concave. Consequently the open space bordered by the bristles 5 of both arms 2 has the shape of an oval open at its longitudinal ends. The bristles 4 of the bottom part 3 are all of even length and as short as possible.

In the toothbrush shown in Figs. 3 to 5 only the bristles 5a' of the bunches at the ends of the longitudinal sides are longer than the remaining bristles 5a. The bristles 4a mounted in the bottom part 3a are cut to form a curved surface.

As shown in Fig. 4, the arms 2a are connected with the bottom part 3a by means of strips having an undulated cross section. By this means a good resiliency of the material forming the brush head is secured at the joints between the plate 3a and the arms 2a so that bristles of these arms will always engage the teeth irrespective of their exact size.

A toothbrush constructed as described presents the advantage that the bristles of the lateral brush heads completely brush every single tooth, in that the irregular bristle surfaces can adapt themselves perfectly to the shape of the teeth in the mouth, the bristles penetrating also into the gaps between the teeah and into the depressions in the masticating surfaces. The edge of the gums is also gripped by the bristles and massaged.

If the arms 2 of the brush head are not straight as in Fig. 1, but are slightly convex inwardly, as in Figs. 6 to 8, the middle bristle bunches 5b of the arms 2b may be shorter or the end bunches of bristles 5b' longer than if the arms were quite straight, so that the bristles in the middle are as resistant as possible and those which penetrate into the gaps between the teeth are as flexible as possible.

The bristle carriers of the toothbrush shown in Figs. 6 to 8 are oval plates so that the bristles are better distributed and better adapted to the shape of the teeth and the manipulation of the toothbrush is easier. The two lateral bristle carriers or plates 2b are concave and arranged so that they form an obtuse angle with the bottom plate 3b and consequently have a slightly resilient effect.

The handles 6, 6a, or 6b of the toothbrush is slightly curved and attached on the bottom plate 3, 3a, or 3b respectively, at substantially the central part of the latter so that the handle forms a kind of pressure lever when the toothbrush is being used.

As shown in Figs. 1, 3 and 8, the bristles at the ends of both of the lateral plates or arms 2, 2a and 2b respectively, located foremost or rearmost respectively in the longitudinal direction, that is the direction of the handle or of the line of teeth engaged or of the motion of the brush, are arranged in bundles having their axes inclined at acute angles with respect to a plane drawn at right angles to the longitudinal direction. By this arrangement the bristles enter the gaps between adjacent teeth more efficiently so as to remove residues from these gaps.

Also toothbrushes with a two-part brush head may be constructed according to the invention.

What I claim is:

1. A toothbrush which is symmetrical with respect to a middle longitudinal plane thereof, said brush having a handle and a three-part

brush head, said brush head comprising a body plate secured to said handle and two lateral plates connected to said body plate and angularly disposed relatively thereto, bristles on said body plate and bristles on said lateral plates, the bristles at the ends of both of said lateral plates located foremost and rearmost respectively in the longitudinal direction of the brush being longer than the bristles on the intermediate portions of said lateral plates, said bristles being arranged in bundles having their axes inclined at an acute angle with respect to a plane drawn at right angles to the longitudinal direction of the brush.

2. A toothbrush which is symmetrical with respect to a middle longitudinal plane, having a handle, a three-part brush head, said brush head comprising a body plate secured to said handle and two lateral plates connected to said body plate and angularly disposed relatively thereto, bristles on said body plate forming a convex dome-shaped brush surface, and bristles on said lateral plates, the bristles at the ends of both of said lateral plates located foremost and rearmost respectively in the longitudinal direction of the brush being longer than the bristles at the intermediate portions of said lateral plates, said end bristles being arranged in bundles having their axes inclined at acuate angles with respect to a plane drawn at right angles to the longitudinal direction of the brush.

3. A toothbrush which is symmetrical with respect to a middle longitudinal plane, having a handle, a three-part brush head, said brush head comprising a body plate secured to said handle and two lateral plates connected to said body plate by means of strips having an undulated cross-section, said lateral plates being angularly disposed relatively to said body plate, bristles on said body plate and bristles on said lateral plates, the bristles at the ends of both of said lateral plates located foremost and rearmost respectively in the longitudinal direction of the brush being longer than the bristles at the intermediate portions of said lateral plates, said end bristles being arranged in bundles having their axes inclined at acute angles with respect to a plane drawn at right angles to the longitudinal direction of the brush.

4. A toothbrush which ia symmetrical with respect to a middle longitudinal plane, having a handle, a three-part brush head, said brush head comprising a body plate integral with said handle and connected with said handle substantially at the central portion of said plate, and two lateral plates connected to said body plate and angularly disposed relatively thereto, bristles on said body plate and bristles on said lateral plates, the bristles at the ends of both of said lateral plates located foremost and rearmost respectively in the longitudinal direction of the brush being longer than the bristles at the intermediate portions of said lateral plates, said end bristles being arranged in bundles having their axes inclined at acute angles with respect to a plane drawn at right angles to the longitudinal direction of the brush.

AUGUST ANDREAS DEUTSCH.