July 8, 1924. 1,500,398

L. KUSNETZ

SANITARY DENTAL SUPPLY HOLDER

Filed Sept. 19, 1922 2 Sheets-Sheet 1

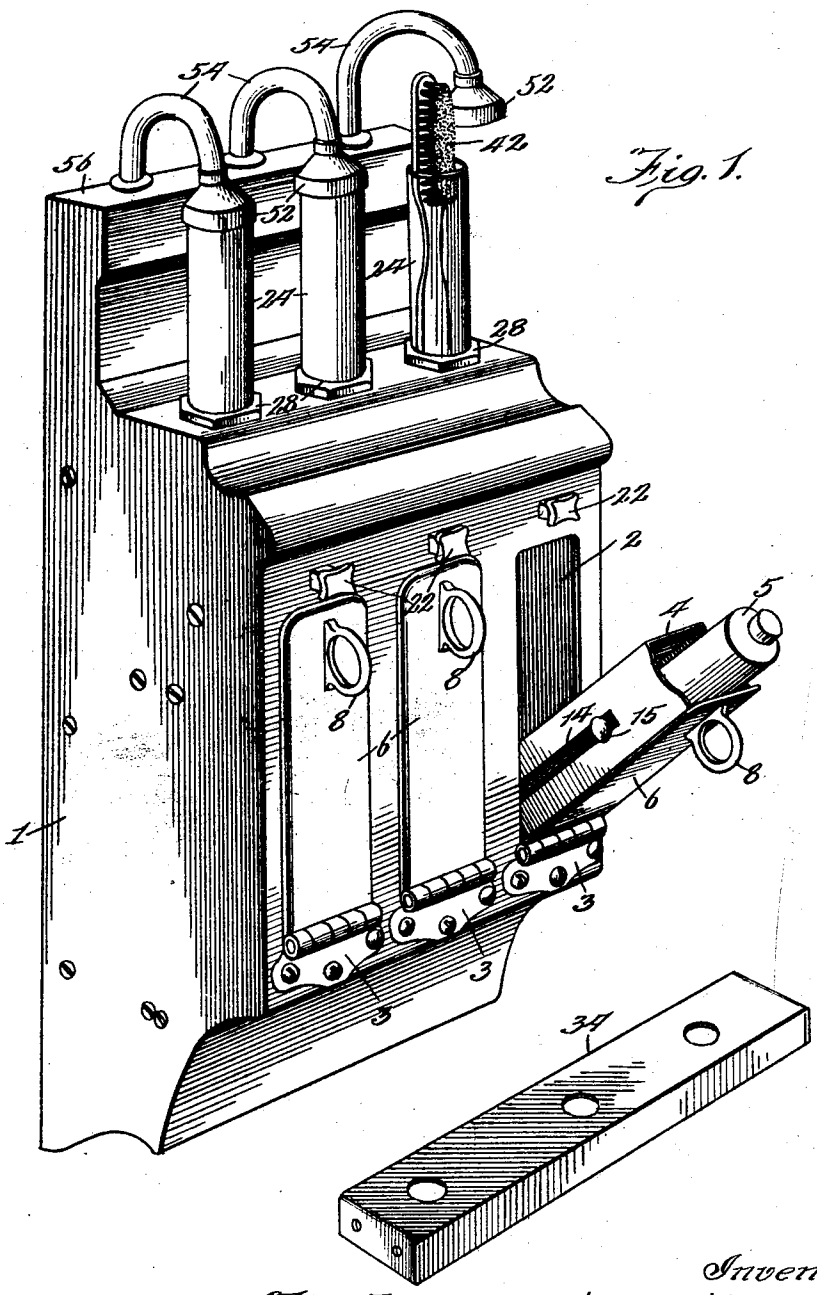


Fig. 1.

Fig. 5.

Inventor.
LOUIS KUSNETZ
By Cheever & Cox
Attys

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Fig. 2.

