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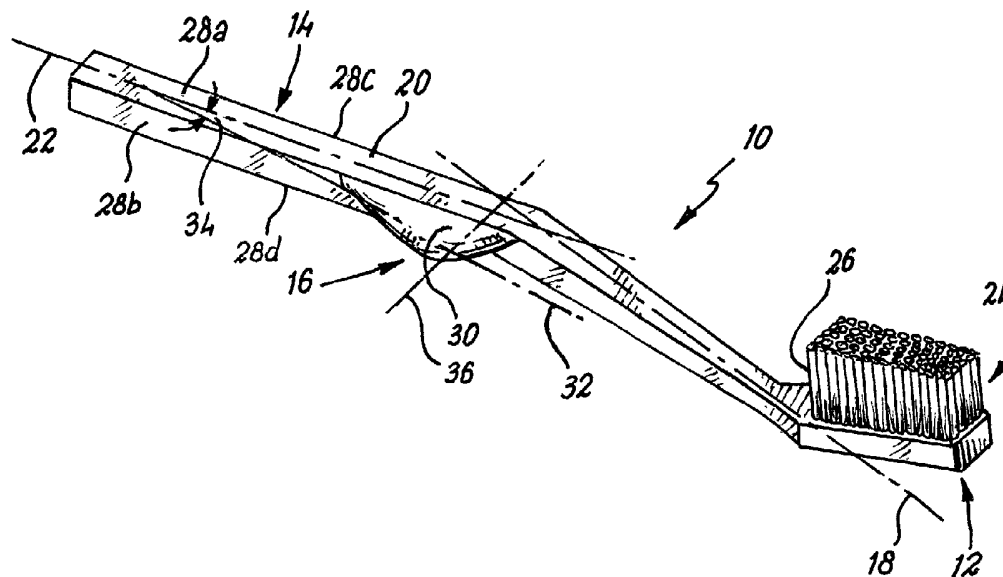
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(54) Title: POSITIONAL GUIDING AID



(57) Abstract: A positional guiding aid for incorporation on the handle of a hand-controlled apparatus. The aid comprises a protuberance over which a user repositions their grip during use of the hand-controlled apparatus so as to provide the user with increased comfort and dexterity of use of the apparatus. A variety of example embodiments are provided such as a toothbrush, rotary cutter, radial hairbrush, pushchair and writing instrument.



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1 **Positional guiding aid**

2

3 The present invention relates to hand held aids to assist
4 in the operation of hand controlled apparatus. More
5 particularly the invention relates to a positional
6 guiding aid for incorporation on a handle to provide the
7 user with increased comfort and dexterity of use of the
8 apparatus to which the handle is attached.

9

10 When presented with an apparatus which has a handle, and
11 in particular when the handle has a shaft, a user will
12 tend to provide a hammer like grip to the shaft. This
13 grip can generally be described as wrapping the fingers
14 around the shaft of the handle while resting the thumb
15 over the fingers or preferably placing the pad of the
16 thumb on a longitudinal axis of the shaft. Such a grip
17 tightly holds the apparatus while operation of the
18 apparatus is achieved by movements of the wrist and by a
19 limited down force provided by the thumb against the

1 longitudinal axis. When the thumb presses down on the
2 longitudinal axis a lever is set up between the pad of
3 the thumb and the third and fourth digits of the same
4 hand. Due to the longitudinal alignment of the thumb and
5 the third and fourth digits in this position only a
6 limited amount of leverage and hence torque can be
7 applied through the handle without the use of the wrist.

8

9 The study of ergonomics has taught us that if we can
10 reduce the amount of wrist movement in operating
11 apparatus we can reduce the amount of cramp experienced
12 by a user and make handling the apparatus more
13 comfortable. Ergonomic handles have tended to change the
14 shape of the handle to suit the users palm and finger
15 morphology contacting the handle. Additionally thumb rest
16 positions have been provided on handles to increase the
17 area to which the thumb may apply a torque to operate the
18 apparatus. Thus the handle is made to fit the form of the
19 hand, sometimes referred to as "form fitting". By form
20 fitting a user will grip the handle at a single position,
21 "locking" their hand in position and the form fitting
22 prevents them from manipulating the handle within their
23 hand during use. Though these handles provide a more
24 comfortable grip they do not assist in manipulation of
25 the apparatus as the wrist must still do the work and
26 further they are limited in that they must be made to fit
27 a users hand size and match a left or right handed grip.

28

29

1 Much work has been done in providing an ergonomic handle
2 for a toothbrush where a head of bristles must be
3 controllably manipulated against the teeth of a user.
4 Most toothbrushes now have a planar surface on the
5 longitudinal axis of the handle, which includes a widened
6 portion for a thumb rest at the top of the handle towards
7 the bristles. When a user grips the handle, their third
8 and fourth digits rest on the planar surface, while the
9 thumb is positioned on the thumb rest. Manipulation of
10 the bristles is achieved by shifting the thumb to one
11 side of the longitudinal axis and applying pressure by
12 the thumb or the third and fourth digits to cause the
13 handle and thus the bristles to rotate. This occurs as a
14 lever is set up between the position of the thumb on the
15 rest and the third and fourth digits on the planar
16 surface. The balance point of the lever is a position on
17 the palm of the hand, typically the third joint of the
18 second finger. These toothbrushes require the user to
19 have above average dexterity as the handle must be
20 balanced to achieve controlled rotation of the handle
21 while pressure must be applied evenly. In fact most users
22 will tend to adopt the position of having the thumb on
23 the longitudinal axis and manipulate the brush with the
24 wrist. While this is adequate for short term use, as you
25 would expect for a toothbrush, it limits the length of
26 time other utensils can be comfortably operated.
27 Additionally it is generally only appropriate to utensils
28 with a working surface i.e. the bristles, being coplanar
29 to the planar surface on which the thumb and digits rest.

1 For apparatus such as toothbrushes and razors where the
2 apparatus requires to be used at a preferred angle or
3 tilt, a hand-held utensil is described in International
4 Patent Application No WO 97/44164. This utensil includes
5 a handle having a moulded thumb rest which spirals from a
6 first position substantially central to the longitudinal
7 axis of the handle to a second position substantially
8 outside the longitudinal axis of the handle, the spiral
9 being formed in the direction of off-set of the head or
10 tool portion as it approaches the head of the utensil.
11 While this handle encourages a user of the utensil to
12 present the head or tool to an article at a preferred
13 angle or tilt, it has a number of disadvantages, namely,
14 as the thumb rest spirals from the longitudinal axis the
15 thumb is positioned close to the axis giving limited
16 rotation to the handle in use, additionally the head must
17 be mounted in an off-set position to the handle and thus
18 the utensil has a handedness such that right and left
19 handed versions must be made.

20

21 It is an object of at least one embodiment of the present
22 invention to provide a positional guiding aid which in
23 combination with a handle provides a lever action to a
24 user for increased comfort of use of the apparatus to
25 which the handle is connected.

26

27 It is a further object of at least one embodiment of the
28 present invention to provide a positional guiding aid
29 which allows a user to advantageously continuously

1 reposition there grip of a handle to which the aid is
2 attached.

3

4 It is yet a further object of at least one embodiment of
5 the present invention to provide a positional guiding aid
6 which in combination with a handle provides both right
7 and left handed persons with an increased dexterity of
8 movement of an apparatus attached to the handle.

9

10 According to a first aspect of the present invention
11 there is provided a positional guiding aid for
12 incorporation on a handle of an apparatus, the aid
13 comprising a substantially rounded protuberance, the
14 protuberance including an upper surface and a lower
15 surface being parts of a single continuous surface over
16 the protuberance, the upper surface including a first
17 axis located thereon at a displacement angle from a
18 longitudinal axis of the handle, the first axis being
19 perpendicular to a second axis also located on the upper
20 surface, and the upper surface arranged on a portion of a
21 double helix defined by rotation of the second axis
22 around the first axis.

