June 21, 1966 R. A. WHITE 3,256,603

DENTAL TOOL AND HANDPIECE CONTROL

Original Filed April 17, 1961 2 Sheets-Sheet 1

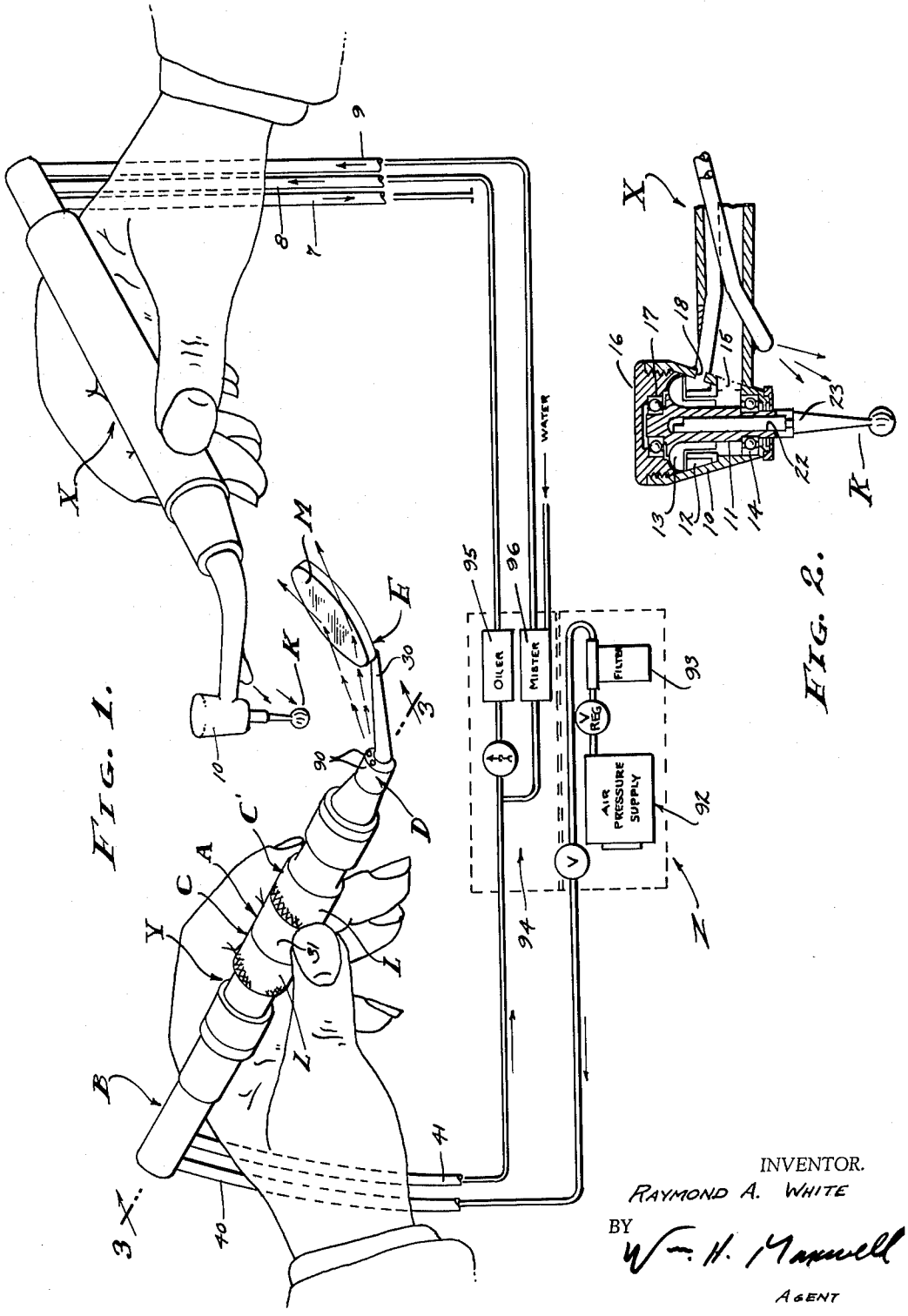


FIG. 1.