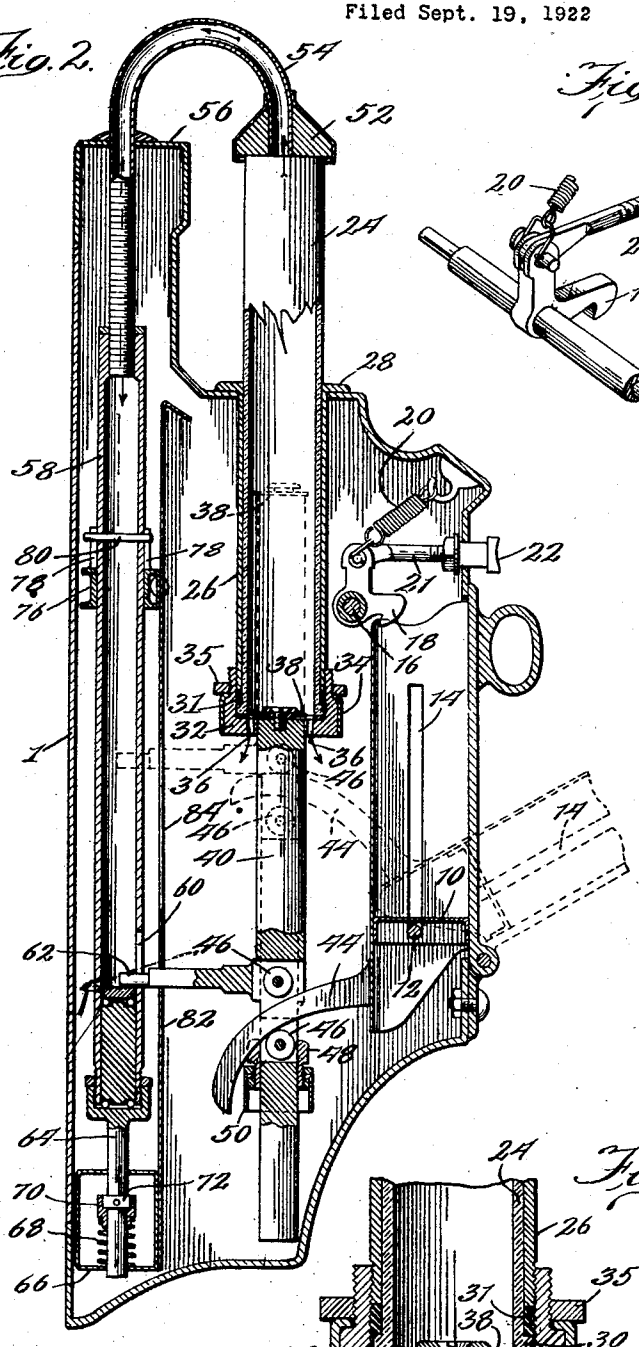
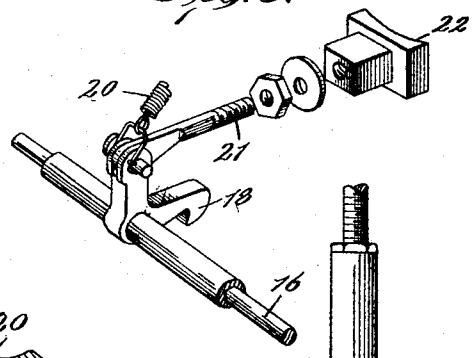


Fig. 3.



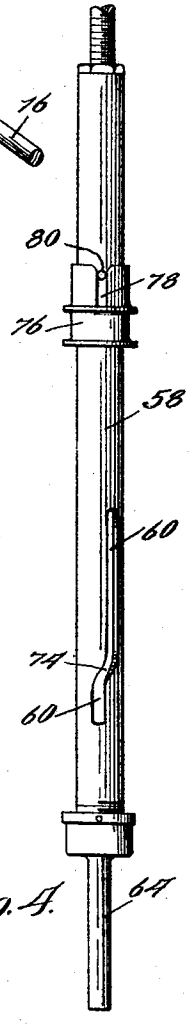


Fig. 4.

Fig. 6.

Inventor:
LOUIS KUSNETZ
By Cheever & Cox
Attys.

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UNITED STATES PATENT OFFICE.

LOUIS KUSNETZ, OF CHICAGO, ILLINOIS.

SANITARY DENTAL SUPPLY HOLDER.

Application filed September 19, 1922. Serial No. 589,041.

To all whom it may concern:

Be it known that I, LOUIS KUSNETZ, a citizen of Poland (who has declared his intention to become a citizen of the United States), residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Sanitary Dental Supply Holders, of which the following is a specification.

My invention is embodied in a sanitary dental supply holder, and the general object of the invention is to provide a holder or cabinet in which tooth brushes and tooth paste or other dentifrice may be stored and rendered available for instant use in a convenient and simple manner. As a result of my invention each member of a household may have his or her individual supply of dentifrice associated with his or her tooth brush, and by opening up the dentifrice holder will simultaneously open the tooth brush holder and move the tooth brush to a position where it may be readily grasped preparatory to being withdrawn.

