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(54) Dental flossing apparatus

(57) The apparatus comprises a housing 1 with a supply 5 of dental floss 6 mounted therein, an integral flossing head 1b defining spaced first and second floss guide means and locking means 7 for locking the floss to the housing so as to lie between the guide means. The locking means is a single device which locks first and second strands of floss respectively passing from the supply to the first guide means and exiting the second guide means and is formed as a hollow post 12 and a shaft 13 slidably mounted therein. The post and shaft are formed with first and second pairs of apertures 12a, 12b and 13a, 13b which receive the first and second strands of floss in a first aligned position, the shaft then being movable to a second position in which said pairs of apertures are out of alignment with the strands jammed between the shaft and post.

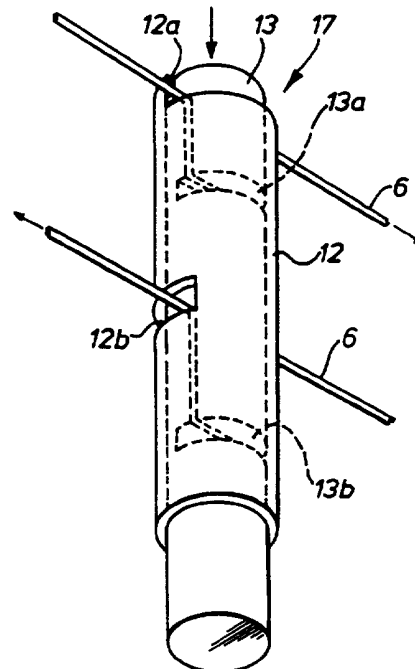
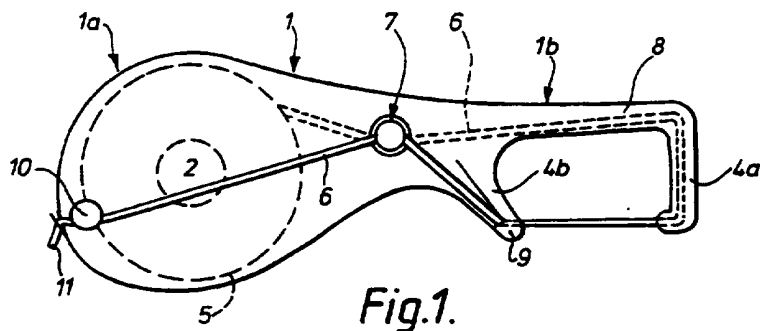