23

24 As the aid is a protuberance as opposed to a thumb rest,
25 a user may apply any finger or thumb to any location on
26 the surface of the protuberance to effect a first point
27 on a lever. The opposing point on the lever will be
28 defined by the point of intersection between the first
29 axis and the longitudinal axis where the displacement

1 angle is formed. Thus a user may adopt any grip position
2 on the handle which is most comfortable to them.

3

4 The substantially rounded continuous surface of the aid
5 allows a user to continuously adjust the first point on
6 the lever and so provide increased manipulation of the
7 apparatus without wrist movement. Thus the aid allows a
8 user to advantageously continuously reposition their grip
9 of a handle to which the aid is attached.

10

11 Additionally as the user can place any finger or thumb at
12 any location on the surface of the protuberance there is
13 no handedness to the protuberance and thus apparatus
14 including the aid may equally be used by a right handed
15 or left handed individual.

16

17 Displacement of the protuberance from the longitudinal
18 axis of a handle to which it is attached provides
19 increased leverage for the user and hence increased
20 manipulation of the apparatus to which the handle is
21 attached.

22

23 Preferably a width of the protuberance defined by a
24 length of the second axis on the upper surface is greater
25 than a thickness of the protuberance defined as a
26 distance between the upper and lower surfaces. This
27 encourages a user to select a first point on the lever at
28 a distance from the longitudinal axis and thereby obtain
29 increased leverage of the apparatus. Additionally, the

1 user will naturally centre their digit, thumb or finger
2 on the protuberance.

3

4 Preferably the lower surface is arranged parallel to the
5 upper surface. So, like the upper surface, the lower
6 surface will also lie on a double helix which provides a
7 comfortable and stable surface on which a users fingers
8 or thumb may rest.

9

10 Preferably the displacement angle is an acute angle.

11 Advantageously the displacement angle is in the range 5
12 to 45 degrees. Selection of the displacement angle may be
13 by an inverse relationship to the distance between the
14 point of intersection of the first axis and the
15 longitudinal axis, and the point of intersection of the
16 first and second axis.

17

18 According to a second aspect of the present invention
19 there is provided a handle for use on hand controlled
20 apparatus, the handle including a positional guiding aid
21 according to the first aspect of the present invention.

22

23 Preferably the handle comprises a shaft on the
24 longitudinal axis. Preferably the shaft includes a
25 substantially planar surface parallel to the longitudinal
26 axis. More preferably the planar surface is arranged such
27 that the point of intersection between the first axis and
28 the longitudinal axis where the displacement angle is
29 formed lies thereon.

1 Thus, in use, the opposing point on the lever is on the
2 planar surface which will increase the dexterity of
3 manipulation of the handle and consequently the hand held
4 utensil by a user. This is achieved as that part of a
5 users hand, typically the third and fourth digits,
6 located at the opposing point will remain stationary as
7 that part of the users hand, typically the thumb, located
8 at the first point of the lever will be continuously
9 repositioned over the surface of the protuberance between
10 extreme positions between which the handle and thus the
11 article will rotate.

12

13 The shaft may include a plurality of substantially planar
14 surfaces parallel to the longitudinal axis.

15 Advantageously, the shaft includes three substantially
16 planar surfaces parallel to the longitudinal axis. Such a
17 triangular cross-sectional handle provides better
18 leverage as the user requires less grip to manipulate the
19 handle.

20

21 According to a third aspect of the present invention
22 there is provided a hand controlled apparatus, the
23 apparatus comprising a moveable portion and at least one
24 handle to effect movement of the moveable portion,
25 wherein the at least one handle is according to the
26 second aspect.

27

28 Thus the apparatus of the present invention may be any
29 hand controlled apparatus currently in use but which

1 incorporates the positional guiding aid of the first
2 aspect onto the at least one handle.

3

4 Preferably the apparatus has one handle. Embodiments of
5 such apparatus include vacuum cleaners and walking sticks
6 together with all hand-held utensils such as brushes,
7 cooking utensils, sports racquets and writing
8 instruments. Alternatively the apparatus may include two
9 handles. Embodiments of such apparatus include
10 wheelchairs, lawnmowers, prams and pushchairs.

11

12 Preferably the moveable portion includes at least one
13 longitudinal axis located adjacent an attachment point to
14 the at least one handle. Preferably the at least one
15 longitudinal axis of the moveable portion is co-linear
16 with the longitudinal axis of the at least one handle. An
17 embodiment of such an apparatus would be a conductor's
18 baton.

19

20 Alternatively the at least one longitudinal axis of the
21 moveable portion may be offset with respect to the
22 longitudinal axis of the handle. An embodiment of such an
23 apparatus would be an angled toothbrush.

24

25 Preferably the moveable portion includes a working
26 section, the working section being defined as that part
27 of the moveable portion which requires to be manipulated
28 by the user. The working section may be a surface of the
29 moveable portion. Embodiments of such apparatus may be

1 hairbrushes, toothbrushes, paint brushes, and writing
2 instruments. Where the working section is on a plane
3 parallel to the longitudinal axis of the moveable portion
4 it may be advantageous to attach the moveable portion to
5 the handle such that the plane of the working section is
6 rotated on the longitudinal axes so that the plane of the
7 working section is non co-planar with the substantially
8 planar surface of the shaft of the handle. More
9 preferably the plane of the working section is on a plane
10 parallel to the plane created by the first and second
11 axis. An embodiment of such an apparatus would be a knife
12 where the cutting edge is the working section. An
13 alternative example of such an apparatus may be a
14 toothbrush.

15

16 Preferred embodiments of apparatus are radial
17 hairbrushes, pens, pencils, ski poles and the like. Such
18 apparatus is characterised in that it has a working
19 section which is operational over the majority of 360
20 degrees rotation of the handle. The additional leverage
21 and rotational control afforded by the positional guiding
22 aid provides increased use of the working section on such
23 apparatus.

24

25 Example embodiments of the present invention will now be
26 described, by way of example only, with reference to the
27 accompanying figures in which:

28

29 Figure 1 is a schematic illustration of a positional

1 guiding aid incorporated on a handle of an apparatus in
2 accordance with a first embodiment of the present
3 invention;

4

5 Figure 2 (a) and (b) are top and bottom views
6 respectively of a positional guiding aid incorporated on
7 a handle of an apparatus in accordance with a second
8 embodiment of the present invention;

9

10 Figures 3(a) and 3(b) are a side view and a perspective
11 view, respectively, of a positional guiding aid
12 incorporated on a handle of an apparatus in accordance
13 with a preferred embodiment of the present invention;

14

15 Figures 4(a) to (e) are a series of views of the
16 apparatus of Figure 3 in use; and

17

18 Figure 5 is a perspective view of positional guiding aids
19 incorporated on handles of an apparatus in accordance
20 with a fourth embodiment of the present invention;

21

22 Figures 6 is a perspective view of apparatus including a
23 positional guiding aid, in use, in accordance with a
24 fifth embodiment of the present invention, in use.

25

26 Reference is initially made to Figure 1 of the drawings
27 which illustrates an apparatus in accordance with a first
28 embodiment of the present invention. The apparatus of
29 Figure 1 is a toothbrush, generally indicated by

1 reference numeral 10. Toothbrush 10 comprises a head 12
2 which is a moveable portion and a handle 14 attached
3 thereto. Located on the handle 14 is a positional guiding
4 aid 16 as will be described hereinafter. Toothbrush 10 is
5 a standard angled head toothbrush except for the aid 16.
6 Thus the longitudinal axis 18 of the head 12 is offset
7 from the longitudinal axis 22 of the shaft 20 of the
8 handle 14. The head 12 has a working section 24 formed by
9 the surface of the bristles 26.