FIG. 2.

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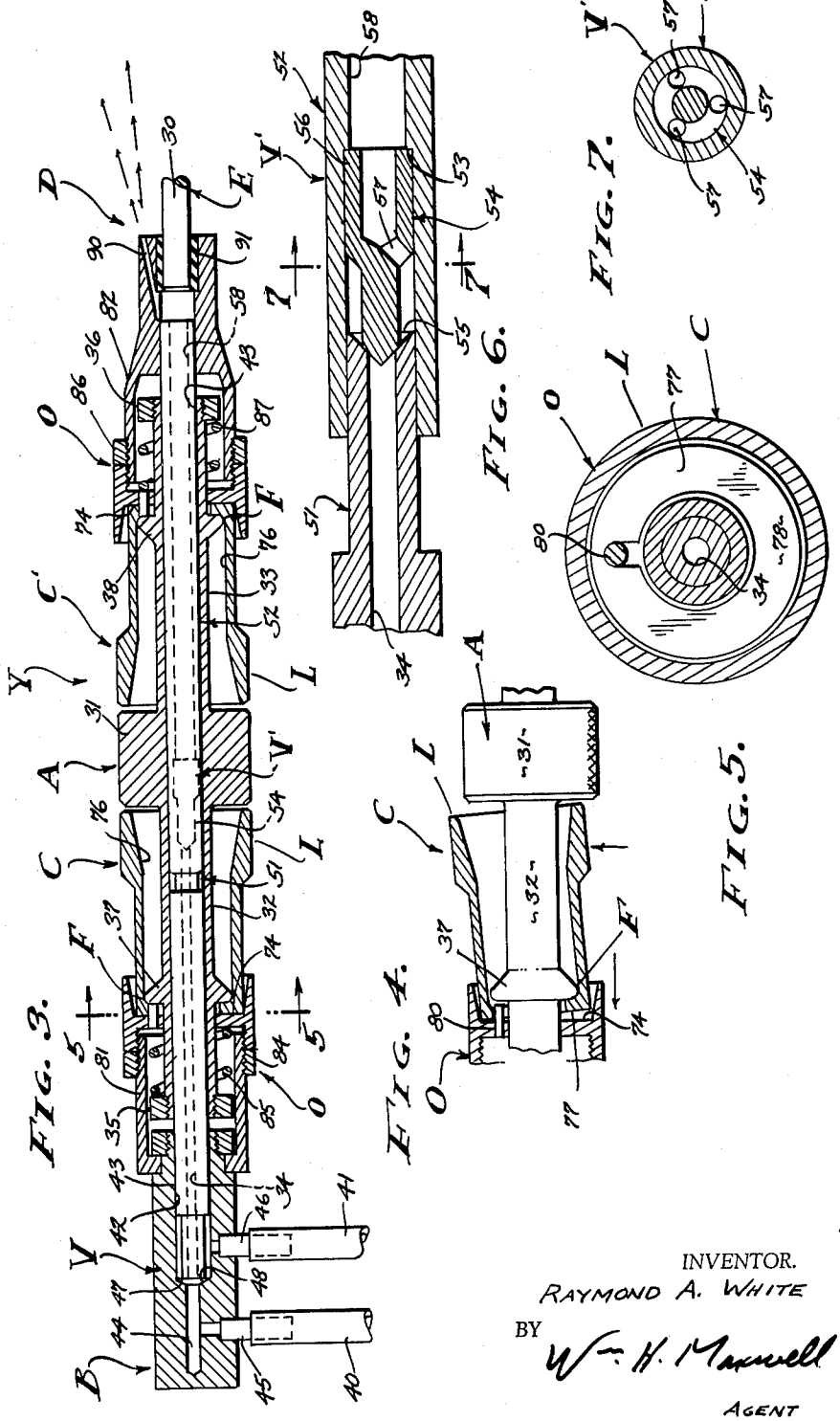


FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

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DENTAL TOOL AND HANDPIECE CONTROL

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Continuation of application Ser. No. 103,293, Apr. 17, 1961. This application July 21, 1964, Ser. No. 385,829
15 Claims. (Cl. 32—27)

This application is a continuation of Serial No. 103,293, filed April 17, 1961 now abandoned.