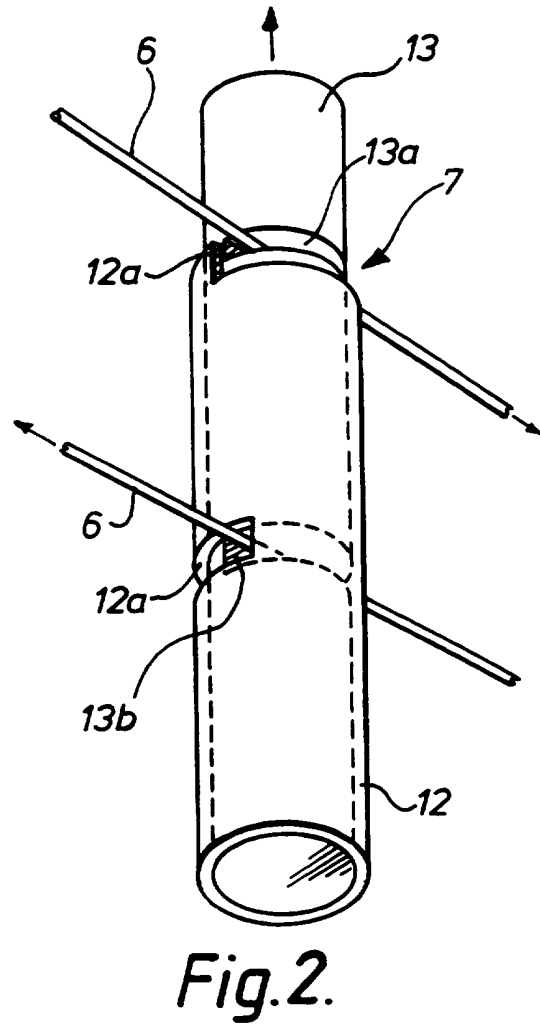
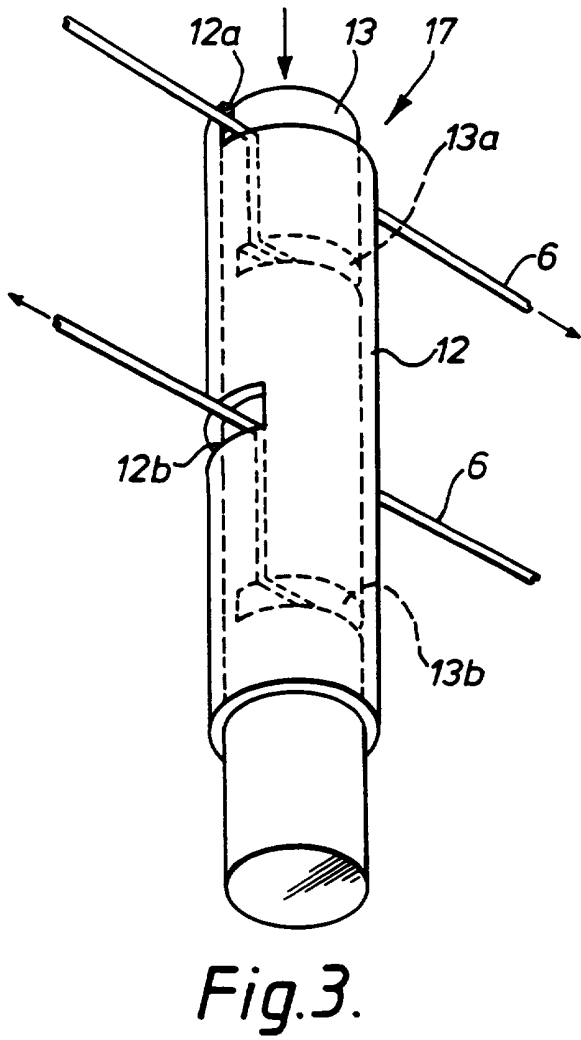
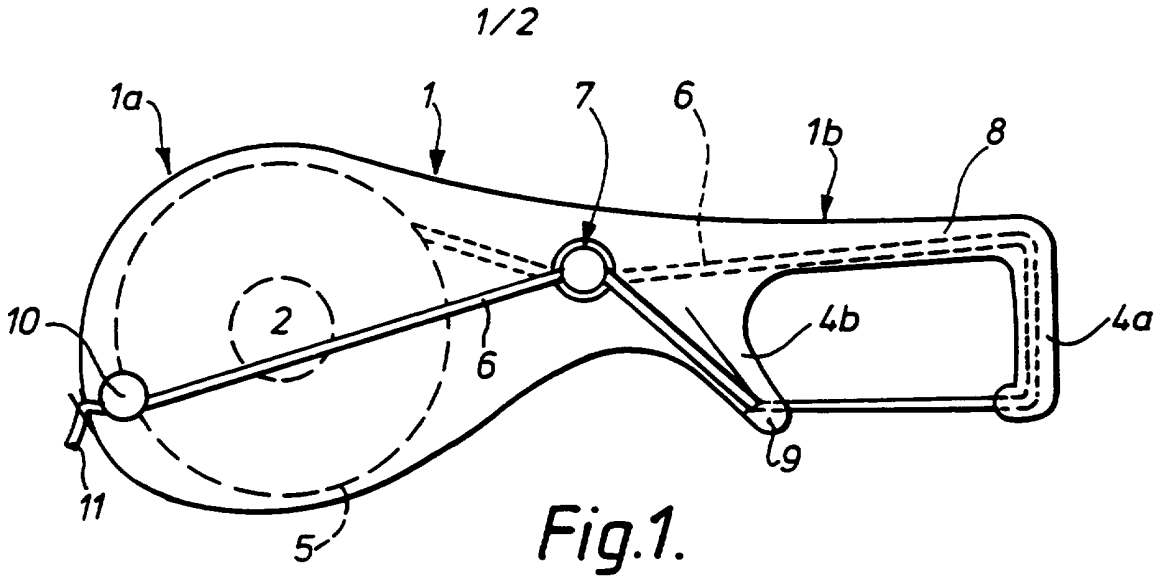
Fig.1.