10

11 Handle 14 comprises a shaft 20 connected to the moveable
12 portion 12. Shaft 20 has four planar surfaces 28a-d
13 arranged around the longitudinal axis 22. Extending from
14 the upper surface 28a of the shaft 20 is a positional
15 guiding aid 16. Aid 16 appears as a protuberance or
16 swelling from the handle 14. The aid 16 has an upper
17 surface 30 and a lower surface (not shown) which are
18 parts of a single continuous surface of the aid 16. The
19 aid 16 is therefore made of a material capable of taking
20 on a smoothed or polished surface such as a plastic or
21 polished wood. The aid 16 is offset from the longitudinal
22 axis 22 of the shaft 20. The off-set is provided by
23 virtue of positioning the aid on a first axis 32 which is
24 on the same plane as the surface 28a and displaced from
25 the longitudinal axis 22 by a displacement angle 34. In
26 this embodiment the displacement angle is around 15
27 degrees. On the upper surface 30 is a second axis 36
28 which is perpendicular to the first axis 32. The second
29 axis 36 extends across the upper surface 30. A

1 characteristic of the protuberance is that it is arranged
2 such that the second axis 36, and thus the surface 30
3 describes part of a double helix formed by the second
4 axis 36 rotating with respect to the first axis 32. Thus
5 viewed from above the upper surface 30 of the aid 16
6 effectively forms a right handed screw. The resultant
7 edge effect between the upper 30 and lower surfaces
8 improves stability and grip of a digit or thumb as it
9 travels over the protuberance. It should also be noted
10 that in this embodiment the working section 24 is planar
11 with the surface 28a.

12

13 In use, an individual will preferably fold their hand
14 around the handle 14. It is immaterial whether they use
15 their right or left hand. In the same way it will be
16 appreciated that the aid 16 could equally positioned on
17 the opposite side of the handle 14. The individual may
18 naturally place their thumb upon the upper surface 30
19 while their third and fourth digits rest at the point the
20 displacement angle 34 originates. Part of the handle 14
21 may also rest on the individual's palm. To manipulate
22 the bristles 26 against the teeth the user operates their
23 third and fourth digits in opposition to their thumb to
24 produce a lever which allows torque to be applied to the
25 handle 14 or aid 16. Applying torque to the aid 16 will
26 cause the toothbrush 10 to rotate in the individuals
27 hand. To ease comfort on the hand the user will tend to
28 move their thumb over the surface of the aid 16,
29 relocating it in a continuous action from the upper

1 surface 30 to the lower surface as the toothbrush 10 is
2 rotated. This entire action is achieved without the need
3 for the individual to rotate the wrist by any significant
4 amount. Good control can be achieved when the thumb is on
5 the lower surface as the surface provides an apparent lip
6 due to the fact that the width of the protuberance at the
7 second axis 36 is greater than the thickness of the
8 protuberance between the upper 30 and lower surfaces. The
9 entire motion and control of the toothbrush 10 is
10 achieved through relatively small loose movements of the
11 fingers and thumb as the handle 14 is gently balanced in
12 the hand. Thus there is no strain experienced by any part
13 of the individuals hand or wrist.

14

15 The toothbrush 10 also operates well if the individual
16 chooses to place a digit, for instance the first digit or
17 index finger, against the aid 16. In this configuration,
18 the third and fourth digits will rest at the origin of
19 the displacement angle 34 on the opposing surface 28c to
20 the top surface 28a of the handle 14. The thumb will
21 provide the balance point of a lever created between the
22 third/fourth digits and the first digit. The lever
23 provides rotation to the toothbrush 10 as before with the
24 first digit now continuously travelling over the surface
25 of the aid 16. This action is effected without strain to
26 the wrist.

27

28 Reference is now made to Figure 2(a) and (b) of the
29 drawings which illustrate an apparatus in accordance with

1 a second embodiment of the present invention. The
2 apparatus of Figure 2 is a rotary pizza cutter, generally
3 indicated by reference numeral 110. Like parts to those
4 of Figure 1 have been given the same reference numeral
5 with the addition of 100. This embodiment operates in an
6 identical fashion to the embodiment of Figure 1.

7

8 The embodiment of Figure 2 illustrates a hand held
9 utensil where the longitudinal axis 118 of the moveable
10 portion 112 is co-linear with the longitudinal axis 122
11 of the handle 114. Additionally the working section 124,
12 which in this case is the edge of the blade around the
13 rotary cutter, is offset from the planar surface 128a by
14 rotation of the head 112 with respect to the handle 114.
15 This offset is required as the cutter must be presented
16 to an article, i.e. a pizza base, with the blade
17 perpendicular to the article. Unlike the articles with
18 off-set heads of the prior art, International Patent
19 Application No. WO 97/44164, this apparatus 110 can
20 equally be used with the right or left hand and can also
21 be used with a finger placed on the aid 116 as opposed to
22 a thumb as required in the prior art. In fact, for this
23 embodiment where the apparatus does not require to be
24 rotated during use, leverage can most comfortably be
25 effected by resting the index finger on the upper surface
26 130 of the aid 116 as opposed to the thumb. Use of the
27 thumb is best achieved when the thumb is rested to the
28 edge 138 of the aid 116 between the upper 130 and lower
29 140 surfaces.

1 Turning now to Figures 3(a) and (b) of the drawings which
2 illustrate an apparatus in accordance with a preferred
3 embodiment of the present invention. The apparatus of
4 Figure 3 is a radial hairbrush, generally indicated by
5 reference numeral 210. Like parts to those of Figure 1
6 have been given the same reference numeral with the
7 addition of 200.

8

9 Hairbrush 210 comprises a head 212 of bristles 224
10 arranged radially and longitudinally to the axis 218, and
11 a handle 214 including a positional guiding aid 216. The
12 handle 214 is substantially circular in cross-section
13 having opposing planar faces 228a,b from a longitudinal
14 axis 222. The head 212 and handle 214 are co-linear. The
15 bristles 224 on the head 212 provide a cylindrical
16 working section 226 having 360 coverage around the
17 hairbrush 210. The positional guiding aid 216 has been
18 mounted on the handle 214 and thus unlike the second
19 embodiment the handle 214 has not been moulded to fit
20 with the protuberance of the aid 216. This illustrates
21 that an aid 216 may be incorporated onto practically any
22 handle. The aid 216, as described hereinbefore, is a
23 protuberance or swelling from the handle 214. The
24 protuberance is located at a displacement angle 234 with
25 respect to an axis 222 of the handle. The displacement
26 angle 234 is located at a position which reflects the
27 location at which the third and fourth digits will rest
28 on the handle 234. The profile of the aid is that of a
29 double helix formed from a perpendicular axis through the

1 aid rotating with respect to the axis 232 formed from the
2 projection at the displacement angle 234.
3
4 Figures 4(a) to (e) illustrate the radial hairbrush 210
5 in use. Referring initially to Figure 4(a), the user has
6 adopted a classic grip around the handle 214 of the brush
7 210 to grasp the shaft 220. The users hand 242 is wrapped
8 around the shaft 220 with the thumb 243 resting against
9 the upper surface of the positional guiding aid (not seen
10 in this Figure). The users second, third 244 and fourth
11 digits are held against the shaft 220 with the third
12 digit 244, the ring finger, having its pad against the
13 planar surface 228a of the shaft 220. The location of the
14 third digit 244 on the planar surface 228a defines the
15 position where the displacement angle 234 (not shown)
16 originates for the location of the positioning aid 216.
17 As individual's hand sizes vary the location of the third
18 digit 244 on the origin of the displacement angle 234 is
19 not crucial and most individuals will find a comfortable
20 position for themselves around this origin. This may of
21 course lead some individuals to rest a different digit at
22 this position, but typically a digit or a thumb will
23 naturally sit comfortably at this location. With the hand
24 242 shown in the position of Figure 4(a) a lever is set
25 up between the third digit 234 on the planar surface 228a
26 and the thumb 243 on the upper surface of the positional
27 guiding aid. The balance position of this lever is in the
28 palm of the users hand 242, most likely at the third
29 joint of the second digit. By actuating the lever the

1 user can pitch the angle of the brush in relation to the
2 object being brushed e.g. a head of hair. This assists
3 the user in presenting the brush 210 at the correct angle
4 to the hair, say, without adjustment of the wrist. Thus
5 while maintaining a light comfortable grip on the shaft
6 220 the user, by simply throwing the balance of the lever
7 with the thumb 243 and finger tip 244, can adjust the
8 tilt or pitch of the brush 212.

