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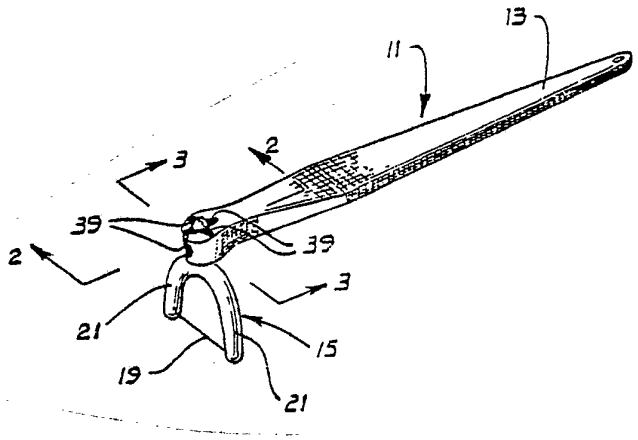

(57) Abstract

A dental floss holder (11) comprising a handle (13) and a floss head (15) coupled to the handle (13). The floss head (15) includes first and second legs (21) having spaced apart regions and terminating in spaced apart ends (25). A strand of dental floss (19) is molded into the floss head (15) and extends between the spaced apart regions of the legs (21). The floss head (15) can be integral with the handle (13) or removably mounted on the handle (13).

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DENTAL FLOSS HOLDER

BACKGROUND OF THE INVENTION

This application is a continuation-in-part of Application Serial No. 560,333 filed on December 12, 1983, and entitled, "Dental Floss Holder."

Dental floss can be used manually or with a dental floss holder, and there is an abundance of patents dealing with dental floss holders. Many of the dental floss holders include a floss head having a pair of legs across which the floss must be strung prior to using the dental floss holder. Floss holders of this type are shown, for example, in Zambito U.S. Patent Nos. 3,927,686 and 4,051,857. The mounting of the dental floss on the floss head typically cannot be accomplished with one hand, and therefore, floss heads of this type are unsuited for use by the handicapped.

Some floss heads are mounted on handles and are pivotable relative to the handle. Constructions of this type are shown in the two above-referenced patents. However, these constructions are relatively complex and tend to increase the cost of the floss holder.

SUMMARY OF THE INVENTION

This invention overcomes the disadvantages noted above and provides a floss holder which can be prepared for use and used with only one hand. Accordingly, the floss holder of this invention can readily be used by the physically handicapped.

With this invention, a strand of dental floss is molded into a floss head, and the floss head is disposable. Accordingly, the user need not mount the dental floss on the floss head.

The dental floss holder may also include a handle and means for coupling the handle to the floss head. The handle may be molded integrally with the floss head, in which event, the coupling means integrally joins them together. Alternatively, the coupling means may removably mount the floss head on the handle. In this event, the handle is reusable, and the floss head is disposable.

The floss head is sized for receipt into the oral cavity of a human and includes first and second legs having spaced apart regions. The legs terminate in spaced apart ends. The dental floss is molded into the floss head so that it extends between the spaced regions of the legs. The handle is coupled to the floss head at a location remote from the spaced apart ends of the legs. To strengthen the attachment between the dental floss and the floss head, each of the legs preferably has an end portion of greater cross-sectional area than regions of the legs contiguous to such end portions. The dental floss extends substantially completely through such enlarged end portions to provide a longer area of gripping contact between the floss head and the dental floss.

The coupling means for removably mounting the floss head can advantageously include a shaft on either the floss head or handle and a bore on the other of the floss head and handle for receiving the shaft. The coupling means also includes means for releasably retaining the shaft in the bore and preferably allowing rotation of the

floss head relative to the handle. For example, the releasable retaining means may include friction between the shaft and the wall of the bore, screw threads on the shaft and in the bore, or detent means. The detent and friction retention means allow for ease of insertion and withdrawal of a floss head and further facilitate use of the dental floss holder by the handicapped.

In one preferred construction, the detent means includes a spring-biased detent in the handle and a plurality of recesses in the shaft for releasably receiving the detent. This construction indexes the relative rotation of the handle and floss head. Preferably, the shaft extends completely through the bore so that the floss head can be removed by pushing downwardly on the exposed end of the shaft.

In a second preferred construction, the detent means includes a fixed detent on the handle and resilient means at least partially defining the bore for receiving the shaft of the floss head. The resilient means preferably includes first and second resilient arms on the handle which at least partially define the bore. In this embodiment, the detent may be integral with the handle.

