Oct. 14, 1958 J. J. BLANKFIELD 2,855,930

DEVICE FOR CLEANING TEETH

Filed Nov. 14, 1955 2 Sheets-Sheet 1

Fig. 1

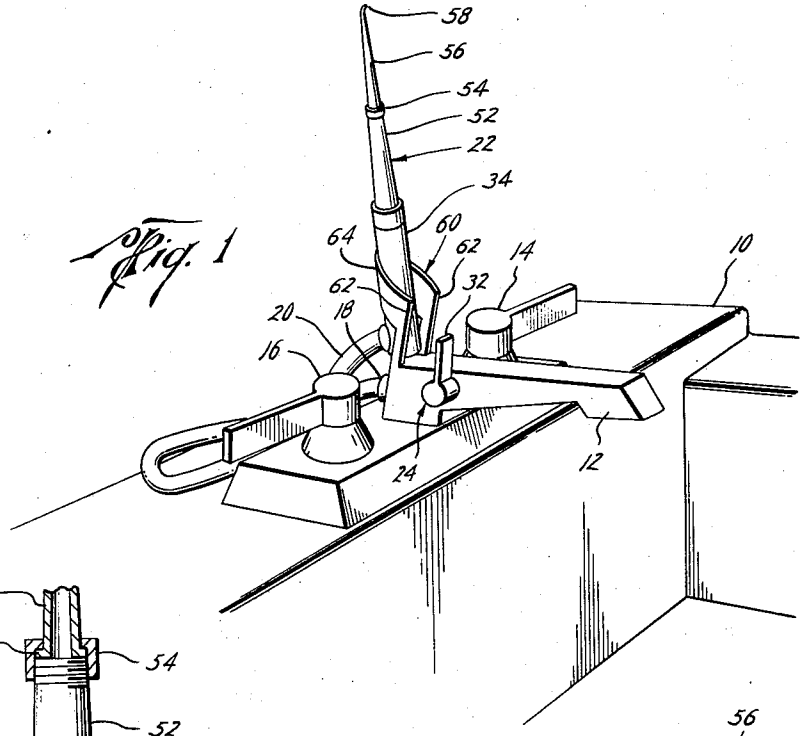


Fig. 3

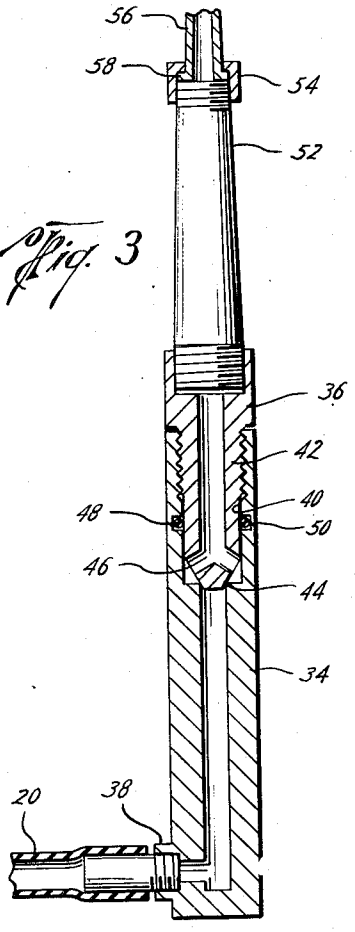
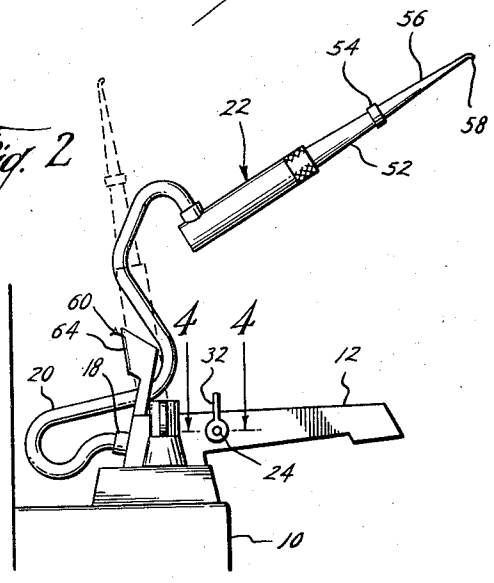


Fig. 2



Jack J. Blankfield
INVENTOR.