9

10 The head of the brush 212 comprises longitudinal equally
11 spaced rows of bristles. There are fourteen rows of
12 bristles in the brush 210. To aid the viewers
13 appreciation of the position of the bristles during
14 operation of the brush 210 a marker 246 has been attached
15 to the top of a single row of bristles. The marker 246 is
16 a radially mounted slip of paper. In Figure 4(a) the
17 marker 246 is seen to be located on a right hand side of
18 the brush 210.

19

20 Referring now to Figure 4(b) it can be seen that the user
21 has applied some torque to the lever at the position of
22 the third digit 244. This has caused the user to
23 reposition her grip by moving her thumb 243 across the
24 upper surface of the aid 216 towards the outer edge of
25 the aid 216. No effective movement of the users wrist has
26 been made, but the marker 246 illustrates that the
27 working section 224 of the brush has rotated through
28 approximately 60 degrees.

29

1 Further application of torque through minimal pressure of
2 the third digit 224 on the planar surface 228a causes the
3 brush 210 to rotate further. This is shown in Figure
4 4(c). The thumb is now located over the edge of the aid
5 towards the lower surface of the aid. Repositioning of
6 the thumb has been achieved as a continuous action by
7 sliding the thumb over the continuous surface of the aid
8 216 in a controlled and natural manner. Again note that
9 the wrist has not been used to effect this movement and
10 is perfectly relaxed in posture.

11

12 Figure 4(d) shows the rotation achieved by the marker 246
13 when a little further controlled light pressure is
14 applied by the third digit 244 against the planar surface
15 228a. The thumb 243 is now located on the lower surface
16 of the aid 216. At this stage light pressure can be
17 applied by the thumb 243 to assist in the rotation.
18 Again note that the wrist has not been used to effect
19 this movement and is perfectly relaxed in posture.

20

21 The furthest extension of the thumb 243 without use of
22 the wrist is demonstrated in Figure 4(e). This
23 illustrates the maximum rotation achieved by the working
24 section 224 via the marker 246. In comparison to Figure
25 4(a) it can be seen that the marker has been rotated
26 through at least 180 degrees. Thus by placing a
27 positional guiding aid onto a radial hairbrush an
28 extraordinary increase in effective working area (section
29 244) can be used so increasing the sweep available to the

1 user as they brush their hair. In contrast prior art
2 radial brushes gripped and used by rotation of the wrist
3 typically provide a rotation limited to 45 degrees.

4

5 This advantage of increased rotation and dexterity in
6 manipulation of the brush 210 can be seen with any hand
7 held article where a 360 degree working section is
8 provided on the article and the head of the article is
9 co-linear with the handle on which the aid is mounted or
10 incorporated. Examples of such articles include pens,
11 pencils, balloon whisks, awls, walking sticks and ski
12 poles. However it will be appreciated that a large range
13 of articles exist to which the positional guiding aid
14 could be incorporated to assist a user in the manner
15 described with reference to Figures 4(a) to (e). As with
16 the other embodiments described hereinbefore, the radial
17 brush can be as effectively operated with the left or
18 right hand and by a grip which uses a different
19 arrangement of digits and/or thumb to provide the lever.

20

21 The invention is not limited to apparatus having a single
22 handle and this is illustrated in Figure 5. Dual handles
23 314a,b are shown in Figure 5 attached to an article (not
24 shown) 310 in accordance with a fourth embodiment of the
25 present invention. Like parts to those of Figure 1 have
26 been given the same reference numeral with the addition
27 of 300. Parts relating to each handle are suffixed 'a'
28 and 'b' as appropriate.

29

1 The handles 314a,b are arranged to be attached to a
2 child's pushchair and thus point away from the body of
3 the user. The positional guiding aids 316a,b are located
4 at the distal ends of the handles 314a,b and are shown as
5 inwardly facing. The aids could equally be mounted on the
6 outside edges of the handles 314a,b. In this embodiment
7 the longitudinal axis of the article 318 is substantially
8 vertical and at an acute angle to the longitudinal axis
9 322 of the handle. The positioning of the aid 316 on the
10 handle is still on a displaced angle and has a surface on
11 a double helix as described hereinbefore with reference
12 to the earlier embodiments. The planar surface 328
13 against which the third and fourth digits rest to provide
14 one end of the lever is now located to one side of the
15 handle to provide a more comfortable position for the
16 hands during use.

17

18 This is particularly important as apparatus incorporating
19 dual handles is commonly used for long periods of time.
20 The positional guiding aids 316a,b on this article allow
21 a user to control the pushchair through small grip
22 changes in relation to the thumb positioned over the
23 surface of the aids 316a,b. Steering of the pushchair
24 becomes easier as does tilting the pushchair to raise the
25 back or front wheels to overcome obstacles such as curbs.

26

27 The arrangement of handles shown in Figure 5 could be
28 used on other articles such as wheelchairs, prams,
29 lawnmowers and shopping trolleys.

1 Finally reference is made to Figure 6 of the drawings
2 which illustrates a writing instrument including a
3 positional guiding aid according to a fifth embodiment of
4 the present invention. The writing instrument is a pen,
5 generally indicated by reference numeral 410. Like parts
6 to those of Figure 1 have been given the same reference
7 numeral with the addition of 400. A users hand 442 has
8 been outlined on the Figure to illustrate the grip
9 adopted when using the pen 410.

10

11 Pen 410 has a shaft 420 leading to a point 424, the
12 working section, which contacts the paper or other
13 material to be written on. The shaft 420 and point 424
14 are co-linear on the longitudinal axis 422 of the handle
15 414. As with the radial hairbrush, the working section
16 424 of the pen 410 is 360 degrees around the longitudinal
17 axis 422 and additionally the point can be used on this
18 axis 422 also. The shape of the handle 414 is immaterial
19 although as described hereinbefore a triangular cross-
20 section may assist in gripping the pen. As described
21 hereinbefore, a positional guiding aid 416 is mounted on
22 the shaft towards the working section 424. In this
23 embodiment the origin of the displacement angle 434 is
24 close to the working section 424 and as a result the
25 displacement angle will be approximately 45 degrees. This
26 provides an aid 416 with a distinct swelling and strongly
27 pitched surface for the double helix arrangement. The
28 lever is now established via the first digit 444 resting
29 at a point close to or on the origin of the displacement

1 angle 434 and the thumb positioned on the surface of the
2 aid 416. Balance is achieved via the second digit resting
3 under the pen in the view shown. Additionally the handle
4 414 rests on the side of the palm. Balance is best
5 achieved if a planar surface is located at the second
6 digit and for a triangular handle this would also
7 preferentially provide a planar surface resting against
8 the palm.

9

10 Pressure applied by the first digit 444 provides the
11 contact of the point 424 with the surface of the paper
12 being written on while movement of the thumb 443 over the
13 surface of the aid 416 provides additional control in
14 writing over that which would be experienced using a
15 standard grip on a pen without an aid 416 attached.