Another feature of the invention is the use of cooperating means on the exterior of the handle and the exterior of the floss head for indexing the rotation of the floss head relative to the handle. Such cooperating means may include a plurality of recesses and a cooperating surface, and preferably the recesses are on the handle, and the cooperating surface is on the web of the floss head.

In several embodiments of the invention, the dental floss holder includes a member coupled to the web

and extending away from the web in a direction generally opposite to the legs. Such member may be a shaft for mounting the floss head on a handle or it may be a tab which can be manually manipulated to thereby serve as a short handle for the dental floss holder.

The invention, together with additional features and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying illustrative drawing.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is an isometric view of one form of dental floss holder constructed in accordance with the teachings of this invention.

Fig. 2 is an enlarged fragmentary sectional view taken generally along line 2-2 of Fig. 1.

Fig. 3 is a sectional view taken generally along line 3-3 of Fig. 1.

Fig. 3a is a greatly enlarged sectional view of a portion of Fig. 3.

Fig. 4 is an isometric view of a second form of dental floss holder constructed in accordance with the teachings of this invention.

Fig. 5 is a side elevational view of the dental floss holder of Fig. 4.

Fig. 5A is a fragmentary front elevational view of the dental floss holder of Fig. 4.

Fig. 6 is a plan view of a third form of dental floss holder constructed in accordance with the teachings of this invention with the floss head and handle being disassembled.

Fig. 7 is a side elevational view of the dental floss holder shown in Fig. 6.

Fig. 8 is a side elevational view of the dental floss holder of Fig. 6 in the assembled condition.

Fig. 9 is a perspective view of one form of mold in which the floss head and dental floss can be integrally molded.

Fig. 10 is a side elevational view of the mold.

Fig. 11 is a fragmentary, exploded isometric view illustrating another embodiment of the dental floss holder.

Fig. 12 is a bottom view partially in section of the dental floss holder of Fig. 11.

Fig. 13 is a view taken generally along line 13-13 of Fig. 12, with the floss head being shown in elevation.

Fig. 14 is a fragmentary view similar to Fig. 13 of another embodiment of the dental floss holder.

Fig. 15 is an isometric view of another embodiment of the dental floss holder of this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 shows a dental floss holder 11 which generally includes an elongated handle 13 constructed of a suitable rigid metal or plastic material, a floss head 15,

coupling means 17 (Fig. 2) for releasably coupling the floss head 15 to the handle 13, and dental floss 19 molded integrally with the dental floss holder 11. The floss head 15 is integrally molded from a suitable plastic material and comprises spaced apart legs 21 joined by a web 23. Although various configurations are possible, the legs 21 diverge slightly as they extend from the web 23 toward spaced apart ends 25. The ends 25 are preferably rounded to reduce the likelihood of injury to the gums. The legs 21 lie in the same plane, although they may lie in different planes, if desired.

The dental floss 19 may be a conventional dental floss and as such is of a material different from the material of the floss head 15. The dental floss 19 is appropriately retained within the mold for the floss head 15, as described more fully below, so that the dental floss is captured by the floss head 15 as a result of the molding process. Preferably, the strand of dental floss 19 extends between the legs 21 closely adjacent, e.g., .015 inch from, the ends 25 and is taut. By placing the floss 19 close to the ends 25, the ends 25 are less likely to harmfully contact the gums.

The coupling means 17 mounts the floss head 15 in a plane perpendicular to the handle 13 and includes a shaft 27 molded integrally with, and forming a portion of, the floss head 15 and a bore 29 formed in, and extending completely through, the handle 13 adjacent one end thereof. As shown in Figs. 2 and 3, the shaft 27 is received within the bore 29 and extends completely through it so that the free end of the shaft 27 projects above the surface of the

handle 13. The bore 29 receives the shaft 27 sufficiently loosely so that the shaft can rotate in the bore.

The coupling means 17 also includes detent means in the form of a detent 31 and a spring 33 receivable in an axial bore 35 of the handle 13 and a plurality of recesses 37 in the shaft. The bore 35 opens at one end of the handle 13, and the recesses 37 are arranged in a circle about the shaft 27. The detent 31, which may be in the form of a ball, is suitably retained against movement out through the open end of the bore 35 in a conventional manner as by appropriately crimping the handle at the intersection of the bores 29 and 35 if the handle is metal or providing the spring 33 and the detent 31 within an insert sleeve if the handle is plastic.