This invention relates to a dental tool and handpiece control and is concerned with combining of dental tools in a most efficient manner whereby dental processes are most conveniently practised. More particularly, this invention has to do with the cooperative relationship of a dental mirror, a dental handpiece, and a control for said handpiece. Additionally, this invention also has to do with anti-fog means to maintain the mirror in a clear condition, and incidentally the use of the structure as a retractor, it being a general object to cooperatively relate these enumerated elements and their functions.

Dental procedures involve certain usual tools including drills operated by a handpiece through a separate control, retractors, mirrors, and supply means for fluid coolants including air and water and/or mixtures thereof. It is the usual practice to separately employ these various implements, resulting in considerable use of time in transferring from one implement to the other and resulting in interim periods when no action is being performed. That is, usual dental tools and implements require the dentist to process the patient by separately making the necessary observations and drilling operations consecutively, and interrupted by operations involving the removal of debris and by inspections. For example, after an initial inspection a tooth is drilled; this is followed by removal of debris; and then follows another inspection; and so on, and this sequence is repeated until a cavity is properly prepared. It is significant that tools are exchanged for each other during these separate procedures accompanied by loss of time. And, another significant factor is that the usual control for operation of the handpiece is a foot pedal that requires the dentist to assume an abnormal posture, standing upon one foot and reserving the other foot for actuating said pedal, it being necessary to push or kick the foot control into a usable position, as circumstances require.

From the foregoing it should be apparent that considerable inconvenience and loss of time is experienced by the dentist who is a technician in the since that he uses tools and implements and a person whose time is of considerable value, to say nothing of the time belonging to the patient being worked upon. Further, considerable discomfort is to be expected by the patient, at best, and expediency is highly sought for in the dentistry processes in order to lessen and shorten any discomfort of the patient, and to increase productivity of the dentist's services.

Time studies show that considerable lost motion and/or needless steps are ordinarily used in usual dentistry procedures, as they are commonly carried out on a separate basis. As a result, preparation of a tooth cavity for filling or an inlay is ordinarily time-consuming, being characterized by repeated delays and repeated use of separate tools and implements. For example, entirely separate apparatus is used in cleaning away debris after drilling. Control of the drilling apparatus is ordinarily remote and in many cases the speed of the handpiece cannot be varied during a drilling operation, but work must stop and a remotely located control manipulated for a change in adjustment. And, all of these factors thus far referred to

are of considerable influence in the ultimate comfort and expediency of dental work.

An object of this invention is to provide a cooperatively related combination of dental tools that results in time savings, patient comfort, and in improved posture of the dentist performing the work. With the apparatus that I have provided the dentist assumes a natural standing posture fully upon both legs and feet, with both arms and hands used in the manipulation and/or control of cooperatively related dental tools, and said related tools include the drilling handpiece, the dental mirror also used as the retractor, the fluid applicator or applicators, the fluid supplies, and the control for both the handpiece and the fluid applicator or applicators.

Another object of this invention is to provide a dental tool or apparatus that serves a plurality of functions including control functions for operating the handpiece. More specifically, it is an object to provide a tool in the form of a dental mirror and which incorporates the control elements for the handpiece, while both said mirror and said handpiece are being manipulated at or in the mouth of the patient.

It is another object of this invention to provide a dental control tool of the character referred to that involves a dental mirror for observation at or within the patient's mouth and which includes means for clearing said mirror, thus avoiding fogging of said mirror.