16

17 A further feature of the positional guiding aid 416 for
18 use on a pen 410 is that it may be moulded into a rubber
19 sleeve which can then be located on a standard pen or
20 pencil. Currently pens are manufactured with rubber
21 sleeves to assist in gripping the pen during use, but
22 these offer no rotational control in use as opposed to
23 the positional guiding aid.

24

25 The principal advantage of the present invention is that
26 it provides a positional guiding aid which allows a user
27 to continuously adjust their grip and so provide
28 increased manipulation of apparatus to which the aid is
29 incorporated without wrist movement.

1 Additionally as the user can place any finger or thumb at
2 any location on the surface of the protuberance of the
3 aid there is no handedness to the protuberance and thus
4 apparatus including the aid may equally be used by a
5 right handed or left handed individual. For this reason
6 also the aid may be mounted on either side of a handle
7 making it more adaptable for incorporation on a handle.

8

9 A further advantage of the present invention is that by
10 displacement of the protuberance of the aid from the
11 longitudinal axis of a handle to which it is attached,
12 the aid provides increased leverage for the user and
13 hence increased manipulation in the form of pitch and
14 rotation of the apparatus to which the handle is
15 attached. This advantage is particularly seen for
16 apparatus having a radial working section and where the
17 moving portion is co-linear with the shaft of the handle
18 e.g. radial hairbrush.

19

20 It will be appreciated by those skilled in the art that
21 various modifications may be made to the present
22 invention without departing from the scope there of. In
23 particular a wider variety of apparatus may be adapted to
24 incorporate the positional guiding aid. For example a
25 part radial hairbrush could be made wherein the bristles
26 extend over an area equal to the rotation experienced
27 using the positional guiding aid.

28

29

1 **CLAIMS:**

2

3 1. A positional guiding aid for incorporation on a
4 handle of an apparatus, the aid comprising a
5 substantially rounded protuberance, the protuberance
6 including an upper surface and a lower surface being
7 parts of a single continuous surface over the
8 protuberance, the upper surface including a first
9 axis located thereon at a displacement angle from a
10 longitudinal axis of the handle, the first axis
11 being perpendicular to a second axis also located on
12 the upper surface, and the upper surface arranged on
13 a portion of a double helix defined by rotation of
14 the second axis around the first axis.

15

16 2. A positional guiding aid as claimed in Claim 1
17 wherein a width of the protuberance defined by a
18 length of the second axis on the upper surface is
19 greater than a thickness of the protuberance defined
20 as a distance between the upper and lower surfaces.

21

22 3. A positional guiding aid as claimed in Claim 1 or
23 Claim 2 wherein the lower surface is arranged
24 parallel to the upper surface.

25

26 4. A positional guiding aid as claimed in any preceding
27 Claim wherein the displacement angle is an acute
28 angle.

29

- 1 5. A positional guiding aid as claimed in Claim 4
2 wherein the displacement angle is in the range 5 to
3 45 degrees.
4
- 5 6. A positional guiding aid as claimed in Claim 4
6 wherein the displacement angle is derived by an
7 inverse relationship to the distance between the
8 point of intersection of the first axis and the
9 longitudinal axis, and the point of intersection of
10 the first and second axis.
11
- 12 7. A handle for use on hand controlled apparatus, the
13 handle including a positional guiding aid according
14 to any one of Claims 1 to 6.
15
- 16 8. A handle as claimed in Claim 7 wherein the handle
17 comprises a shaft on the longitudinal axis.
18
- 19 9. A handle as claimed in Claim 8 wherein the shaft
20 includes a substantially planar surface parallel to
21 the longitudinal axis.
22
- 23 10. A handle as claimed in Claim 9 wherein the planar
24 surface is arranged such that the point of
25 intersection between the first axis and the
26 longitudinal axis where the displacement angle is
27 formed lies thereon.
28
29

- 1 11. A handle as claimed in any one of Claims 8 to 10
2 wherein the shaft includes a plurality of
3 substantially planar surfaces parallel to the
4 longitudinal axis.
5
- 6 12. A handle as claimed in Claim 11 wherein the shaft
7 includes three substantially planar surfaces
8 parallel to the longitudinal axis.
9
- 10 13. A hand controlled apparatus, the apparatus
11 comprising a moveable portion and at least one
12 handle to effect movement of the moveable portion,
13 wherein the at least one handle is according to any
14 one of Claims 7 to 12.
15
- 16 14. A hand controlled apparatus as claimed in Claim 13
17 wherein the apparatus has one handle.
18
- 19 15. A hand controlled apparatus as claimed in Claim 13
20 wherein the apparatus includes two handles.
21
- 22 16. A hand controlled apparatus as claimed in any one of
23 Claims 13 to 15 wherein the moveable portion
24 includes at least one longitudinal axis located
25 adjacent an attachment point to the at least one
26 handle.
27
- 28 17. A hand controlled apparatus as claimed in Claim 16
29 wherein the at least one longitudinal axis of the

1 moveable portion is co-linear with the longitudinal
2 axis of the at least one handle.

3

4 18. A hand controlled apparatus as claimed in Claim 16
5 wherein the at least one longitudinal axis of the
6 moveable portion is offset with respect to the
7 longitudinal axis of the handle.

8

9 19. A hand controlled apparatus as claimed in any one of
10 Claims 13 to 18 wherein the moveable portion
11 includes a working section, the working section
12 being defined as that part of the moveable portion
13 which requires to be manipulated by the user.

14

15 20. A hand controlled apparatus as claimed in Claim 19
16 wherein the working section is a surface of the
17 moveable portion.

18

19 21. A hand controlled apparatus as claimed in Claim 20
20 wherein the working section is on a plane parallel
21 to the longitudinal axis of the moveable portion and
22 the moveable portion is attached to the handle such
23 that the plane of the working section is rotated on
24 the longitudinal axes so that the plane of the
25 working section is non co-planar with the
26 substantially planar surface of the shaft of the
27 handle.

28

29

1 22. A hand controlled apparatus as claimed in Claim 21
2 wherein the plane of the working section is on a
3 plane parallel to the plane created by the first and
4 second axis.

5

6 23. A hand controlled apparatus as claimed in any one of
7 Claims 19 to 22 wherein the working section which is
8 operational to a user over a majority of a 360
9 degrees rotation of the handle.