In the position shown in Figs. 1-3, the detent 31 is resiliently urged into one of the recesses 37 by the spring 33 to releasably retain the floss head 15 on the handle 13. The floss head 15 can be rotated about the axis of the bore 29 and the shaft 27 in a one-handed operation by pushing on one of the legs 21. Although the floss head 15 can be placed in any angular position relative to the handle 13, its rotation is indexed by the recesses 37 as they partially capture the detent 21.

To further provide for indexing of the rotation of the floss head 15, the handle includes exterior recesses 39 extending radially from the bore 29 on both faces of the handle. With the detent 31 seated in one of the recesses 37, an upper surface 41 of the web 23 seats within an aligned pair of the exterior recesses 39 as shown in Fig. 3a. This cooperation between the web 23 and the recesses 39 assists in retaining the floss head 15 in a selected

angular orientation. Of course, any suitable numbers of the recesses 37 and 39 can be provided; however, the number of the recesses 37 should equal the number of the recesses 39, and they should be equally angularly spaced.

The floss head 15 can be removed from the handle 13 in a one-handed operation by pushing on the free end of the shaft 27 or by pushing the web 23 away from the handle. Similarly, a new floss head 15 can be mounted on the handle 13 by pushing the handle 13 and, in particular, the bore 29 down over the top of the shaft 27. The floss head 15 can then be rotated slightly to seat the detent 31 in one of the recesses 37.

Figs. 4-5A show a dental floss holder 11a which is identical to the dental floss holder 11 in all respects not shown or described herein. Portions of the dental floss holder 11a corresponding to portions of the dental floss holder 11 are designated by corresponding reference numerals followed by the letter "a."

The dental floss holder 11a is identical to the dental floss holder 11, except that the coupling means 17a of the former integrally joins the floss head 15a to the handle 13a and the plane of the floss head 15a is not perpendicular to the handle 13a. More specifically, the dental floss holder 11a is integrally molded from plastic material, and the dental floss 19a is molded into the floss head 15a in the same manner as described above. The floss head 15a is rotated out of a plane perpendicular to the handle 13a by an angle "X" as shown in Fig. 5 to increase the included angle Y between the floss head and the handle. The angle "X" may be of any desired magnitude.

Figs. 6-8 show a dental floss holder 11b which is identical to the dental floss holder 11 in all respects not shown or described herein. Portions of the dental floss holder 11b corresponding to portions of the dental floss holder 11 are designated by corresponding reference numerals followed by the letter "b."

The dental floss holder 11a is integrally molded from a suitable plastic material so that the handle 13b is attached to the floss head 15b by a frangible runner 43. The handle 13b is essentially identical to the handle 13, except that the detent 31b is molded integrally with the handle and is, therefore, fixed or immovable with respect to the handle. In addition, the handle 13b does not have the exterior recesses 39, and the handle 13b has resilient arms 45 separated by a gap 47 to define a split or open bore 29.

The floss head 15b is essentially identical to the floss head 15, except for a flange 49 on the end of the shaft 27b remote from the web 23b. The runner 43 extends from one of the arms 45 to the flange 49.

To assemble the dental floss holder 11b, the shaft 27b is forced through the gap 47 to resiliently urge the arms 45 further apart so that the shaft can be snapped into the bore 29b. The detent 31b is received in a confronting one of the recesses 37b. The floss head 15 can be rotated, and this forces the recesses 37b away from the detent 31b, and the arms resiliently move away from each other to permit such movement to occur. Thus, with this embodiment, the resilience necessary for the detent is provided by the arms 45.

Figs. 9 and 10 show by way of example one way that the dental floss 19 can be molded integrally with the floss head 15. These figures show a mold 51 which comprises a stationary die 53, a movable die 55 and a part-rejecting plate 57. These components are mounted on guide rods 59 which enable the movable die 55 and the plate 57 to be moved toward and away from the stationary die 53.

The dies 53 and 55 have complementary faces 61 with a series of grooves 63 of a configuration corresponding to the desired configuration for the floss head 15. In addition, the die 55 has a runner channel 65 leading to each of the grooves 63 and the die 53 has a plastic injection port 67 which leads to the channel 65.