In carrying out my invention I have provided a number of chambers for containing tooth brushes. I have also provided a corresponding number of chambers or holders for dentifrice, the tooth brush holders and the dentifrice holders being associated in pairs. Normally, the holders are closed but the cabinet is so constructed that the owner of one of the tooth brushes, when desiring to use it, may open the dentifrice holder and by doing so automatically and simultaneously open the corresponding tooth brush holder and move the tooth brush to a convenient position for removal. My purpose is to provide a convenient and attractive cabinet having the characteristics mentioned. In obtaining this main object I have originated a number of cooperating mechanisms having ancillary objects of their own, which will be explained and become apparent as the description proceeds.

I obtain my objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a cabinet embodying the invention.

Figure 2 is a vertical, front-to-rear, section of the cabinet taken chiefly through the center of one of the tooth brush holders and the corresponding dentifrice holder.

Figure 3 is a detailed perspective view showing the locking and releasing mechanism for the dentifrice holder.

Figure 4 is a side elevation of the mechanism for lifting and swinging to one side of the cover of the tooth brush holder.

Figure 5 is a perspective view of the support for the lower end of the tooth brush holders.

Figure 6 is an enlarged detail of the assembly at the bottom of the tooth brush holders.

Like numerals denote like parts throughout the several views.

The casing 1 of the cabinet or dental supply holder may assume various shapes and sizes, and its capacity may be varied to suit circumstances, but in the form illustrated it has three openings 2 in the front having hinges 3 at the bottom for supporting dentifrice holders or receptacles 4. The dentifrice, whether in the form of liquid, powder or paste, is held within a container 5. The front 6 of each holder is preferably somewhat larger than the opening 2, the result being that it slightly overlaps the margin when closed. This imparts a finished appearance to the cabinet and forms a convenient type of stop for limiting the inward movement of the holder. A handle 8 is provided in the upper end of each dentifrice holder for opening and closing it. While the form and construction of the dentifrice holders may be varied I have chosen to illustrate them in the form of hollow, rectangular receptacles long enough to completely enclose the dentifrice container. In order to make it easy to grasp and withdraw the dentifrice container it is desirable to mount within each of the holders 4 a bottom 10 which is vertically slidable. When this bottom or follower is lowered the dentifrice container will be completely enclosed, but when it is raised it will expose the upper end of the dentifrice container as illustrated in Figure 1. This bottom is raised by means of a rod 12 which passes beneath it and is secured to it, said rod projecting through slots 14 in the sides of the holder, and the projecting ends being provided with buttons 15 which may be grasped between the thumb and forefinger for raising the rod. The rod and bottom will descend by gravity when released by the operator.

The dentifrice containers are normally

held locked in closed position by a locking device which is shown in perspective in Figure 3. The mechanism is also shown in side elevation in Figure 2. While the type of locking mechanism may be varied, in the form illustrated it has a supporting rod 16 which is arranged horizontally and supported in the side walls of the cabinet. Rotatably mounted on this rod are detents or locks 18 adapted to engage the upper inner edge of the individual dentifrice holders in the manner illustrated in Figure 2. These detents have cam surfaces at the front so that they will be automatically pushed back as the dentifrice holder moves shut, but will move to acting position as soon as the holder has become completely closed. These detents are yieldingly held in locking position by tension springs 20, one end of each spring being fastened to an arm of the detent, and the other end being secured to a part of the cabinet. The detents are operated by push rods 21 projecting through suitable apertures in the front of the cabinet, and having push buttons 22 at the outer end. The construction is such that by pushing in any one of the buttons the detent or latch will be moved to non-acting position and release the engaged dentifrice holder and permit the latter to be swung from the closed position shown in full lines in Figure 2 to the open position shown in full lines in Figure 1 and indicated in dotted lines in Figure 2.