It is still another object of this invention to provide a dental control tool of the character referred to that is infinitely variable in its governing action of the handpiece that is used in connection therewith and which does not impair manipulation of said handpiece and which does not affect proper and comfortable posture of the dentist operating the apparatus involved.

Further, it is an object of this invention to provide a cooperative relationship of dental tools and implements, in the form of an apparatus, that can be used without waste of time and in a most efficient and expeditious manner. Transfer from separate tools is virtually eliminated, with respect to the handpiece, mirror, retractor, fluid applicators, and handpiece control, etc., these dental tools being incorporated in one apparatus, the parts of which are simultaneously in use.

The various objects and features of this invention will be fully understood from the following detailed description of the typical preferred form and application thereof, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view showing the two hands of a dentist and the manner in which the dental handpiece and control implement are manipulated, and showing diagrammatically the apparatus associated therewith. FIG. 2 is an enlarged sectional view taken through the head of the handpiece. FIG. 3 is an enlarged detailed sectional view taken as indicated by line 3—3 on FIG. 1. FIG. 4 is a fragmentary view of a portion of the structure shown in FIG. 3, indicating the movement of parts. FIG. 5 is an enlarged sectional view taken as indicated by line 5—5 on FIG. 3. FIG. 6 is an enlarged detailed longitudinal sectional view of a portion of the structure shown in FIG. 3, and FIG. 7 is a section taken as indicated by line 7—7 on FIG. 6.

The dental tool and handpiece control that I provide is illustrated in perspective and in diagram in FIG. 1 of the drawings, the invention taking form in the cooperative relationship of elements making up the apparatus as shown. Generally, the apparatus involves a handpiece X, a control implement Y, and a fluid power supply Z. The handpiece X can be of any type, that is it can be electrically operated through a direct or indirect belt drive, or as it is preferably illustrated it can be a pneu-

matically operated handpiece with the drive in the head portion thereof. The control implement Y is the characteristic feature and/or component of the present invention and is a dental tool in the form of a dental mirror and/or dental retractor with control means incorporated therein to govern action of the handpiece X. The fluid power control Z is unique in several respects in that supply air is set at an adjustably selected pressure with water mist added thereto in a unique manner and without the usual valves and complicated throttle controls.

The drive for the handpiece X is incorporated in the head thereof in the manner set forth and claimed in my Letters Patent No. 3,132,426, entitled Turbine Driven Dental Handpiece, issued May 12, 1964. In the particular construction illustrated the handpiece X is of the "contra angle" type wherein the axis of the head is at an angle to the axis of the handpiece body. Further, the power or energy for driving the rotating elements is conducted to and from the handpiece through flexible tubings **7**, **8** and **9** that are swivelly coupled to the rearmost end of the handpiece body.

The driving head of the handpiece X, as best illustrated in FIG. 2 of the drawings, is a drive unit or prime mover and involves, generally, a case **10**, a shaft **11** rotatably carried in the case to project from one end thereof, a stator **12** fixed in the case to receive and direct fluid handled by the driving head, and a rotor **13** preferably integral with the shaft **11** to receive fluid directed by the stator and adapted to rotate the shaft.

The case **10** is an elongated shell-like part with a cone-shaped outer wall tapered inwardly toward the lower end thereof. A seat is provided at the lower end of the case **10** to carry an anti-friction bearing **14**, and a shoulder is provided intermediate the ends of the case **10** to support the stator **12** in the case. Intermediate the bearing **14** and stator **12** there is an exhausting chamber **15** defined by the wall of the case **10** and surrounding the shaft **11**. A cover **16** closes the top of the case **10** and has a seat to carry an anti-friction bearing **17**. The bearings **14** and **17** rotatably support the shaft **11** within the case **10**, the lower end of the shaft **11** projecting somewhat from the bottom of the case.

