

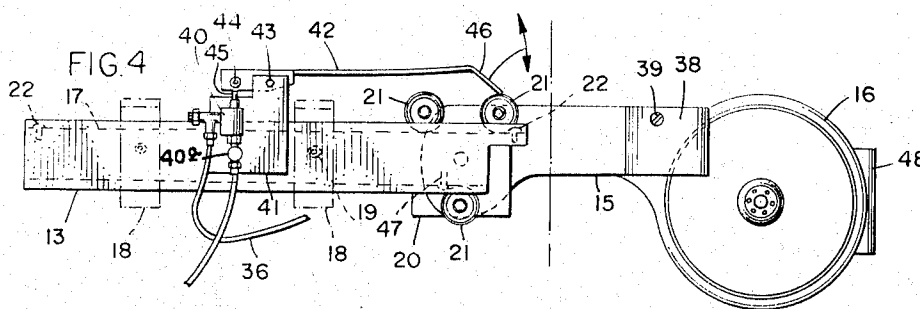
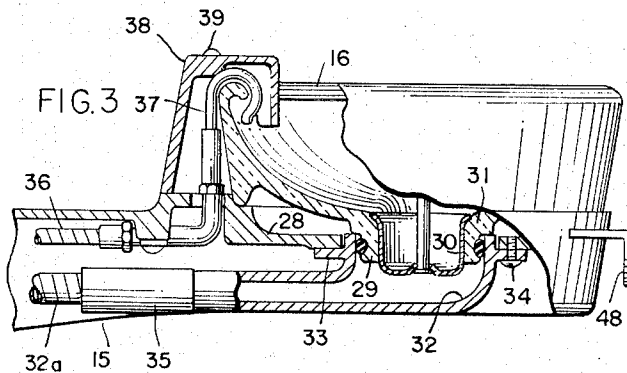
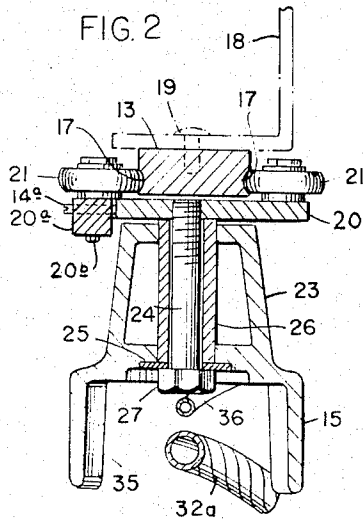
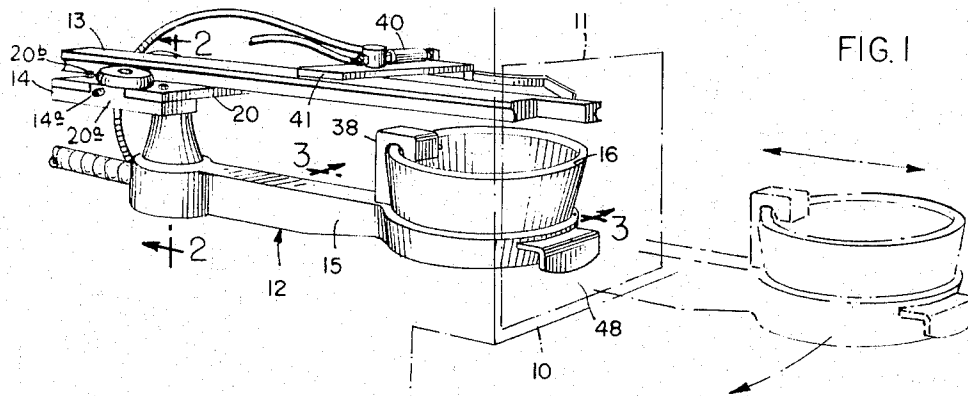
Dec. 26, 1967

M. R. NIELSEN

3,359,575

CUSPIDOR ASSEMBLY FOR DENTAL CONSOLE

Filed Nov. 1, 1965



INVENTOR:

MILTON R. NIELSEN

BY:

Dawson, Gilton, Fallon, Lunginus & Alexander
ATT'YS

1

3,359,575

CUSPIDOR ASSEMBLY FOR DENTAL CONSOLE
Milton R. Nielsen, Wheaton, Ill., assignor to American
Hospital Supply Corporation, Evanston, Ill., a corpora-
tion of Illinois

Filed Nov. 1, 1965, Ser. No. 505,910

8 Claims. (Cl. 4-263)

This invention relates to a cuspidor assembly for a dental console, and more particularly, to a cuspidor which is adapted to be concealed within a console until its use is required.

An object of the present invention is to provide a cuspidor assembly which may be shifted into retracted position within a dental console to maintain the cuspidor bowl and the assembly as a whole in clean and protected condition. Also, when such a cuspidor is concealed within the console, out of view of a patient, the anxiety which a patient might otherwise experience upon viewing such a device, knowing that its use is often associated with the discomforts of dental work, is at least reduced if not avoided.

Another object is to provide a cuspidor assembly which may be readily shifted between retracted and extended positions, and which, when extended, may be swung laterally into any of a variety of selected positions. Another object is to provide a compact assembly which requires only a minimal amount of space for retraction and which may therefore be easily accommodated within a dental console without interfering with other operating mechanisms therein.

A further object is to provide a cuspidor assembly which may be retracted and concealed within a dental console without danger that its water connections might be inadvertently left open by the dentist and might possibly damage other electrical and mechanical components within the cabinet. In this connection, it is a specific object to provide a retractable cuspidor assembly equipped with means for automatically shutting off the flow of flushing or rinsing water when the unit is retracted and for commencing the flow of such water into the cuspidor bowl when the unit is extended.

Other objects will appear from the specification and drawings in which:

FIGURE 1 is a perspective view illustrating a cuspidor assembly of the present invention in retracted condition within a dental console, and also illustrating, in broken lines, the position of the cuspidor bowl when the unit is extended.

FIGURE 2 is an enlarged cross sectional view taken along line 2-2 of FIGURE 1;

FIGURE 3 is an enlarged longitudinal sectional view taken along line 3-3 of FIGURE 1;

FIGURE 4 is a top plan view of the cuspidor assembly showing the unit in extended condition.

While the cuspidor assembly of the present invention may be mounted within any suitable dental console or cabinet, the console disclosed in co-pending, co-owned application Ser. No. 505,918, filed Nov. 1, 1965, is particularly adapted to receive such an assembly. Such console is provided with a front wall having a door which may be swung downwardly to expose the chamber which contains the cuspidor assembly of this invention.

Referring to FIGURE 1, the general outline of the upper front corner portion of a dental console is indicated by broken line 10. A rectangular door 11 is provided in the front wall of the console. The door may be provided with hinges extending along any one of its edges, although it is preferred that the hinges be located adjacent the door's lower edge so that the door may be

2

swung downwardly into an open position, as indicated in the aforementioned co-pending application.

The cuspidor assembly is designated generally by the numeral 12 and essentially comprises a horizontal track or rail 13, a trolley 14 supported by the track and movable longitudinally therealong, a cuspidor support arm 15 carried by the trolley, and a bowl 16 supported upon the arm.

The horizontally elongated track 13 is generally rectangular in cross section; however, as shown in FIGURE 2, the vertical side surfaces of the track have parallel grooves 17 extending therealong. The track may be supported within a console by suitable bracket arms 18 (FIGURES 2 and 4) which are fastened by screws 19 to the top of the track. The opposite ends of the brackets are rigidly secured to frame members (not shown) of the console so that the track is held securely in horizontal position.

Trolley 14 comprises a horizontal plate 20 disposed beneath the track and in close proximity thereto. A plurality of horizontal rollers 21 are mounted upon the trolley plate and ride in the longitudinal grooves 17 on opposite sides of the track. In the illustration given, a total of three rollers are provided, two on one side of the track and one on the other, and while this number has been found adequate, it will be understood that a greater number of rollers may be provided if desired.