Two strands of dental floss 19 are stretched across the face 61 of the movable die 55 as shown in Fig. 9 so that the strands extend across the end portions of the grooves 63 as shown. The movable die 55 and the plate 57 can then be moved along the guide rods 59 to the closed position shown in Fig. 10. In the closed position, the grooves 63 cooperate to define a die cavity. A conventional injection molding process can then be carried out by injecting flowable plastic through the port 67 into the die cavity. After the plastic has cured, the mold 51 is opened, and the floss heads are removed and separated by removing the runner formed by the channel 65 and by cutting the strands of dental floss 19 joining adjacent floss heads.

Figs. 11-13 show a dental floss holder 11c which is identical to the dental floss holder 11 in all respects not shown or described herein. Portions of the dental floss holder 11c corresponding to portions of the dental

floss holder 11 are designated by corresponding reference numerals followed by the letter "c."

One difference between the dental floss holder 11c and the dental floss holder 11 is that the legs 21c of the floss head 15c have end portions 101 of enlarged cross-sectional area. Specifically, the end portions 101 are enlarged relative to regions of the legs 21c adjacent the end portions in the direction in which the dental floss 19c extends. This provides an increased area of contact between the floss head 15c and the dental floss 19c to provide a stronger attachment between the dental floss and the floss head as a result of molding the dental floss into the floss head. In the embodiment illustrated, the dental floss 19c extends substantially completely through the end portions 101. This enlarged end portion feature can be included in any of the embodiments of the invention.

Other differences between the dental floss holder 11c and the dental floss holder 11 are that the shaft 27c forms a friction fit with the wall of the bore 29c, the shaft 27c does not project through and beyond the bore 29c, and the detent 31 and the associated structure of the dental floss holder 11 are eliminated from the dental floss holder 11c. With this construction, the force of friction between the shaft 27c and the wall of the bore 29c cooperate to retain the shaft in the bore. However, the force of friction is not so great as to prevent rotation of the floss head 15c relative to the handle 13c about the shaft 27c. The rotation of the floss head 15c can be indexed by the recesses 39c of the handle 13c releasably receiving the curved upper surface 41c of the web 23c.

Fig. 14 shows a dental floss holder 11d which is identical to the dental floss holder 11 in all respects not shown or described herein. Portions of the dental floss holder 11d corresponding to portions of the dental floss holder 11 are designated by corresponding reference numerals followed by the letter "d." Essentially the only difference between the dental floss holders 11 and 11d is that the detent 31 and the cooperating members of the dental floss holder 11 are eliminated in favor of screw threads 103 on the shaft 27d and the bore 29d for releasably mounting the floss head 15d on the handle 13d. There is sufficient friction between the threads 103 on the shaft 27d and in the bore 29 to releasably retain the floss head 15d in any rotational position relative to the handle 13d in which the floss head 15d is placed. An upper surface 41d of the web 23d may, if desired, cooperate with the recesses 39d to provide indexing of the rotational position of the floss head 15d relative to the handle 13d. Alternatively, the recesses 39d could be eliminated in favor of a single cavity shaped to allow smooth rotation of the upper surface 41d against the surface of the cavity, and in this event, the indexing feature of the recesses 39d would be lost.

Fig. 15 shows a dental floss holder 11e which is identical to the dental floss holder 11 in all respects not shown or described herein. Portions of the dental floss holder 11e corresponding to portions of the dental floss holder 11 are designated by corresponding reference numerals followed by the letter "e."

The primary difference between the dental floss holders 11 and 11e is that the latter has a member in the

form of a tab of plastic material molded integrally with the web 23e and extending away from the web in a direction generally opposite to the legs 21e. Viewed from a different perspective, the dental floss holder 11e is identical to the floss head 15c, except that the shaft 27c has been eliminated in favor of the tab 105. In both cases, the resulting construction is essentially Y-shaped, with the tab or shaft lying in the same plane as the associated legs. Although the tab 105 could be of various different constructions, in the embodiment illustrated, it is relatively short in that it is shorter than the floss holder 15e and the legs 21e. The tab 105 has, in the illustrated embodiment, generally opposite, flat faces 107 (only one being shown in Fig. 15) on opposite sides of the tab to facilitate the manual grasping of the tab. The floss head 15e also has the enlarged end portions 101 of the type discussed above in connection with Figs. 11-13.

In use, the tab 105 can be grasped between the thumb and forefinger to manipulate the floss head 15e within the oral cavity. The dental floss holder 11e, like the dental floss holder 11a, is entirely disposable.

Although exemplary embodiments of the invention have been shown and described, many changes, modifications and substitutions may be made by one having ordinary skill in the art without necessarily departing from the spirit and scope of this invention.

