

Oct. 5, 1948.

J. E. DEMBENSKI

2,450,635

SANITARY DENTAL FLOSS HOLDER

Filed Feb. 23, 1946

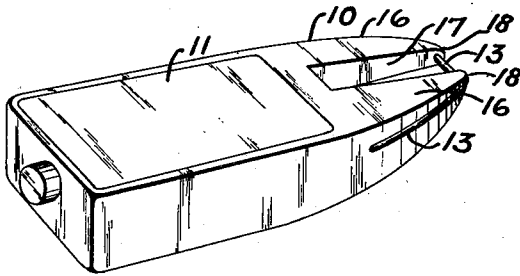


Fig. 1.

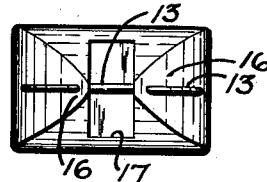


Fig. 2.

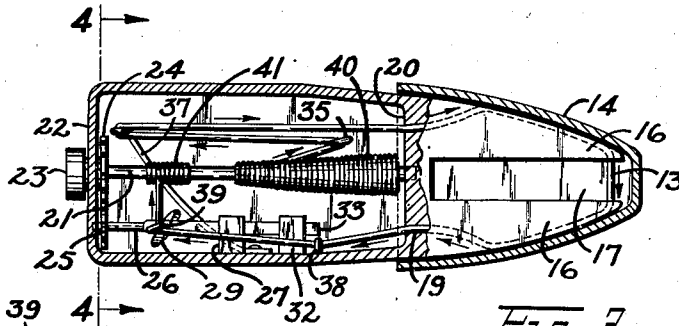


Fig. 3.

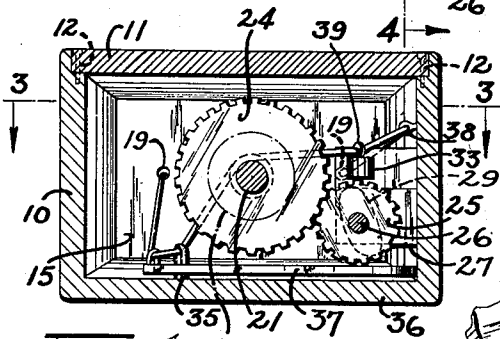


Fig. 4.

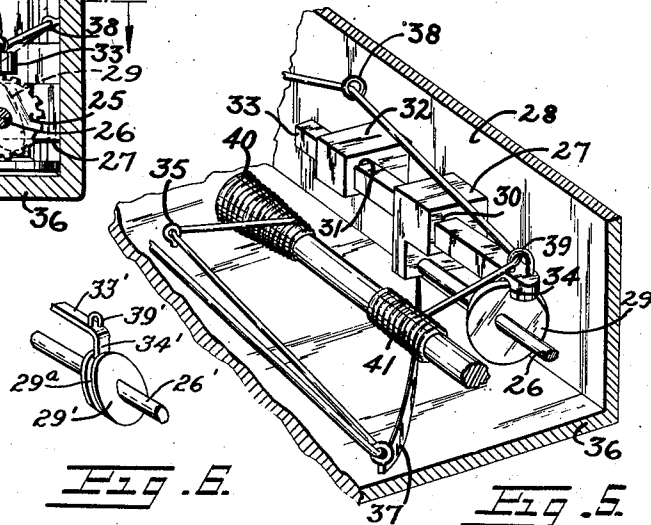


Fig. 5.

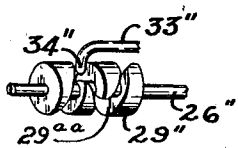


Fig. 6.

INVENTOR
JOSEPH E. DEMBENSKI

By *John A. Harkley*
ATTORNEY

UNITED STATES PATENT OFFICE

2,450,635

SANITARY DENTAL FLOSS HOLDER

Joseph E. Dembenski, Nanticoke, Pa.

Application February 23, 1946, Serial No. 649,497

6 Claims. (Cl. 132-92.1)

1

This invention relates to new and useful improvements in a dental floss dispenser.

More specifically the present invention proposes the construction of a dental floss dispenser characterized by having a shaft from which new dental floss is unwound and upon which used dental floss is rewound, the dispenser further having mechanism for effecting this winding in response to turning of the shaft.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of a dispenser constructed in accordance with this invention.

Fig. 2 is a front view of Fig. 1.

Fig. 3 is a section on the line 3-3 of Fig. 4.

Fig. 4 is a section on the line 4-4 of Fig. 3.

Fig. 5 is a fragmentary enlarged view of a portion of the dispenser.

Fig. 6 is a perspective view of a portion of a dispenser constructed in accordance with a modification of this invention.

Fig. 7 is a side view of a portion of a dispenser constructed in accordance with a further modification of this invention.

The dispenser, according to this invention, comprises a case 10 which has a top cover 11 connected to the rest of the case by screws 12 so that the cover 11 can be removed for renewal of dental floss in the dispenser. The floss is indicated by the numeral 13. The main portion of the case is rectangular in cross section (Fig. 4) but the front end tapers so that it narrows sufficiently to permit its disposition in a person's mouth. This front end may be covered by a cap 14, shown in Fig. 3, the cap being removed when the dispenser is to be used.