BY

ATTORNEY

Oct. 14, 1958 J. J. BLANKFIELD 2,855,930

DEVICE FOR CLEANING TEETH

Filed Nov. 14, 1955 2 Sheets-Sheet 2

Fig. 4

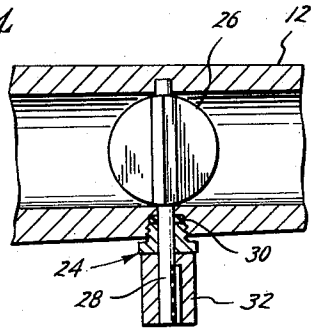


Fig. 5

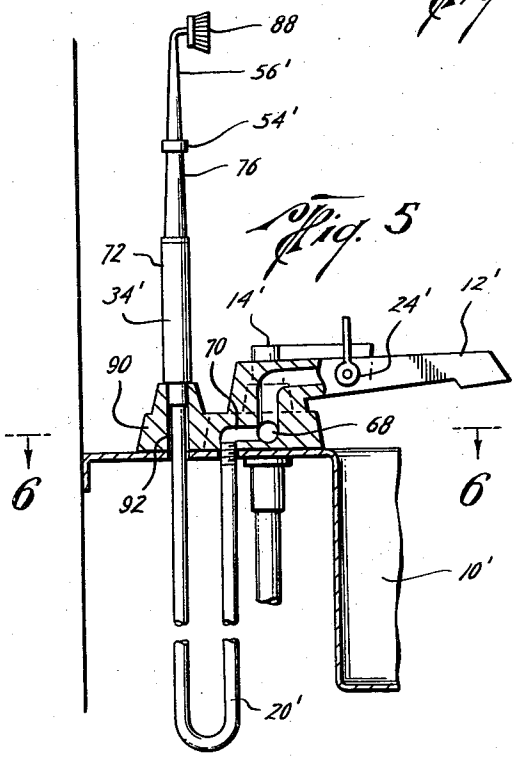


Fig. 7

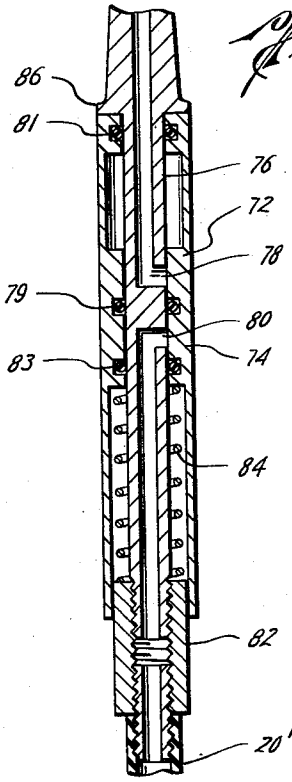
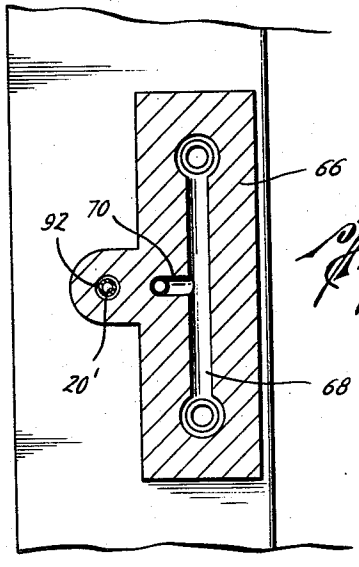


Fig. 6



Jack J. Blankfield
INVENTOR.

BY

ATTORNEY

United States Patent Office

2,855,930

Patented Oct. 14, 1958

2,855,930

DEVICE FOR CLEANING TEETH

Jack J. Blankfield, Houston, Tex.

Application November 14, 1955, Serial No. 546,324

1 Claim. (Cl. 128—229)

This invention relates to a device for cleaning the teeth, and more particularly to a device adapted to be used in connection with a lavatory as an attachment for the same, and which may be held in the hand of the user and operated to direct a stream of water under pressure into the mouth to act as a mechanical cleansing agent for the teeth.

The invention is also capable of application under conditions where it may be desirable to carry out cleaning operations by the use of a stream of water under pressure.

The invention has for an important object the provision of a device for cleaning the teeth which makes use of the mechanical cleansing action of a stream or jet of water under pressure.

Another object of the invention is to provide a tooth cleaning device which is designed to be easily applied to existing lavatory equipment or which may be incorporated in the structure of new lavatories.

A further object of the invention is the provision of tooth cleaning apparatus of the kind referred to embodying nozzle means which is readily detached and replaced whereby each user may employ his own individual nozzle thus making the apparatus more adaptable to personal use and enhancing its sanitary value.

Another object of the invention is to provide a tooth cleaning equipment of the water jet type wherein means is embodied for supporting the nozzle or hand piece on a lavatory in a location for ready use when required and which at the same time does not interfere with other normal uses of the lavatory.