CLAIMS

1. A dental floss holder comprising:

a floss head sized for receipt in the oral cavity of a human and including first and second legs having spaced apart regions and terminating in spaced apart ends; and

a strand of dental floss molded into said floss head and extending between the spaced apart regions of the legs.

2. A dental floss holder as defined in claim 1 including a handle and means for coupling the floss head to the handle remote from the spaced apart ends.

3. A dental floss holder as defined in claim 2 wherein said coupling means integrally joins the handle to the floss head.

4. A dental floss holder as defined in claim 2 wherein said coupling means removably mounts the floss head on the handle.

5. A dental floss holder as defined in claim 2 wherein the coupling means includes a shaft on said floss head, a bore in said handle for receiving the shaft and detent means for releasably retaining the shaft in the bore, said shaft projecting completely through the bore.

6. A dental floss holder as defined in claim 5 wherein said detent means includes an immovable detent on the handle and said handle includes first and second resilient arms at least partially defining said bore.

7. A dental floss holder as defined in claim 5 wherein the detent is integral with the handle.

8. A dental floss holder as defined in claim 2 wherein said coupling means includes a shaft on one of said floss head and handle and a bore on the other of said floss head and handle for receiving said shaft and means for releasably retaining the shaft in the bore and for allowing rotation of the floss head relative to the handle.

9. A dental floss holder as defined in claim 8 wherein said retaining means includes friction between the shaft and the wall of the bore.

10. A dental floss holder as defined in claim 8 wherein said retaining means includes screw threads on the shaft and in the bore.

11. A dental floss holder as defined in claim 8 including cooperating means on the exterior of the handle and the exterior of the floss head for indexing the rotation of the floss head relative to the handle.

12. A dental floss holder as defined in claim 11 wherein said cooperating means includes a plurality of

recesses on one of the handle and the floss head and a cooperating surface on the other of the handle and the floss head, said surface being receivable in the recesses for indexing the rotation of the floss head relative to the handle.

13. A dental floss holder as defined in claim 12 wherein said floss head includes a web for joining said legs and said surface is on the web and said recesses are on the handle.

14. A dental floss holder as defined in claim 8 including detent means comprising a spring-biased detent in said handle and a plurality of recesses in the shaft for releasably receiving the detent whereby the relative rotation of the floss head and the handle can be indexed.

15. A dental floss holder as defined in claim 1 wherein said floss head includes a web joining said legs with said legs extending away from the web and said dental floss holder includes a member coupled to the web and extending away from the web in a direction generally opposite to said legs.

16. A dental floss holder as defined in claim 15 wherein said member is a shaft.

17. A dental floss holder as defined in claim 15 wherein said member is a tab whereby the floss head can be manually manipulated.

18. A dental floss holder as defined in claim 1 wherein each of said legs has an end portion of greater cross-sectional area than regions of the legs contiguous to said end portion and said strand extends at least substantially completely through said end portion.

19. A dental floss holder comprising:

a floss head integrally molded of plastic material and sized for receipt in the oral cavity of a human;

said floss head including first and second legs and a web integrally joining the legs, said first and second legs having spaced apart regions and extending away from the web to terminate in spaced-apart ends;

a tab of plastic material molded integrally with said web and extending away from the web in a direction generally opposite to said legs, said tab being adapted to be manually grasped to facilitate manipulation of the floss head; and

a strand of dental floss coupled to the floss head and extending between the spaced-apart regions of the legs.

20. A dental floss holder adapted to be releasably coupled to a handle having a bore, said dental floss holder comprising:

a floss head integrally molded from plastic material and sized for receipt in the oral cavity of a human, said floss head including first and second legs and a web integrally joining the first and second legs, said first and second legs having spaced-apart regions, said

first and second legs extending away from the web and terminating in spaced-apart ends;

a shaft of plastic material adapted to be received in the bore of the floss holder, said shaft being integrally molded with said web and extending away from the web in a direction generally opposite said legs.