The dispenser contains a rectangular chamber 15 and forwardly thereof the dispenser comprises two tapered lugs 16 having a space 17 therebetween. The ends of the lugs have aligned orifices 18 extending transversely of the dispenser and the sides have orifices 19 opening through the front wall 20 of the chamber 15.

A shaft 21 is disposed in the chamber 15 and is journaled at its front end in the wall 20 and at its rear end projects through the rear wall 22 of the chamber 15 and has a knob 23 on its rear end exteriorly of the dispenser casing. A gear 24 is secured on the shaft just inside of

2

the wall 22 on the side opposite the knob 23 and the gear 24 cooperates with the knob 23 to prevent axial movement of the shaft.

Gear 24 meshes with a smaller gear 25 on a shaft 26 journaled in the rear wall 22 and in a boss 27 secured to the side wall 28 of the chamber 15. An inclined cam wheel 29 is secured to this shaft 26. The boss 27 also has a square guide 30 in line with a square guide 31 in a boss 32 also secured to the wall 28. A square bar 33 is slidably mounted in the guides 30 and 31 and has a jaw 34 coacting with the cam wheel 29 so that rotation of the cam wheel effects reciprocation of the bar.

The dental floss 13, when new, is wound on the shaft 21 adjacent the wall 20, passes through an eyelet 35 secured to the bottom wall 36 of the chamber 15, then rearwardly through another eyelet in a leaf spring 37 secured to the bottom wall 36, then forwardly through one orifice 19 and along the outside of one lug 16 through its orifice 18, across the space 17, through the orifice 18 of the other lug 16, back along the outer lug 16 and through the orifice 19 of the other lug, then through an eyelet 38 on the side wall 28, then through an eyelet 39 on the rear end of the bar 33, and finally is rewound on the rear end of the shaft 21.

The portion of the floss between the lugs 16, that is, in the space 17, is the portion used. Once used, the knob 23 is turned to present new floss in the space 17. This is continued until eventually all the floss is used whereupon the cover 11 is removed and the used floss removed from the shaft 21 and new floss put thereon.

Each time the knob 23 is turned, some floss is turned off of the heap 40 of new floss on the forward end of the shaft 21 and some of the used floss is wound to form a heap 41 on the rear end of the shaft 21. The floss is so wound (in the heap 40) that it unwinds therefrom and rewinds to form the heap 41 at the same rate.

As the knob 23 is turned, the shaft 26 is turned, rotating the inclined cam wheel 29 and thus reciprocating the bar 33 back and forth, the eyelet 39 also reciprocating and acting as a guide for winding the floss neatly along the shaft to form the heap 41. The spring 37 maintains tightness of the floss during its use.

In Fig. 6 the construction is similar except the bar 33 terminates in a tongue 34 disposed in a groove 29^a in the cam wheel 29 mounted on the shaft 26. In Fig. 7 the shaft 26' has an elongated wheel 29' formed with a spiral reversing groove 29^{aa} engaged by the inwardly directed

3

end 34" of the reciprocating bar 33". Grooves, such as the groove 29^{aa}, are generally known in the art and are arranged so that when the end 34" of the bar 33" approaches the end of the wheel 29" while moving in one direction, the groove will function to reverse the direction of movement of the bar 33". In other respects these dispensers are like the first described dispenser. All dispensers are sanitary, easily constructed and maintained, and attractive in appearance. They obviate the necessity to dispose of the floss as it is used, the dispenser storing the used floss until it is completely used up.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A dental floss dispenser comprising a casing having a chamber defined by a front wall, a rear wall, side walls, a bottom wall and a top wall having an opening, a cover detachably closing said opening, two spaced lugs projecting forwardly from said front wall and having aligned transverse orifices at their front end and orifices in their sides opening into said chamber through said front wall, a rotatable shaft extending longitudinally in said chamber and journaled in said front and rear walls and projecting through said rear wall, a knob on said shaft exteriorly of said rear wall for turning said shaft, new dental floss wound on a portion of said shaft adjacent one end thereof and used dental floss wound on said shaft adjacent the other end thereof, means for guiding a web of said floss between said new and used portions through said orifices and across said space between said lugs, and means for guiding the rewinding of said floss back on the used floss portion of said shaft so as to evenly wind the used floss on said used floss portion of the shaft.

2. A dental floss dispenser comprising a casing having a chamber defined by a front wall, a rear wall, side walls, a bottom wall and a top wall having an opening, a cover detachably closing said opening, two spaced lugs projecting forwardly from said front wall and having aligned transverse orifices at their front end and orifices in their sides opening into said chamber through said front wall, a rotatable shaft extending longitudinally in said chamber and journaled in said front and rear walls and projecting through said rear wall, a knob on said shaft exteriorly of said rear wall for turning said shaft, new dental floss wound on a portion of said shaft adjacent one end thereof, means for guiding said floss through said orifices and across said space between said lugs, means for winding said floss back on another portion of said shaft as it is unwound from said first mentioned portion, said winding means including a gear on said shaft, a second shaft, a gear on said second shaft meshed with said first gear, a cam wheel disposed on said second shaft obliquely thereof, a bar extending longitudinally of said chamber, means mounting said bar for reciprocation, said bar having a part coacting with said cam wheel for rotation thereby, and means on said bar through which said floss extends.