Stop means in the form of screws 22 threadedly secured to the track within one of the grooves 17 (FIGURE 4), retain the trolley upon the track. Screws 22 are disposed at the longitudinal limits of one of the grooves 17 and the heads of such screws engage the front and rear rollers of the trolley to stop the trolley in its fully extended and retracted positions.

The cuspidor arm 15 is disposed beneath the trolley and is provided at its rear end with an upstanding frustoconical hub portion 23 which is pivotally connected to the trolley plate 20. As shown in FIGURE 2, a vertical pivot shaft 24 extends upwardly through the hub and is threadedly secured at its upper end to plate 20. Washer 25 and sleeve 26 are clamped between plate 20 and the head 27 of the pivot shaft and, since the combined length of the sleeve and washer is slightly greater than the vertical extent of that portion of hub 23 disposed therebetween, the hub, and the support arm 15 of which the hub is an integral part, are freely rotatable about the vertical axis of shaft 24.

The opposite end of the arm is generally circular in shape and defines an upwardly opening recess 28 for receiving the lower portion of bowl 16. At the bottom of the bowl is a tapered neck portion 29 which defines a drain opening in which is fitted a conventional strainer 30. The outer surface of the neck is equipped with a resilient O-ring 31 which sealingly engages the inner surface of a discharge conduit 32 disposed within the cuspidor arm 15.

Referring to FIGURE 3, it will be seen that the discharge conduit is provided with an annular flange 33 adjacent the upwardly-facing opening thereof, and screws 34 rigidly secure the flange to that portion of the tray arm which defines the apertured dish-receiving recess 28. Beneath the dish 16, and within the confines of arm 15, the discharge conduit 33 turns rearwardly and extends longitudinally through the arm. It will be noted that the rigid portion of discharge conduit 32 terminates at an intermediate point along the arm and is connected by coupling 35 to a flexible conduit portion 32a. Portion 32a continues rearwardly through rear opening 35 in the arm (FIGURE 2) and leads to a suitable drain or receptacle for the discharge of waste material.

Fresh water for rinsing or flushing the bowl is supplied through a second flexible conduit 36 which also extends

through the hollow arm and which terminates in a flush tube assembly 37. As shown in FIGURE 3, the flush tube 37 extends upwardly and then forwardly and downwardly over the rear edge of bowl 16 and is formed to direct a stream of water in a downwardly spiraling path over substantially the entire inner surface of the bowl. A flush tube cover 38 is fitted over the flush tube and is secured to arm 15 by means of screws 39 or by any other suitable means.

A control valve 40 is interposed along conduit 36 and is normally maintained in closed condition by the force of a valve spring (not shown) such force being supplemented by the pressure of water carried by that portion of conduit 36 which is connected to the supply source. Valve 40 is mounted upon a plate 41 which is in turn secured to the upper surface of track 13. As shown in FIGURE 4, a horizontal and forwardly projecting lever arm 42 is pivotally connected by pin 43 to a laterally-projecting wing of the valve mounting plate 41. A roller 44 adjacent the rear end of the lever arm, and behind pivot 43, bears against the laterally-projecting plunger extension 45 of valve 40. Normally, the plunger extension, biased outwardly by the spring and water pressure, simply urges the lever in a clockwise direction (as viewed in FIGURE 4) and, since such pivotal movement of the lever arm is unrestrained, the valve remains in closed position. However, when trolley 14 and arm 15 are fully extended, the inwardly turned contact portion 46 at the forward end of the arm is cammed outwardly by front roller 21. The outward displacement of the lever arm's front end portion pivots roller 44 inwardly to overcome the outward force exerted by plunger 45 and thereby open valve 40. Thus, when the trolley and cuspidor-supporting arm are in their fully extended positions, valve 40 is opened. At all other times, when the cuspidor assembly is either partially or fully retracted, valve 40 remains closed.