The stator **12** receives fluid under pressure, preferably air or the like, through a port **18** in the wall of the case **10** and supplied with flow of air from the tubing **8**. The stator **12** is characterized by an annular chamber defined by the wall of the case **10** and an inner wall of the stator **12**. Fluid received by the stator **12** is directed upwardly through vanes that are carried thereby, said vanes being in a continuous annular series.

The rotor **13** receives fluid directed upwardly by the stator **12** and is adapted to handle the fluid so that it is conducted inwardly and downwardly, imparting driving force to the rotor **13**. The rotor **13** is preferably integral with the shaft **11** and has a continuous annular series of blades. The stator vanes and blades are suitably pitched, in the direction of rotation, and as circumstances require, in order to gain the desired speed of rotation, etc.

The head is employed to drive a cutter K, for example, a burr cutter, as shown. The shaft **11** has a straight bore **22** entering the lower end thereof to slidably receive the shank **23** of the cutter. The upper end of the cutter shank **23** is notched to engage with a key in the bore **22**. In order to retain the cutter K in working position, I may provide a friction-exerting or detent-type collet at the lower end portion of the shaft **11**. For example, the lower end portion of the shaft **11** is split at and provided with inward projections that engage in a groove in the shank **23**.

In operation, fluid used to drive the rotor is received from the lower end of the rotor by the exhausting chamber **15**, and it is directed from the chamber through an enlarged exhaust port in the side wall of the case **10** (see FIG. 2), and it is finally directed to exhaust through the tubing **7**. It will be apparent that the dental tool or handpiece X thus far described is adapted to be conveniently manipulated by one hand of the dentist, preferably the right hand, as shown.

The control for the handpiece X is incorporated in the control implement Y which additionally serves a plurality of functions, namely as a dental mirror for inspection as work progresses, as a retractor to hold back and position facial tissues, and as a fluid or coolant applicator. In accordance with the invention, the control implement Y involves, generally, a body A, a valve means V and V', fluid coupling means B, control means C and C', a fluid or coolant applicating means D and a dental tool or implement E preferably a mirror M supported by a stem **30** from the body A. It is to be understood that the particular tool to be involved can vary as circumstances require.

The body A is to be considered the stationary element of the structure, and with the structure to be hereinafter described in connection with the two valve means V and V' there are parts at opposite ends of the body that are movable axially and adapted to variably control flow of fluid and air from the power supply later described. The control means C and C' are adapted to be manipulated by the thumb and/or fingers of the dentist at the one hand of said dentist that is used to carry and position the control implement Y, preferably the left hand as shown. The coolant applicating means D directs flow of air in the direction of the work being performed, and upon the face of the mirror M to de-fog the same. And, the fluid coupling means B directs air to and from the control implement Y and through the implement Y, whereby separate and selectively variable flows of air are conducted to the handpiece X and fluid or coolant applicating means D respectively.

The body A is an elongated tubular element that carries the parts comprising a handle to be gripped and manipulated by the dentist's hand, and which more specifically carries the fulcrum for the levers of the control means C and C', and carries the fixed seats of the valve means V and V', all as described in connection with said means respectively. Generally, the body A comprises a control finger rest **31** that is round, and two oppositely projecting cylindrical portions **32** and **33**, the portion **32** projecting rearwardly and the portion **33** projecting forwardly. A bore **34** extends centrally through the body A to open at the opposite ends thereof and the two opposite end portions of the body are externally threaded to receive spring seats **35** and **36**. Also, the body A has a pair of enlargements **37** and **38** surrounding the cylindrical portions **32** and **33** respectively and each spaced, preferably equidistant, from the central finger rest **31** and leaving depressions for operation of the control lever L later described.