Associated with each dentifrice holder is a tooth brush holder 24, which in the form illustrated, consists of a glass tube projecting above the top of the cabinet and supported in a tubular socket 26. By preference the socket has an annular flange 28 at the top adapted to rest on top of the cabinet. While the manner of supporting the glass tooth brush holder may be varied I have illustrated an advantageous construction which is detailed in Figure 6. By reference to this figure it will be noted that the glass tube has a flange or beading 30 at the lower end. Between this and the lower end of tube 26 is a gasket 31. An internally threaded gland 32 screws on to the lower end of tube 28 and engages the lower end of tube 24 in such manner as to force it into close contact with the gasket, which in turn abuts the lower end of tube 36. Gland 32 is supported in a channel 34, which is shown in perspective in Figure 5 and is supported by the end walls of the cabinet. The channel is arranged in inverted position as illustrated, and each gland 32 is held in position in the channel by a thin nut 35 which rests upon the top of the channel and screws on to the externally threaded upper end of the gland. Each gland is provided with a number of vent orfices 36 at the bottom for permitting the escape of air from the bottom of tube 24. One purpose of these vents is to permit free vertical movement of the washer 38, which is secured to the upper end of the plunger 40 with which each tube is provided. Another purpose is to admit air for drying the tooth brush. The purpose of the washer is to support the tooth brush 42 which the tube is intended to contain.

Each plunger is operated vertically by means of an arm 44 which is rigidly fastened to and projects inward from the back of each of the dentifrice holders 4 and swings with it. The arm passes between two anti-friction rollers 46 mounted in the plunger 40 and it will be evident by reference to Figure 2 that when the dentifrice holder is in closed position the plunger 40 will be in lowermost position, and that as the dentifrice holder swings towards open position the plunger 40 will rise and lift the tooth brush so that it may be grasped by the user and subsequently lifted out. While the means for guiding the plunger 40 may be varied, according to the design shown, it is guided at the upper end by the gland 32 and at the lower end by a somewhat similar gland 48 mounted upon a stationary inverted channel 50, which is supported in the end walls of the cabinet and is analogous to the channel 34 previously described.

In order to exclude dust from the tubes in which the tooth brushes are contained I have provided a cover which automatically rises and swings to one side as the brush is being elevated. I will now describe this mechanism:

Each tube is provided with a cover 52 mounted upon a tube 54 which may be termed a "goose neck" as it has an inverted U-shaped bend, which enables it to pass slidingly down through the top 56 of the cabinet. At the lower end this goose neck is screw threaded to screw into a tube 58, which has a slot 60 formed in the side near the lower end for receiving the end of an arm 62 which projects from and is rigidly secured to the plunger 40. This arm in co-operation with the slot produces both a vertical and a rotary movement of the tube 58 and goose neck 54 in the following manner: A stem 64 is fastened to the lower end of tube 58 and passes through a stationary guide 66. This latter is preferably of box-like cross section. The lower platform of it supports a helical compression spring 68. Resting upon the upper end of this spring is a socket 70 which co-operates with a collar 72 rigidly secured to stem 64. The construction is such that when tube 58 and stem 64 are forced downward by arms 62 the cover 52 will be lowered on to the upper end of tube 24 and spring 68 will be simultaneously compressed. As soon as tube 58 is released by the upward movement of arm 62 the spring 68 will force stem 64 and at-

tached parts outward until collar 72 engages the upper platform of the support 66 which will prevent further upward movement. This limited upward movement is sufficient to raise the cover 52 clear of the upper end of tube 24. The rotary movement of tube 58 and goose neck 54, which causes cover 52 to swing to one side of the tube 24, as shown in Figure 1, is accomplished by the co-action of the arm 62 in the slot 60, for it will be observed by referring to Figure 4 that the slot is not rectilinear but has a bend 74 which produces a cam like action with the result that as the arm continues to rise after the upward movement of tube 58 has been limited by collar 72, said tube will be rotated.

In order that the cover may always descend accurately on the top of tube 24 I have provided mechanism for angularly adjusting the tube as it nears the end of its descent. In the design illustrated this mechanism consists of a stationary collar 76, which forms a guide for tube 58 and has vertical slots 78 adapted to form guides for a pin 80, which passes through the tube 58. The upper ends of the slots 78 flare so as to readily receive the descending pin even though it should be slightly out of line, but as the pin descends it is brought to correct position angularly with the result that the cover 52 will descend to its correct position. It will be evident that the upper flaring ends of the guide slot may be regarded as cams for acting upon the descending pin 80. The vertical extent of the slots 78 is limited so that the pin 80 will be up out of them at the time when the tube 58 is called upon to rotate. The tube is held in approximately correct angular position by the slot 60 in which it works. It will be observed that both the goose neck 54 and tube 58 are hollow and that the latter has an opening 60 at the side. This is done to produce an air passage so that the tooth brush, which is damp after it has been used, can dry out after the cover of the tube is in place.

In order to prevent the arm 62 from swinging laterally, I have provided a stationary guide 82 within the cabinet, said guide having a vertical slot 84 in which arm 62 slides.