Fig.3.

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995



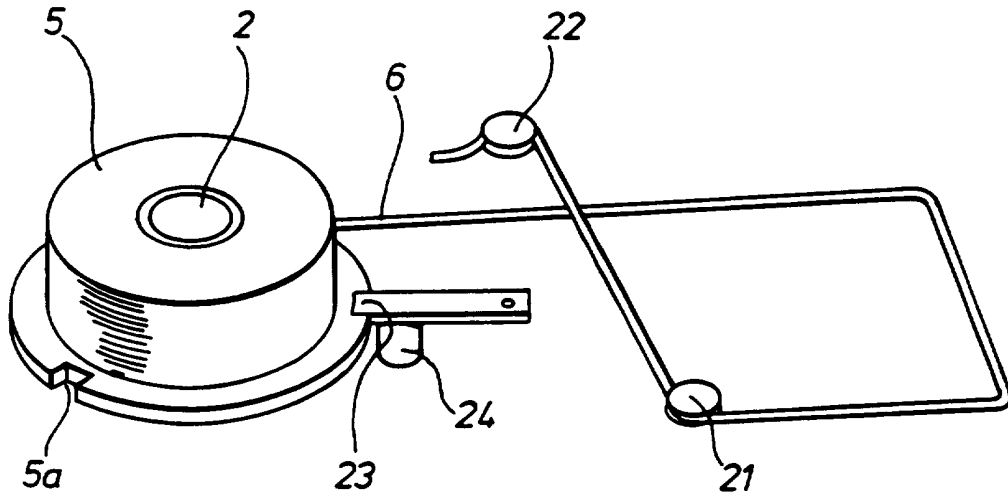


Fig. 4.

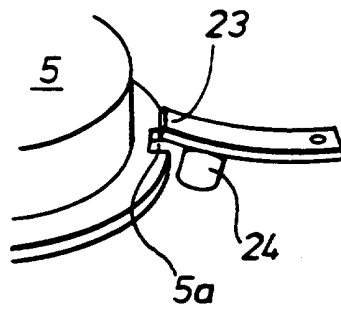


Fig. 5.

FLOSSING APPARATUS

This invention relates to apparatus for flossing between teeth.

Dental floss is a tape (usually waxed) which is used
5 to clean between the teeth. Usually, this is accomplished
by taking a length of the floss, wrapping portions of the
floss around respective fingers of the two hands of the
user, inserting the floss between the two fingers into the
gap between an adjacent pair of teeth, and then cleaning
10 between the teeth by moving the floss backwards and
forwards, thereby removing plaque and any scraps of food
which have stuck between the teeth.

A known type of flossing apparatus has a Y-shaped
support member holding a length of flossing tape between
15 the free ends of the arms of the Y. This apparatus is
disposable, and should be thrown away after a few flossing
operations. Not only does this apparatus constitute a
relatively expensive way of flossing, but it is also
unhygienic as plaque and scraps of food stick to the
20 flossing tape which is subsequently used for further
flossing operations.

The present invention provides flossing apparatus
comprising a housing, a supply of dental floss mounted
within the housing, a flossing head associated with the
25 housing, the flossing head defining first and second
spaced-apart floss guide means, and locking means for
locking the floss to the housing so as to lie between the
first and second guide means.

Preferably, the locking means is such as to lock the floss to the housing so as to lie in a taut configuration between the first and second guide means.

Advantageously, the flossing head is integral with the housing. Preferably, the housing/flossing head are formed in one piece by moulding a thermoplastics material such as polyethylene or polyvinylchloride.

The flossing head may be generally C-shaped having a base and a pair of arms, the arms constituting the first and second guide means. Advantageously, the free ends of the arms are spaced apart by between 1 cm and 3 cm, and preferably by about 2 cm. The free ends of the arms may be spaced from the base of the C-shaped flossing head by between 1.25 cm and 2.5 cm.

In a preferred embodiment, the locking means is constituted by a hollow post associated with the housing, and by a shaft slidably mounted within the post, the post and the shaft being formed with first and second pairs of apertures, the apertures of the first pair being arranged to receive a first strand of floss, which passes from the supply to the first guide means of the flossing head, when the shaft is in a first operating position and the apertures of the first pair are aligned, the apertures of the second pair being arranged to receive a second strand of floss, which exits the second guide means of the flossing head, when the shaft is in the first operating position and the apertures of the second pair are aligned, the shaft being movable to a second operating position in

which the first and second pairs of apertures are out of alignment and the first and second strands of floss are jammed between the shaft and the post. Preferably, the hollow post is formed integrally with the housing.