Fig. 1

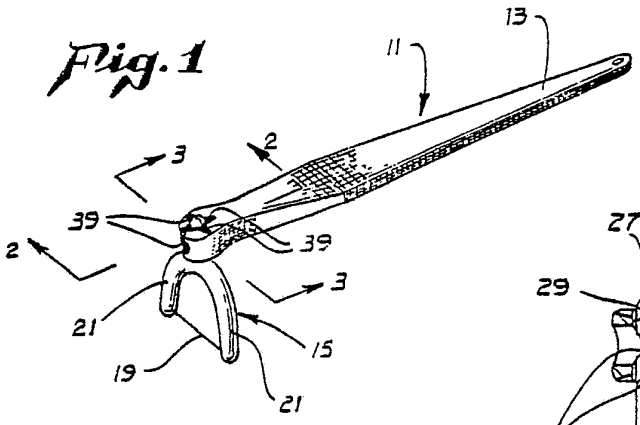


Fig. 2

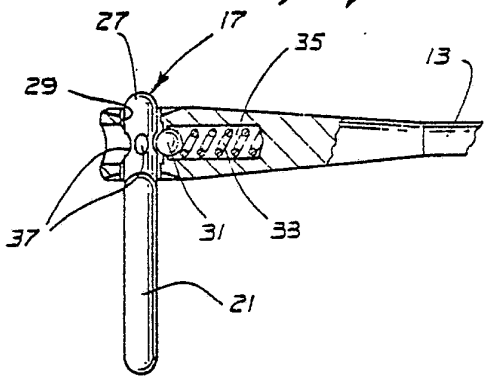


Fig. 3

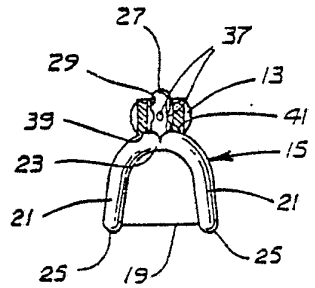


Fig. 3a

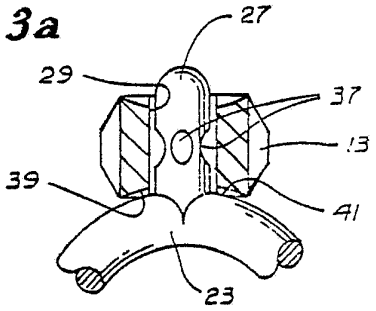


Fig. 4

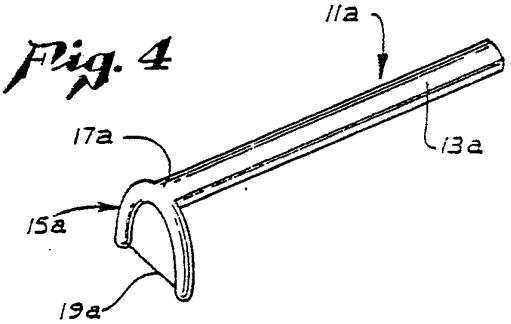


Fig. 5A

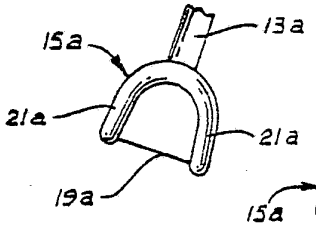
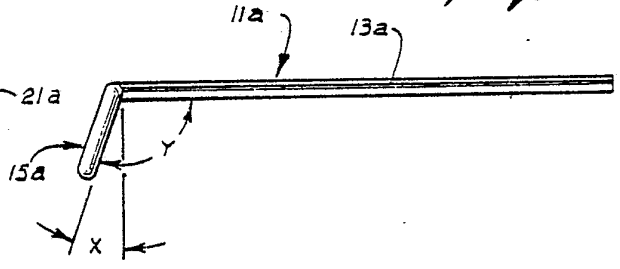