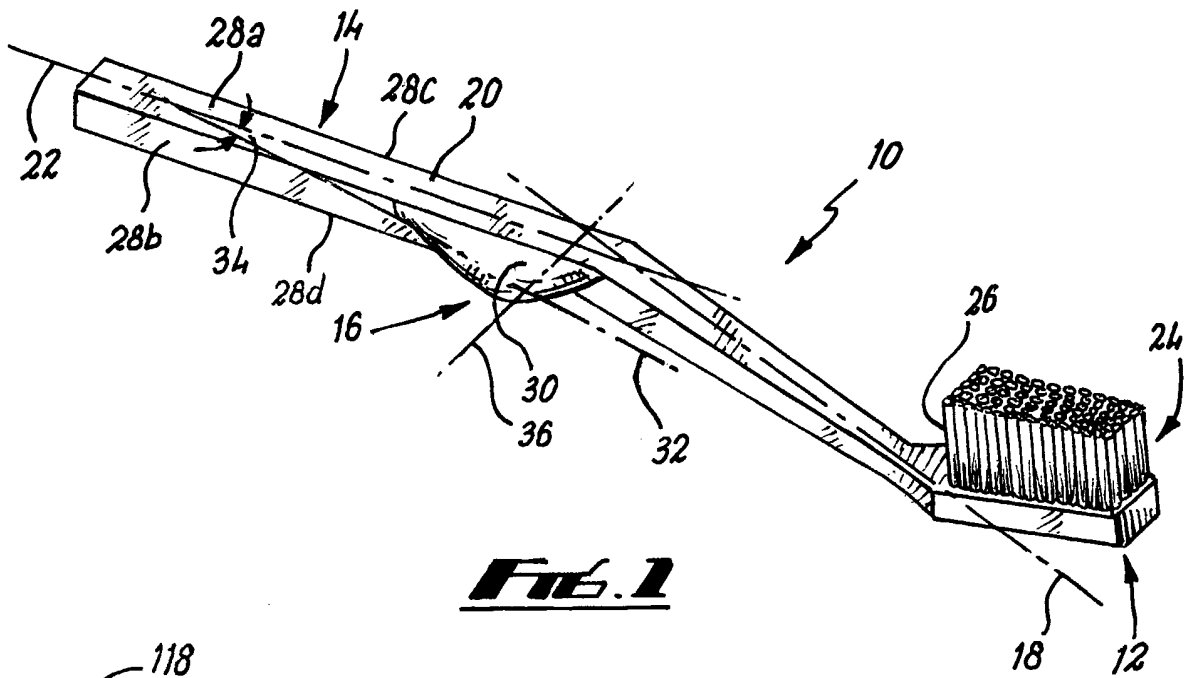


FIG. 1

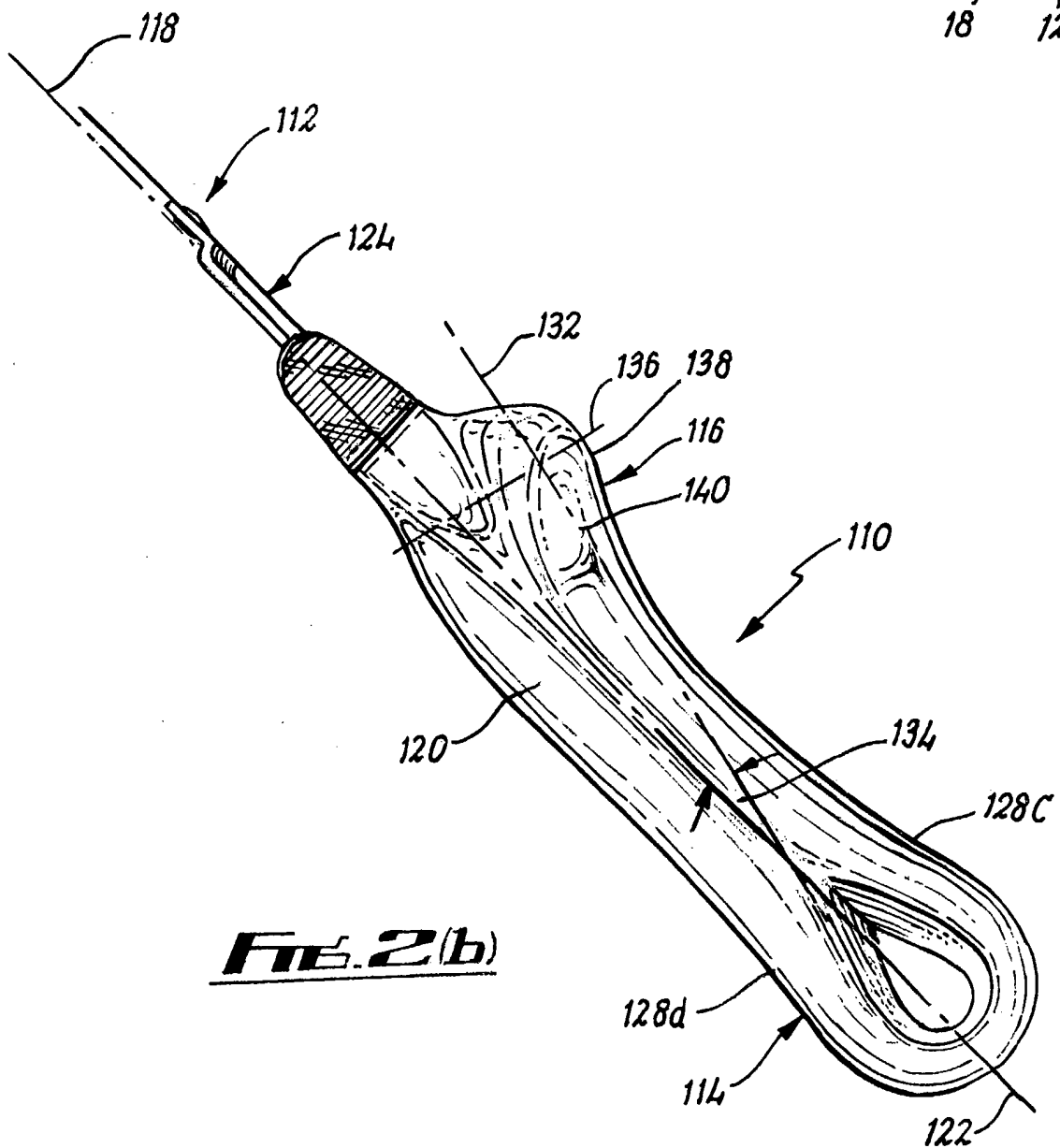
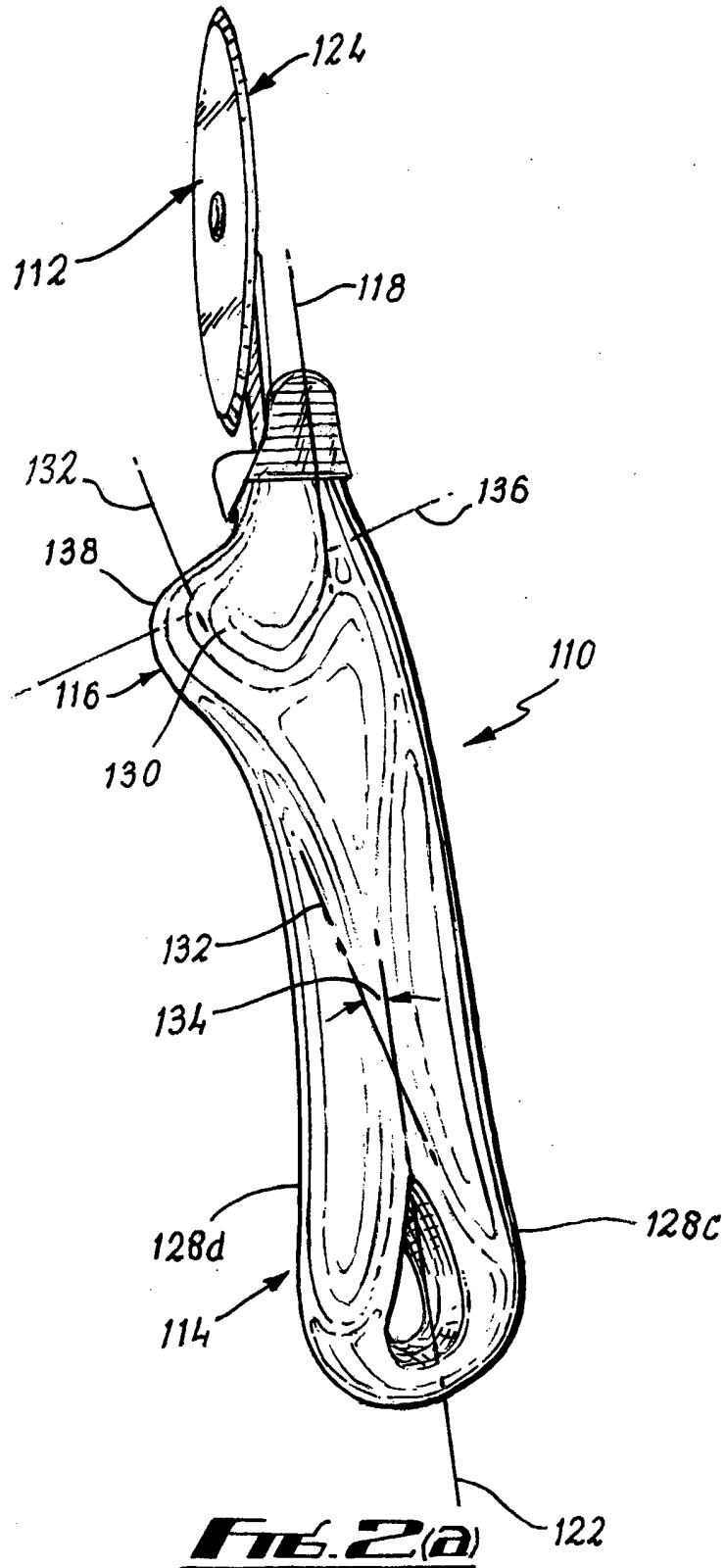