5 One form of flossing apparatus constructed in accordance with the invention will now be described in greater detail, by way of example, with reference to the accompanying drawings, in which:-

- 10 FIG. 1 is a schematic plan view of the apparatus;
- FIG. 2 is a perspective view of a first form of locking device of the apparatus, the locking device being shown in the unlocked position;
- FIG. 3 is a view similar to that of Fig. 2, but showing the locking device in the locked position;
- 15 FIGS. 4 and 5 are perspective views showing a second form of locking device.

Referring to the drawings, Fig. 1 shows flossing apparatus having a hollow housing 1, formed with a hollow spigot 2 within a main body portion 1a. The housing 1 is formed with a generally L-shaped flossing head 1b. The flossing head 1b has a pair of hollow arms 4a and 4b, the free ends of which are spaced apart by about 2 cm. The housing 1 is made (preferably by moulding) of a thermoplastics material such as polyvinylchloride.

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A spool 5 of dental floss 6 is rotatably mounted around the spigot 2 within the main body portion 1a of the housing 1. The free end of the floss 6 is fed to the

flossing head 1b via a locking device, indicated generally by the reference numeral 7. The floss 6 then passes around the base 8 of the flossing head, along the arm 4a and then through a groove 9 formed in the free end of the other arm 4b. The floss 6 then passes through the locking device 7, a holding stud 10, and terminates at a blade 11 formed at the end of the housing 1.

As shown in Figs. 2 and 3, the locking device 7 is constituted by a hollow post 12 and a shaft 13. The post 12 is fixed within, or formed integrally with, the housing 1 in the region where the main body portion 1a merges with the flossing head 1b. The shaft 13 is a sliding fit within the post 12, and is movable between an unlocked position (see Fig. 2), in which the upper end of the shaft extends upwardly beyond the upper end of the post, and a locked position (see Fig. 3), in which the lower end of the shaft extends downwardly beyond the lower end of the post. The post 12 is formed with a cut-out 12a at its upper (as shown in Figs. 1 to 3) end, and with a slot 12b axially-spaced from the cut out. The cut-out 12a and the slot 12b extend slightly beyond the centre of the post 12 from diametrically-opposed positions. The shaft 13 is formed with a pair of axially-spaced slots 13a and 13b which extend slightly beyond the centre of the shaft. The slots 13a and 13b are spaced apart by the same distance (8 mm) as the spacing between the cut-out 12a and the slot 12b. The slots 13a and 13b extend from diametrically-opposed positions. In the unlocked position, the cut-out 12a and

the slot 12b are aligned with the slots 13a and 13b; whereas, in the locked position they are out of alignment.

The housing 1 is a sealed unit, the sealing being effected after the spool 5 is positioned around the spigot 2, and the free end of the floss 6 has been threaded through flossing head 1b and out of the arm 4a. This form of flossing apparatus is, therefore, a throw-away unit which is discarded once all the floss 6 has been used up. Alternatively, the housing 1 could be formed with a detachable lid, in which case a spent spool of floss could be replaced by a new spool.

In use, with the shaft 13 in the unlocked position, the floss 6 is positioned in the groove defined by the cut-out 12a and the aligned slot 13a. The free end of the floss 6 is then pulled through the groove 9 in the free end of the arm 4b, and around the locking device 7 and the stud 10. As it passes round the locking device 7, the floss is positioned in the groove defined by the aligned slots 12b and 13b. With the floss 6 taut across the gap between the free ends of the arms 4a and 4b, the shaft 13 is pushed upwards, thereby jamming the floss 6 between the outer wall of the shaft 13 and the inner wall of the post 12 (as shown by the dotted lines 6a in Fig. 3). The floss 6 is then locked tautly between the free ends of the arms 4a and 4b, so that the apparatus can easily be used to floss between one's teeth using only one hand.