The coupler or head B is an extension of the body A and projects rearwardly for communication with tubings **40** and **41**. In practice, it is desirable to have a swivel connection between the body A and tubings **40** and **41**, in which case the coupler B is swivelly projected from the rear of the body A. That is, the projecting coupler B is rotatable on the axis of the body A, having a central bore or valve chamber **42** slidable longitudinally and rotatable on a projecting bearing **43** at the rear of the body A. The rearmost end and bottom of the bore **42** is shaped to form one of the valve elements of the valve V, said bore **42** being in open communication with a supply duct **44** as well as with the bore **34** that extends through the body A. The duct **44** receives fluid under pressure from a laterally disposed connector **45** at the outermost end of the coupler B, and there is a second laterally disposed connector **46** forward of the bottom of said bore **42** to discharge fluid under pressure from the coupler B. Said connectors **45** and **46** are adapted to couple with the tubings **40** and **41**, respectively.

The valve means V is unique with the present invention in that it involves the above-described coupler B

that is movable longitudinally relative to the body A to reciprocate. In practice, the above-mentioned sliding fit is close enough to substantially prevent leakage forwardly, thus confiining fluid to the bores 42 and 34. In accordance with the invention the means V involves a valve seat 47 or element of reduced diameter and in the form of a male part that projects rearwardly from the bearing 43 and forming an annular valve chamber forwardly of the bottom of the bore 42. The movable valve element 48 that engages the seat 47 is formed by the bottom of the bore 44, and engagement of element 48 with the seat 47 prevents flow of fluid to the annulus surrounding the bearing, or allows flow variably as the distance is increased between the seat 47 and element 48. As indicated, the said annulus is in constant communication with the lateral connector 46.

The control means V' is a valve means of the type disclosed and claimed in my Letters Patent No. 3,125,809, entitled Valve Control for Dental Handpiece, which issued March 24, 1964, as best illustrated in FIG. 6 of the drawings, the valve means V' involves the cooperative engagement of a valve seat element 51 with a valve element 52. As shown, the valve seat element 51 is telescopically engaged within the element 52, the said elements having substantial telescoped and lapped engagement with a close sliding fit, and so that additional sealing means is not required at the operating pressures ordinarily involved. The element 52 is shouldered at 53 to position a valve 54, said element 51 being fixedly supported by the body A and with a central passage therethrough forming or in open communication with the bore 34 through body A. As shown, the seat element 51 has a seat 55 formed at its forwardmost end and adapted to be engaged by the valve 54.

The valve 54 involves a body 56 positioned by the shoulder 53, the forward end portion of the seat being slightly reduced in diameter leaving an annulus within the inner bore of the tubular element 52, and longitudinal passages 57 extend from the said annulus to the center of the valve to open into the element 52 at the forward end of said valve. It is preferred to gain a variable flow, in which case the rearwardly disposed valve face is tapered or cone-shaped, and so is the seat 55. It will be apparent that withdrawal of the valve elements from each other gradually increases fluid flow to the valve element 52 which is tubular with a delivery passage 58 that opens at the forwardmost end thereof. In order to have movement of said valve elements relative to each other, the element 52 is slidably carried in the bore 34 in body A, with the forwardmost end portion projecting from the said body.

The control means C and C' are essentially identical, said means being at opposite ends of the control finger rest 31, the means C being operable to actuate the valve means V, and the means C' being operable to actuate the valve means V'. As shown, each of said means involves, generally, a fulcrum F, a lever L and an operator O. The fulcrum F of means C is formed on the enlargement 37 of the body A while the fulcrum of means C' is on the enlargement 38, and the lever L of the two said means are engaged with said respective fulcrums to operate said respective operators O. Thus, the operator O of means C actuates the valve means V, while the operator O of means C' actuates the valve means V'.

The fulcrum F may be a simple pivot, however, in accordance with the preferred form of the invention it is a circular element that extends continuously around the body A of the handpiece. As illustrated in the drawings, the fulcrum F is in the form of a ring engaged over and projecting from the outer wall of the body A, and as shown, the outer wall of the ring is curved about a radius to have bearing engagement with the lever L, as hereinafter described.