FIG. 2(b)



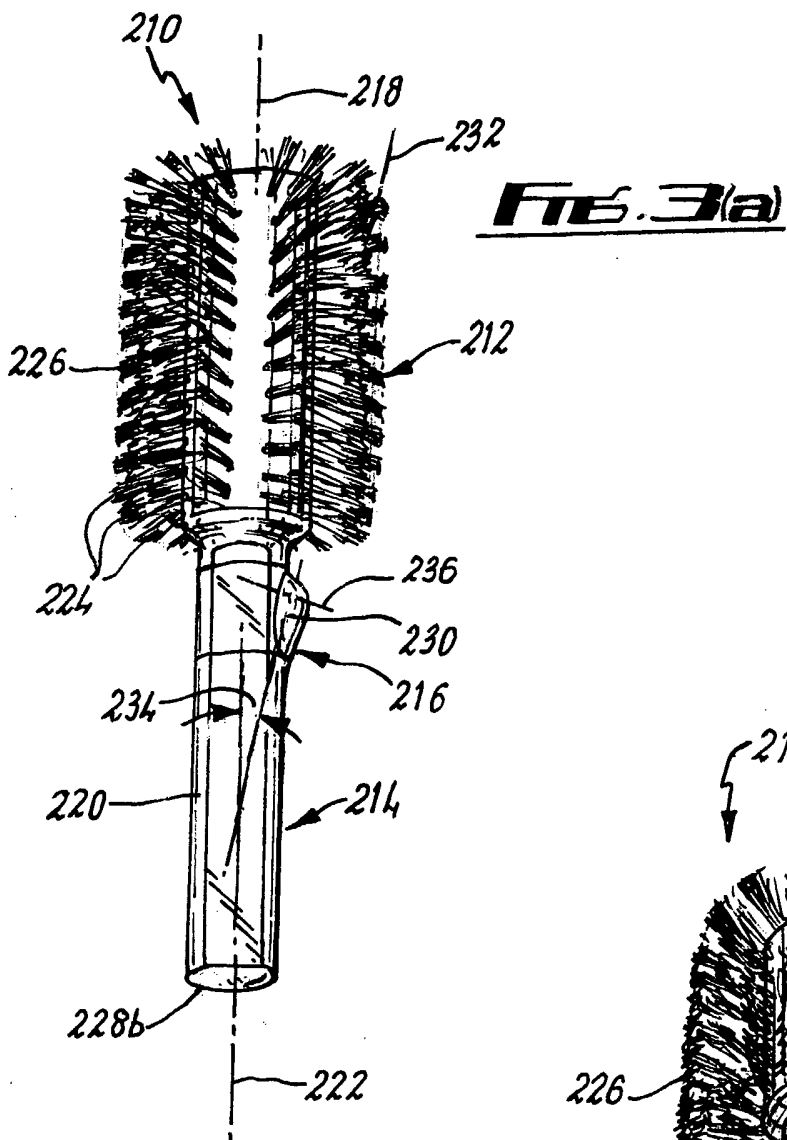


FIG. 3(a)

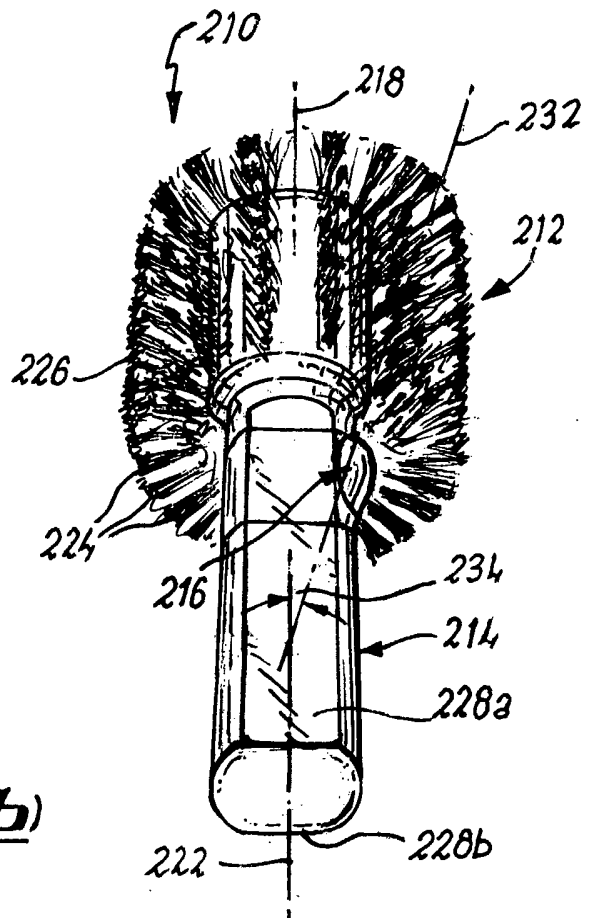


FIG. 3(b)