After a flossing operation, the locking device 7 is released by pushing the shaft 13 downwards to align the

cut-out 12a and the slot 12b with the slots 13a and 13b. The floss 6 can then be pulled from its free end to position a clean length of floss between the free ends of the arms 4a and 4b. After re-activating the locking device 5 7, the apparatus is ready for carrying out further flossing. Used lengths of floss 6 are removed by rubbing the free end of the floss beyond the stud 10 against the blade 11.

The apparatus described above is, therefore, easy to 10 use. Moreover, as used floss can be readily removed, it is hygienic. The apparatus is also cheap to manufacture - particularly in the form which uses replaceable spools of floss.

Figs. 4 and 5 show schematically a different form of 15 locking device. Here, the floss 6 passes around a pair of grooved studs 21 and 22 which constitute a lock for the free end position of the floss. The spool 5 is formed with a cut-out 5a, and spring-biassed stop member 23 is aligned with the circumferential edge of the spool. In the locked 20 position, the stop member 23 engages within the cut-out 5a, thereby preventing rotation of the spool 5, and so locking the spool end of the floss 6. In order to unlock this portion of the floss 6, the stop member 23 is moved out of the cut-out 5a, against the force of the spring, by means 25 of a button 24 which passes through an aperture (not shown) in the housing of the apparatus. In order to unlock the free end of the floss 6, it is released from engagement with the grooved studs 21 and 22. Once both locks are

released, the floss 6 can be advanced to position a fresh length of floss between the free ends of the arms 4a and 4b. With the floss 6 taut, the two locks are then re-engaged ready for flossing to take place.

CLAIMS:

1. Flossing apparatus comprising a housing, a supply of dental floss mounted within the housing, a flossing head associated with the housing, the flossing head defining
5 first and second spaced-apart floss guide means, and locking means for locking the floss to the housing so as to lie between the first and second guide means, wherein the locking means is constituted by a single locking device which locks first and second strands of floss, the first
10 strand passing from the supply to the first guide means, and the second strand exiting the second guide means.
2. Flossing apparatus as claimed in claim 1, wherein the locking device is such as to lock the floss to the housing so as to lie in a taut configuration between the
15 first and second guide means.
3. Flossing apparatus as claimed in claim 1 or claim 2, wherein the flossing head is integral with the housing.
4. Flossing apparatus as claimed in claim 3, wherein the housing/flossing head are formed in one piece by
20 moulding a thermoplastics material such as polyethylene or polyvinylchloride.
5. Flossing apparatus as claimed in any one of claims 1 to 4, wherein the flossing head is generally C-shaped having a base and a pair of arms, the arms constituting the
25 first and second guide means.
6. Flossing apparatus as claimed in claim 5, wherein

the free ends of the arms are spaced apart by between 1 cm and 3 cm.

7. Flossing apparatus as claimed in claim 6, wherein the free ends of the arms are spaced apart by about 2 cm.

5 8. Flossing apparatus as claimed in any one of claims 5 to 7, wherein the free ends of the arms are spaced from the base of the C-shaped flossing head by between 1.25 cm and 2.5 cm.

9. Flossing apparatus as claimed in any one of claims
10 1 to 8, wherein the locking device is constituted by a hollow post associated with the housing, and by a shaft slidably mounted within the post, the post and the shaft being formed with first and second pairs of apertures, the apertures of the first pair being arranged to receive the
15 first strand of floss when the shaft is in a first operating position and the apertures of the first pair are aligned, the apertures of the second pair being arranged to receive the second strand of floss when the shaft is in the first operating position and the apertures of the second
20 pair are aligned, the shaft being movable to a second operating position in which the first and second pairs of apertures are out of alignment and the first and second strands of floss are jammed between the shaft and the post.

10. Flossing apparatus as claimed in claim 9, wherein
25 the hollow post is formed integrally with the housing.

11. Flossing apparatus substantially as hereinbefore

described with reference to, and as illustrated by, the drawings.



Application No: GB 9507539.6
Claims searched: 1-11

Examiner: L.V.Thomas
Date of search: 4 July 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.O): A5R (RDQ1)
Int CI (Ed.6): A61C 15/04
Other: -

Documents considered to be relevant:

Table with 3 columns: Category, Identity of document and relevant passage, Relevant to claims. Rows include GB 2237203A, GB 2160106A, EP 0235518A1, EP 0128253A1, WO 91/07143A1, US 5301699, US 4738271, and US 3903907.

X Document indicating lack of novelty or inventive step
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