The above and other important objects and advantages of the invention will be apparent from the following detailed description constituting a specification of the same when considered in conjunction with the annexed drawings, wherein—

Figure 1 is a perspective view illustrating one embodiment of the invention and showing the same applied to a lavatory;

Figure 2 is a side view of the invention as illustrated in Figure 1, showing the manner in which the device is attached to the lavatory and the manner of its use;

Figure 3 is a detail view, on an enlarged scale, showing details of construction of the invention as illustrated in Figures 1 and 2;

Figure 4 is a cross-sectional view, on an enlarged scale, taken along the line 4—4 of Figure 2, showing the construction of a diverter valve of the invention;

Figure 5 is a side elevational view partly in cross-section illustrating a somewhat different form of the invention;

Figure 6 is a cross-sectional view, taken along the line 6—6 of Figure 5, looking in the direction indicated by the arrows; and

Figure 7 is a detail view, showing details of construction of the invention as illustrated in Figure 5.

Referring now to the drawings in greater detail, the

invention is illustrated in Figures 1 to 4 in connection with its application to an existing lavatory of conventional design having the usual basin or sink 10 with the usual fixtures, including an outlet spout 12, which is connected to hot and cold water pipes through which hot and cold water are supplied under the control of valves, such as those indicated at 14 and 16, whereby the temperature of the water from the spout may be regulated as desired.

The invention is applied to lavatory equipment of this kind by providing an outlet connection 18 leading into the interior of the spout, and at which a flexible pipe or tube 20 is connected at one end, and through which water from the interior of the spout may be supplied to the hand piece of the invention generally indicated at 22.

In order to divert water from the spout into the flexible tube 20 suitable means, such as a valve 24 is provided in the spout, which valve, in the present illustration takes the form of a butterfly valve 26 rotatably positioned within the spout, for rotation on the shaft 28, which extends outwardly through a suitable packing gland 30, and which is provided externally of the spout with a handle 32 by which the valve may be opened and closed. When the valve is in open position water may be supplied to the basin 10 from the spout, and when it is desired to make use of the tooth cleaning device of the invention the valve 26 may be closed to divert water from the spout through the flexible pipe 20 to the hand piece 22.

The hand piece 22 may conveniently comprise a tubular barrel made up of threadably connected sections 34 and 36, the section 34 having an inlet connection 38 at which the tube 20 is connected, and being provided at its opposite end with an enlarged internally threaded counterbore 40, for the reception of the externally threaded, reduced end portion 42 of the section 36. The inner end portion of the section 36 is shaped to provide a valve member 44, which is engageable with the interior of the section 34 at the bottom of the counterbore 40, to close the hand piece, against the outflow of water therethrough and from the tube 20, and outwardly of the inner end 44. The section 36 has one or more openings 46 in communication with the interior of the section and with the interior of the counterbore 40, and through which water may flow through the section 36 when the valve member 44 is in open position.

Suitable means, such as a O-ring 48 may be positioned in an internal groove 50 in the counterbore 40, to form a fluid tight seal between the sections 34 and 36.

At its outer end the section 36 is connected to the large end of a tubular reducer section 52, whose small end is externally threaded to receive a perforated screw cap 54. The hand piece also includes a removable tapered nozzle 56, having an external flange 58 at one end, which is adapted to seat against the small end of the reducer 52 and to be engaged by the cap 54, to removably hold the nozzle on the reducer, the nozzle extending through the cap 54. The nozzle 56 may be tapered, to provide a reduced outlet 58 whereby a jet or stream of water under pressure may be delivered for use in cleaning the teeth.

The spout 12 is also provided with an upwardly extending hand piece supporting bracket 60, of generally inverted U-shape, having side portions 62, connected at their lower ends to the spout, and a curved bottom portion 64 extending rearwardly from the upper ends of the side portions 62. As best seen in Figures 1 and 2, the hand piece 22 may be positioned in the bracket 60, with the section 34 extending into and resting against the curved bottom portion 64 of the bracket and the lower end of the section 34 seated on the spout between the side portions 62. When thus located in the bracket the hand piece extends upwardly in position to be picked

up by the user, while at the same time it does not interfere with normal use of the lavatory in any way.

In making use of the invention the valve **24** is closed, to shut off the flow of water from the spout **12** into the basin and to divert the water through the tube **20**, the valves **14** and **16**, being adjusted to regulate the temperature of the water as desired. The hand piece **22** is then held in the users hand, and the section **36** is rotated to move the valve member **44** to open position, whereupon a jet of water under pressure will flow from the tip of the nozzle **54**, and the tip may be inserted in the mouth to direct the water against the teeth to clean the teeth.

With the hand piece constructed as described above, each user may have his own personal nozzle **56**, which he may attach to the reducer **52** for his individual use, thus greatly enhancing the sanitary value of the device.