Fig. 5



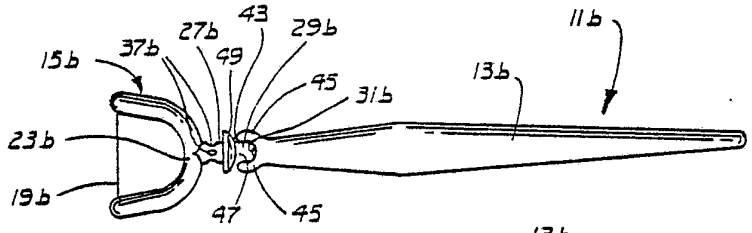


Fig. 6

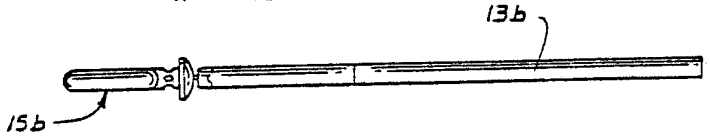


Fig. 7

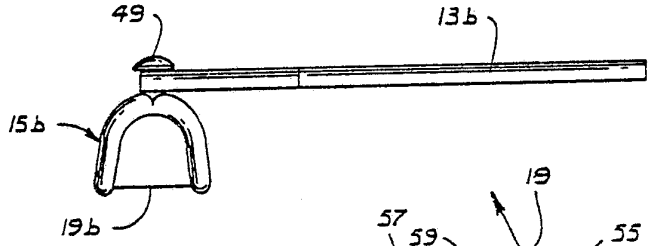


Fig. 8

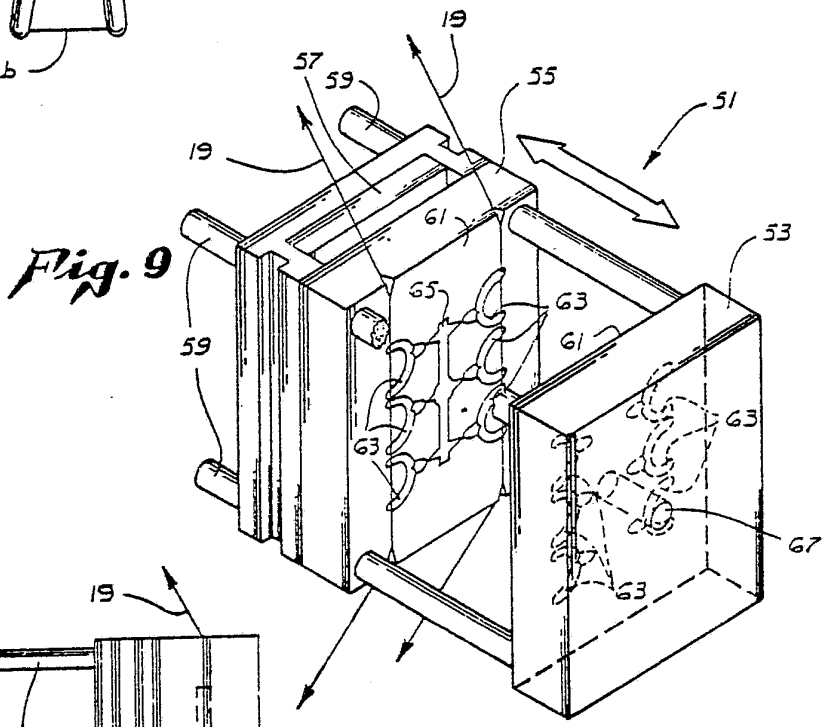


Fig. 9

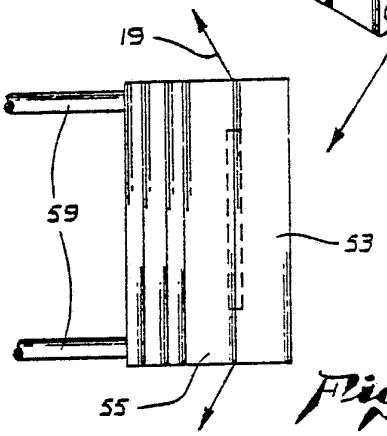


Fig. 10

Fig. 11

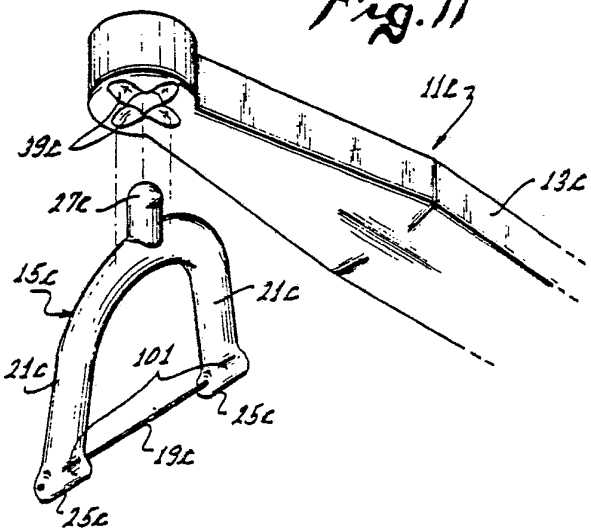


Fig. 12

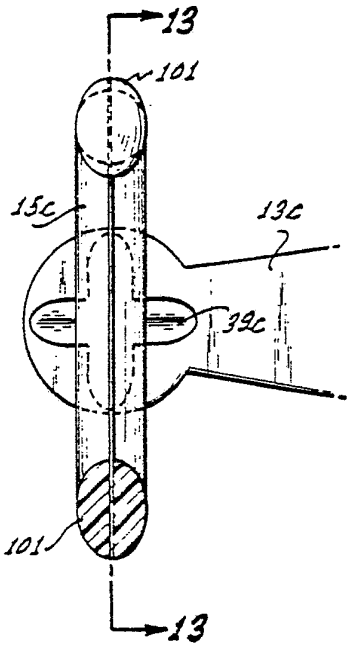


Fig. 13

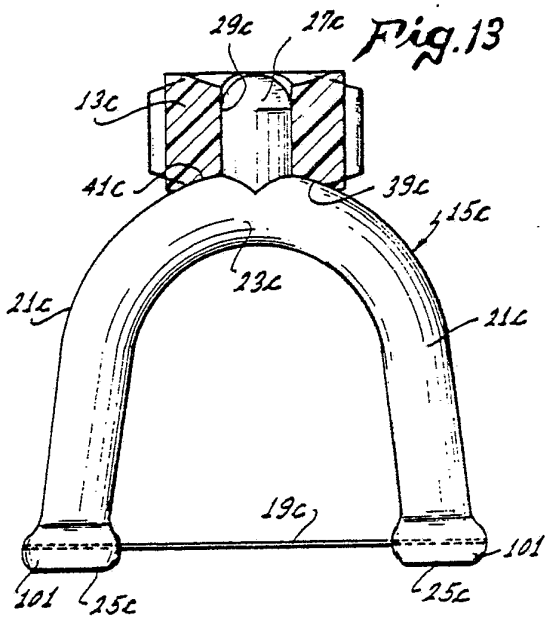


Fig. 14

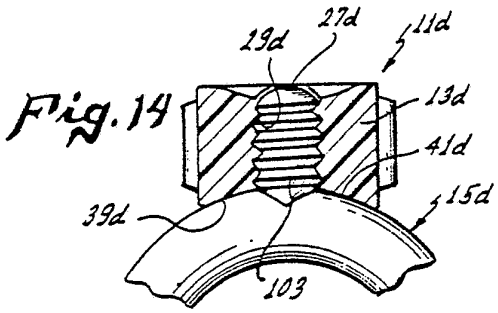
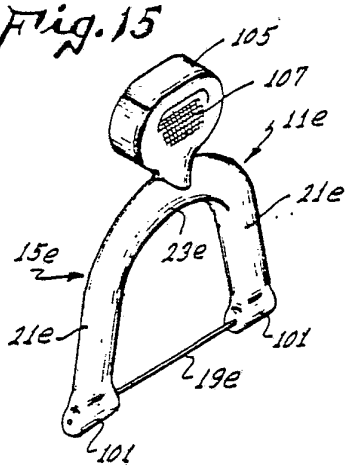


Fig. 15



INTERNATIONAL SEARCH REPORT

International Application No PCT/US84/02044

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC [3]

A61C 15/00

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
US	132/89, 90, 91, 92R, 93, 84R, 84A 15/171, 172, 176

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [5]

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]		Relevant to Claim No. [18]
X	US, A, 3,974,842	17 August 1976 CHODOROW	1-4, 15-17, 19
Y	US, A, 3,927,686	23 December 1975 ZAMBITO	1, 2, 4-13, 18
X	US, A, 3,927,686	23 December 1975 ZAMBITO	20
A	US, A, 3,926,201	16 December 1975 KATZ	
A	US, A, 3,991,776	16 November 1976 DUFFY	
A	US, A, 3,369,265	20 February 1968 HALBERSTADT et al	
A	US, A, 4,033,007	05 July 1977 HADARY	

* Special categories of cited documents: [15]

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
17 January 1985	08 MAR 1985
International Searching Authority [1]	Signature of Authorized Officer [20]
ISA/US	RICHARD J. APLEY

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

A	US, A, 4,020,521	03 May 1977 VELAS UEZ	
A	US, A, 2,503,134	04 April 1950 SCHROEDER	

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE [10]

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. ☐ Claim numbers _____, because they relate to subject matter [12] not required to be searched by this Authority, namely:

2. ☐ Claim numbers _____, because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out [13], specifically:

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING [11]

This International Searching Authority found multiple inventions in this international application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

☐ The additional search fees were accompanied by applicant's protest.

☐ No protest accompanied the payment of additional search fees.