4

3. A dental floss dispenser comprising a casing having a chamber defined by a front wall, a rear wall, side walls, a bottom wall and a top wall having an opening, a cover detachably closing said opening, two spaced lugs projecting forwardly from said front wall and having aligned transverse orifices at their front end and orifices in their sides opening into said chamber through said front wall, a rotatable shaft extending longitudinally in said chamber and journaled in said front and rear walls and projecting through said rear wall, a knob on said shaft exteriorly of said rear wall for turning said shaft, new dental floss wound on a portion of said shaft adjacent one end thereof, means for guiding said floss through said orifices and across said space between said lugs, means for winding said floss back on another portion of said shaft as it is unwound from said first mentioned portion, said winding means including a gear on said shaft, a second shaft, a gear on said second shaft meshed with said first gear, a cam wheel disposed on said second shaft obliquely thereof, a bar extending longitudinally of said chamber, means mounting said bar for reciprocation, said bar having a part coacting with said cam wheel for rotation thereby, and means on said bar through which said floss extends, said first mentioned guiding means including eyelets secured to said side and bottom walls for guiding said floss, one of said eyelets being mounted on a spring so as to take up slack in said floss during rotation of said shafts.

4. A dental floss dispenser comprising a casing having a chamber defined by a front wall, a rear wall, side walls, a bottom wall and a top wall having an opening, a cover detachably closing said opening, two spaced lugs projecting forwardly from said front wall and having aligned transverse orifices at their front end and orifices in their sides opening into said chamber through said front wall, a rotatable shaft extending longitudinally in said chamber and journaled in said front and rear walls and projecting through said rear wall, a knob on said shaft exteriorly of said rear wall for turning said shaft, new dental floss wound on a portion of said shaft adjacent one end thereof, means for guiding said floss through said orifices and across said space between said lugs, and means for winding said floss back on another portion of said shaft as it is unwound from said first mentioned portion, said winding means including a gear on said shaft, a second shaft, a gear on said second shaft meshed with said first gear, a cam wheel disposed on said second shaft obliquely thereof, a bar extending longitudinally of said chamber, means mounting said bar for reciprocation, said bar having a part coacting with said cam wheel for rotation thereby, and means on said bar through which said floss extends, said bar part being a jaw in which said cam wheel rotates.

5. A dental floss dispenser comprising a casing having a chamber defined by a front wall, a rear wall, side walls, a bottom wall and a top wall having an opening, a cover detachably closing said opening, two spaced lugs projecting forwardly from said front wall and having aligned transverse orifices at their front end and orifices in their sides opening into said chamber through said front wall, a rotatable shaft extending longitudinally in said chamber and journaled in said front and rear walls and projecting through said rear wall, a knob on said shaft exteriorly of said rear wall for turning said shaft, new dental floss wound on a portion of said shaft adjacent one

5

end thereof, means for guiding said floss through said orifices and across said space between said lugs, means for winding said floss back on another portion of said shaft as it is unwound from said first mentioned portion, said winding means including a gear on said shaft, a second shaft, a gear on said second shaft meshed with said first gear, a cam wheel disposed on said second shaft obliquely thereof, a bar extending longitudinally of said chamber, means mounting said bar for reciprocation, said bar having a part coacting with said cam wheel for rotation thereby, and means on said bar through which said floss extends, said bar part being a tongue disposed in a groove in the periphery of said cam wheel.

6. A dental floss dispenser comprising a casing having a chamber defined by a front wall, a rear wall, side walls, a bottom wall and a top wall having an opening, a cover detachably closing said opening, two spaced lugs projecting forwardly from said front wall and having aligned transverse orifices at their front end and orifices in their sides opening into said chamber through said front wall, a rotatable shaft extending longitudinally in said chamber and journaled in said front and rear walls and projecting through said rear wall, a knob on said shaft exteriorly of said rear wall for turning said shaft, new dental floss

6

wound on a portion of said shaft adjacent one end thereof, means for guiding said floss through said orifices and across said space between said lugs, means for winding said floss back on another portion of said shaft as it is unwound from said first mentioned portion, said winding means including a gear on said shaft, a second shaft, a gear on said second shaft meshed with said first gear, a wheel having a spiral reversing groove mounted on said second shaft, a bar extending longitudinally of said chamber, means mounting said bar for reciprocation, said bar having a tongue coacting with said spiral reversing groove, and means on said bar through which said floss extends.

JOSEPH E. DEMBENSKI.

REFERENCES CITED

20 The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
25 2,098,610	Bluhm -----	Nov. 9, 1937
2,109,417	Elcan -----	Feb. 22, 1938
2,185,309	Pierce -----	Jan. 2, 1940
2,381,530	Dembenski -----	Aug. 7, 1945