A somewhat modified form of the invention is illustrated in Figures 5, 6, and 7, wherein the invention is illustrated in connection with its embodiment in new lavatory structures. In this form of the invention the fixture of the basin may be formed as a block-like base **66**, having a passageway **68** therein in communication with the hot and cold water pipes, under the control of valves **14'** and **16'**, similar to the valves **14** and **16**, previously described. The spout **12'**, is in communication with the passageway **68**, and is provided with a valve **24'**, as in the previously described form of the invention, whereby the spout may be closed.

The fixture also has a passageway **70** in communication with the passageway **68**, and to which the flexible pipe **20'** is connected, so that when the valve **24'** is closed water will be diverted to the flexible pipe. The hand piece of this form of the invention is illustrated in Figure 7, and comprises an outer cylindrical barrel **72** having an inwardly thickened portion **74** positioned midway of its length, and an inner tubular member **76** slidably positioned in the barrel. The inner tubular member is closed intermediate its ends, and has spaced ports **78** and **80**, which in the closed position of the barrel and member are in contact with the thickened portion **74**, to close the ports, to shut off the flow of water through the hand piece.

The barrel **72** and inner parts **76** are movable longitudinally relative to each other, to move the ports **78** and **80** to positions beyond the thickened portion **74**, to open the ports, whereupon water may flow through the hand piece. Suitable packing means, such as a O-ring **79** is disposed in an internal groove in the thickened portion **74**, to form a seal between the barrel and inner part between the ports **78** and **80**, when the ports are in closed position. Additional sealing means, such as the O-rings **81** and **83** are also provided in internal grooves in the barrel to form seals between the barrel and inner part.

The inner member **76** is threadably connected, at its lower end to the flexible pipe **20'** by means of a coupling **82**, which forms an abutment against which one end of a coil spring **84** bears, the other end of the spring being seated on one end of the internally thickened portion **74**, whereby the spring is positioned to yieldingly urge the barrel and member to a position to close the ports **78** and **80**.

The inner member also has an external enlargement **86**, positioned to engage the upper end of the barrel **72**, to limit downward movement of the inner member in the barrel when the ports **78** and **80** are closed.

The inner member **76** extends upwardly beyond the barrel **72**, and is externally threaded at its upper end to receive a perforated cap **54'**, similar to the cap **54**, previously described whereby a nozzle **56'** is removably attached to the inner member. The nozzle **56'** may, if desired, be provided with a brush **88** at its tip.

The fitting **66** may also have a rearwardly extending, upwardly thickened portion **90**, provided with an opening **92** therethrough, through which the pipe **20'** is extended, and into which the lower end of the coupling **82** is seated, to hold the hand piece, in an upright position on the fitting.

In making use of this form of the invention the valve **24'** is closed, and the valves **14'** and **16'** are adjusted to regulate the temperature of the water flowing through the passageway **68**. The hand piece **34'** may then be held in the hand of the user, and the barrel **72** pulled downwardly on the inner member **76** against the pressure of the spring **84**, to move the ports **78** and **80** beyond the inwardly thickened portion **74** of the barrel whereupon water may flow from the fixture through the hand piece to provide a jet of water issuing from the nozzle **56'** for use in cleaning the teeth.

It will be apparent that when the invention is not in use it is held in a position of easy access, but which at the same time prevents interference with any of the normal uses of the lavatory.

The invention thus provides a device for cleaning the teeth, which is of simple design, sanitary in use, and which employs the mechanical cleaning action of a jet of water under pressure.

The invention has been disclosed herein with connection of certain specific embodiments of the same but it will be understood that this is intended by way of example only, and that numerous changes can be made in the construction and arrangement of the various parts, within the spirit of the invention and the scope of the appended claim.

Having thus clearly shown and described the invention what is claimed as new and desired to be secured by Letters Patent is:

A device for producing a jet of water under pressure for use in cleaning the teeth comprising a lavatory fixture having a spout connected in communication with a source of water under pressure, valve means for opening and closing the spout, an elongated, tubular hand piece having an inlet and an outlet which is shaped to form a jet, a flexible tube connected in communication with the inlet and with the spout at a location between said source and said valve means, and bracket means extending upwardly from said fixture for supporting the hand piece in an upright position on the fixture, said bracket means having a forwardly-opening generally U-shape and comprising side portions connected at their lower ends to said fixture and a rearwardly extending curved bottom portion having an opening therein through which said flexible tube is movably extendible.

References Cited in the file of this patent

UNITED STATES PATENTS

2,208,031	Hooper	July 16, 1940
2,371,597	Angel	Mar. 20, 1945
2,550,565	Hyser	Apr. 24, 1951
2,710,020	Manville	June 7, 1955