The operation of the cabinet will now be readily understood. Assuming that the parts are in closed position as shown in Figure 2, let it be assumed that the person who keeps his tooth brush and dentifrice at the end compartment at the right wishes to use the brush and dentifrice. He presses the button 22 which causes the catch or detent 18 to release the dentifrice holder. At the same time he grasps the handle 8 and pulls the holder up to the position shown in full lines in Figure 1. This causes the arm 44 to rise and elevate the plunger 40, which moves the tooth brush up to the position shown in Figure 1. The upward movement of the plunger 40 also causes the operation of the cover 52. At the beginning of the upward movement of arm 62 the spring 68 raises the cover for a limited distance. Thereupon as soon as the collar 72 has engaged the upper portion of the guide 66 the arm 62 will pass to the oblique portion 74 of the slot 60 and cam the tube 58 angularly to an amount sufficient to swing the cover 52 to one side and cause it to clear the top of the tube so that the tooth brush may be readily withdrawn. After the user has finished with the tooth brush and dentifrice the operation is reversed. He places the tooth brush and dentifrice container 5 in their proper comparments and then simply moves the holder 4 to closed position. This causes the plunger 40 to be lowered and at the same time causes the tube 58 to act, first rotating the tube so that the cover will be in line over the tooth brush tube 24 and then lowering it so that the cover will engage the top of the tube. As soon as the dentifrice holder has reached closed position the latch 18 will automatically take hold, and hold the parts in closed position. Spring 68 in addition to its function of raising the cover 52, causes the arm 62 to rise for a short distance. This in turn causes the arm 44 to swing upward a short distance and swing the dentifrice holder 4 far enough forward to be freed from the action of the latch 18. Consequently as soon as the user pushes the button 22 the dentifrice holder springs slightly outward and it is not necessary for the operator to have his hand on the handle at the same time that he is holding the latch retracted by the button.

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

1. A cabinet of the class described having an opening in the front, a receptacle hinged to the cabinet and adapted to open and close the opening in it, a stationary receptacle mounted partially within the cabinet and having an opening at the top through which the stored article may be withdrawn, a movable plunger in the fixed receptacle, and connections between the movable receptacle and the plunger whereby as the movable receptacle is swung to open position the plunger will be raised for partially ejecting the article contained therein.

2. A sanitary dental supply cabinet having an opening in the front, a receptacle hinged to the cabinet at said opening and adapted to open and close it, a tooth brush holder in the form of a glass tube lying partially within and partially without the cabinet, a plunger movable longitudinally in the tube, an arm projecting from the movable receptacle and adapted to engage said plunger for

operating it, a spring normally tending to force the hinged receptacle toward open position and a repressible latch for holding the receptacle closed.

3. In a device of the class described, the combination of a casing, a stationary receptacle supported by said cabinet for holding one of the articles to be stored, a plunger slidable in said receptacle for partially ejecting the contents, a cover for said receptacle, and an element slidably and rotatably mounted in the casing for lifting and laterally moving the cover, said element having a cam-slot and arm connection with the plunger whereby the motion of the plunger causes said element to operate the cover.

4. In a device of the class described, the combination of a casing, a stationary receptacle mounted on the casing, a cover for the receptacle, a bent stem for supporting and operating the cover, said stem being rotatable and vertically slidable in the casing, and having a cam slot, and a hand-operated element reciprocating vertically in the casing and projecting into said slot for the purpose of both lifting and rotating said stem for operating the cover.

5. In a device of the class described, the combination of a casing, a stationary receptacle mounted on the casing, a cover for the receptacle, a bent stem for supporting and operating the cover, said stem being rotatable and vertically slidable in the casing and having a cam slot, a manually controlled element projecting into said cam slot, and slidable in a vertical direction for both rotating said stem and moving it vertically, a projection on the side of said stem, and a stationary cam in position to be engaged by said projection as the stem approaches lowermost position for angularly adjusting the stem and thus bringing the cover directly over said receptacle.

6. A device of the class described having a casing provided with a plurality of hinged dentifrice holders adapted to swing into and out of the casing, a stationary tube associated with each of the dentifrice holders, a plunger for partially ejecting a tooth brush from the stationary tube, a cover for each of the tubes, a bent stem for supporting each of the covers, the stems being slidably supported in the casing and also rotatable for swinging the cover aside, means operated by the dentifrice holder for operating the plunger, and means operated by the plunger for operating the cover.

In witness whereof, I have hereunto subscribed my name.

LOUIS KUSNETZ.