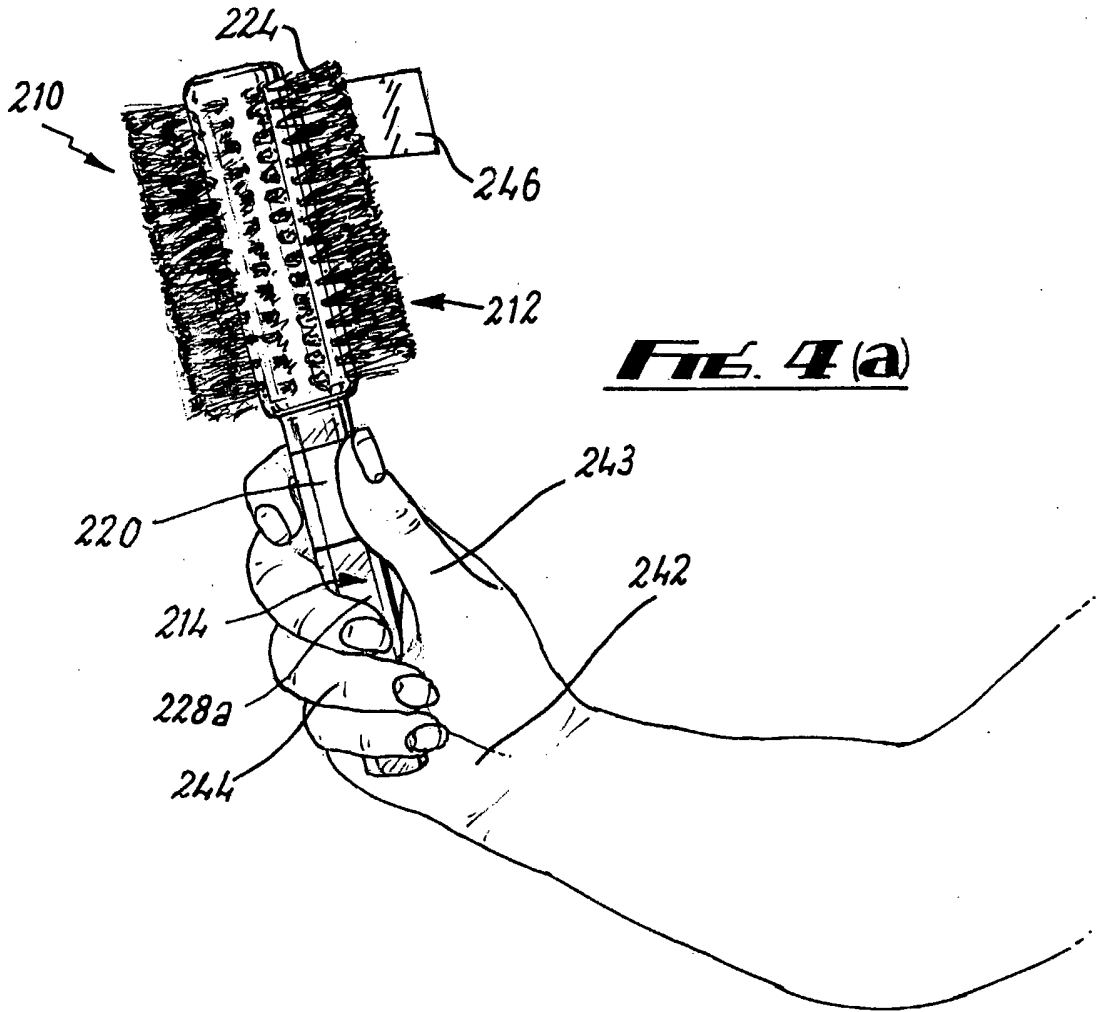


FIG. 4(a)

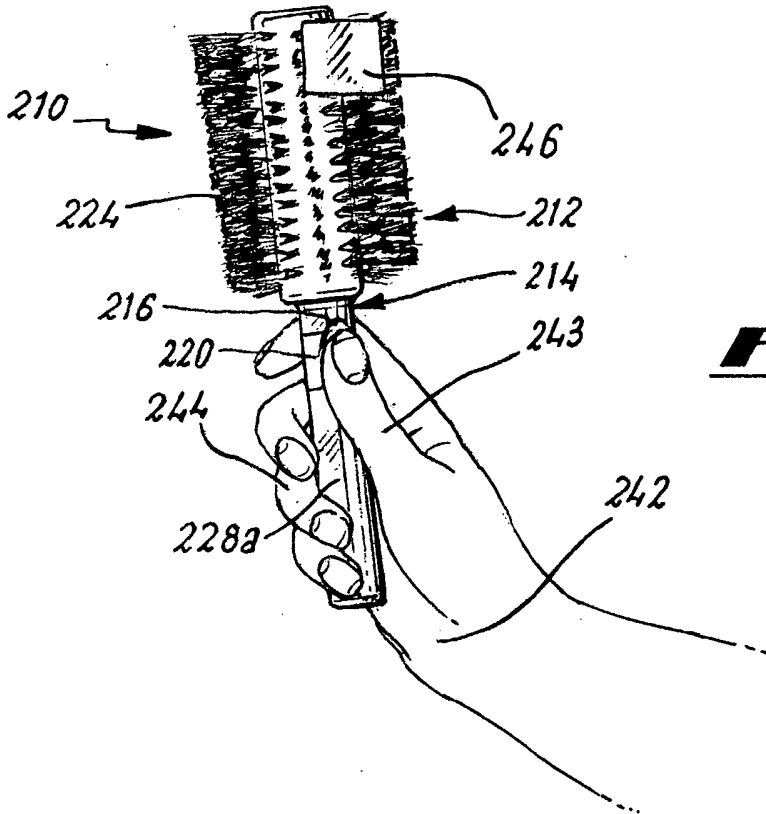


FIG. 4(b)

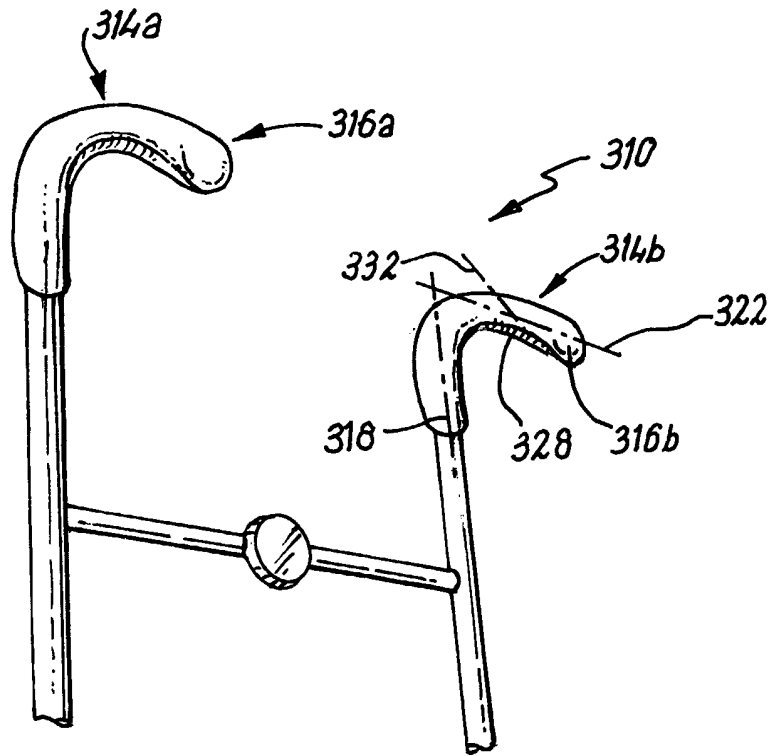


Fig. 5

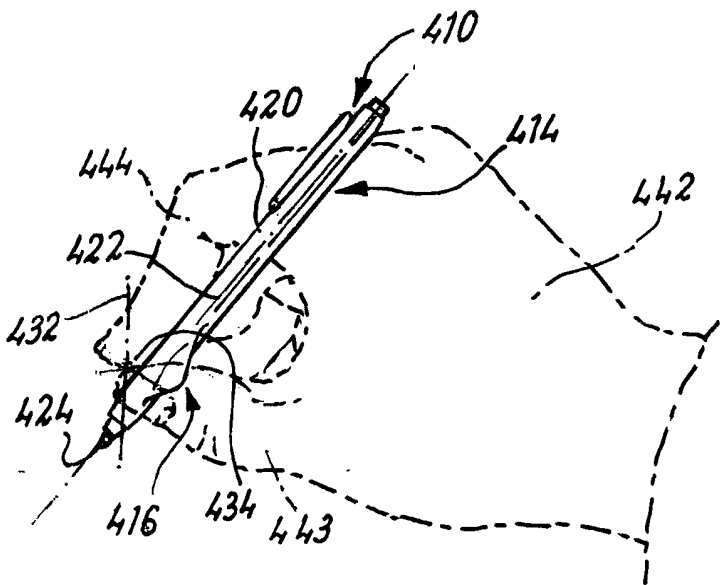


Fig. 6

INTERNATIONAL SEARCH REPORT

 In national Application No
 PCT/GB 02/03188

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A46B5/02 B25G1/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 A46B B25G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	CH 266 062 A (PHILLIPS DOROTHY ELLEN) 15 January 1950 (1950-01-15) the whole document	1-23
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 Further documents are listed in the continuation of box C.

 Patent family members are listed in annex.

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Date of the actual completion of the international search

7 November 2002

Date of mailing of the international search report

15/11/2002

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INTERNATIONAL SEARCH REPORT

In national Application No
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