If desired, a spring loaded detent 47 (FIGURE 4) may be provided near the forward end of one of the grooves 17 of the track to engage the rear surface of one of the rollers 21 when the trolley is in its fully extended position. The detent provides sufficient resistance against rearward movement of the fully-extended trolley to reduce the possibility that the cuspidor assembly might be inadvertently shifted into a partially retracted position during use. Also, as the roller of the trolley passes over the detent, an audible "click" is emitted to signal the dentist that the cuspidor arm has been moved either into or out of its fully extended position.

When the assembly is fully extended, and the flow of water through the flush tube 37 has automatically commenced, the dentist may, if desired, regulate the rate of water flow to the bowl by simply adjusting the needle valve 40a of control valve 40.

A handle 48 is provided at the front end of arm 15 to facilitate extension and retraction of the assembly. The handle is also useful in pivoting the fully extended arm laterally into a position in which the bowl 16 is readily accessible to a patient.

To insure a firm operative relationship between trolley 14 and track 13, the single roller 21 on one side of the track is adjustable inwardly (and outwardly) by rotation of adjustment screw 14a. The shaft for the single roller is carried by an adjustment plate 20a secured by bolts 20b to the trolley plate 20. Since at least one of the bolt openings in the adjustment plate is laterally elongated, any lateral play between the trolley and track may be eliminated by first loosening bolts 20b, then adjusting screw

14a (which extends transversely through the adjustment plate to the trolley plate) and finally re-tightening bolts 20b.

While in the foregoing I have disclosed an embodiment of the present invention in considerable detail for purposes of illustration, it will be understood by those skilled in the art that many of these details may be varied without departing from the spirit and scope of the invention.

I claim:

1. A cuspidor assembly comprising: a horizontal track adapted to be mounted within a dental console; a roller-equipped trolley moveable along said track between extended and retracted positions; a horizontally-elongated arm having a bowl-supporting recess at one end thereof; a cuspidor bowl supported in said recess; means pivotally connecting the opposite end of said arm to said trolley for pivotal movement of said arm about a vertical axis; a first conduit extending longitudinally through said arm and communicating with the bottom of said bowl for conveying fluids therefrom; a second conduit extending longitudinally through said arm for delivering rinse water to said bowl; a normally-closed valve communicating with said second conduit for preventing the flow of water to said bowl; and a valve lever operatively associated with said valve and engageable with said trolley when the same is in its extended position for opening said valve to permit the flow of rinse water to said bowl.

2. The structure of claim 1 in which said valve is mounted upon said track and is provided with a normally-extended valve-operating plunger projecting therefrom; said lever being pivotally mounted upon said track and having one end thereof engaging said plunger; the opposite end of said lever extending forwardly and being engageable with said trolley when the trolley is shifted forwardly into its extended position.

3. The structure of claim 1 in which said trolley is suspended from said track and said arm is suspended from said trolley.

4. The structure of claim 1 in which said horizontal track is provided with parallel grooves extending longitudinally along opposite vertical side surfaces thereof; the rollers of said trolley riding along said grooves as said trolley is shifted between its extended and retracted positions.

5. The structure of claim 4 in which said trolley comprises a horizontal plate disposed beneath said track, said plate being equipped with a plurality of horizontal rollers disposed above said plate and engaging the longitudinally grooved surfaces of said track.

6. The structure of claim 1 in which stop means are provided by said track at opposite ends thereof for limiting the extent of longitudinal movement of said trolley.

7. The structure of claim 1 in which the length of said track exceeds the assembled length of said trolley, arm, and bowl; whereby, said trolley, arm, and bowl may be retracted into a space having longitudinal dimensions no greater than the length of said track.

8. The structure of claim 1 in which said arm is provided at said one end thereof with a handle for directing extension, retraction, and lateral pivotal movement of said assembly.

References Cited

FOREIGN PATENTS

1,358,018 3/1964 France.
909,003 10/1962 Great Britain.

HAROLD J. GROSS, *Primary Examiner*,