The lever L is a circular element that surrounds the body A to be manually engageable at any point or position around the body. As illustrated, the lever L is in the form of a collar that encircles the body A with some clearance therebetween. The inner wall 76 of the collar is larger in diameter than the body A and engages over the ring that forms the fulcrum F. A flange 77 extends inwardly at the rear end portion of the collar and is provided with a rearwardly disposed operating face 78 and with a curved annular seat that has bearing engagement with the matching curved wall of the ring. Both the said wall and the said seat are continuous annular parts that are adapted to have bearing contact with each other at any point around the structure. Further, the flange 77 is keyed to the fulcrum F by a pin 80 engaged in a recess and so that rotation of the parts relative to each other is prevented.

By depressing the forward end portion of the collar inwardly, at any point around the circumference thereof, the flange 77 is rocked from its normally transverse plane normal to the axis of the handpiece, so that the peripheral part thereof diametrically opposite the pivot point is moved axially rearward. It will be apparent that depression of the collar at any point will rock the flange 77 and will cause maximum rearward motion at a point on the operating face 78 diametrically opposite the pivot point. The said operating face 78 is normally in flat engagement with the end 74 of the operator O, and when the lever L is depressed, as above set forth, the end 74 of the operator O is directly engaged and shifted axially.

Each operator O is adjustably coupled to the valve element actuated thereby, the coupler B involving the movable seat 47 is coupled by a sleeve 81, and the valve element 52 involving valve 54 is coupled by a sleeve 82. The sleeve 81 is threadedly engaged with the rearmost operator O and secured in a selected position by a lock nut 84, there being a compression spring 85 to yieldingly urge the operator forwardly to hold the lever L in a normal unactuated position to close the valve means V. Further, the said sleeve 81 is swivelly coupled to the coupler B as by means of a flange on one part operating in a channel in the other part, as shown. The sleeve 82 is threadedly engaged with the foremost operator O and secured in a selected position by a lock nut 86, there being a compression spring 87 to yieldingly urge the operator rearwardly to hold the lever L in a normal unactuated position to close the valve means V'. It will also be apparent how suitable adjustment can be made at the threaded connections between the operators O and sleeves 81 and 82, to remove all play from the mechanism.

The fluid applicating means D is adapted to receive flow of fluid controlled by the control C' and released by the valve means V', and to play the said fluid over the face of the mirror M and into the area of work performed to have a cooling effect. Therefore, passages conduct flow of air to one or more jets 90 that fan the air over and across the face of the mirror M. The stem 30 is compressed into a resilient bushing 91 at the forward end of the valve element 52 or sleeve 82 that is carried by the body A.

With the structure of the control element Y, thus far described, complete and infinitely variable controllability is realized over the handpiece X and over the de-fogging air and coolant air discharged at the jets 90. There are various ways that the implement Y can be conveniently manipulated depending upon the position of the hand and the dexterity of the person employing the same. In any case, the thumb and fingers of the hand are used to utmost advantage, a suitable and conveniently located finger being used to operate each of the control levers L.

The fluid power supply Z is cooperatively related to the dental handpiece X and dental control implement Y hereinabove described. Specifically, there are unique advantages in the cooperative relationship of components X, Y and Z, in that the component Z supplies power in the form of compressed air that is essentially untreated, in that the implement Y selectively and infinitely variably

throttles said air, in that one stream of said throttled air (the other stream of air being channeled through the implement) is returned to the components Z for treatment, and in that one or more channels of treated air are finally directed to the handpiece X for operation of the same. The supply means Z is, therefore, reduced to minimum requirements and involves, generally, an air pump and pressure storage unit **92** with a filter and moisture trap **93**, and a treating unit **94**, with an oiler **95** and an air-water sprayer **96**.

The unit **92** of the fluid power supply Z is separate from the unit **94**, it being significant that the control implement Y is in a series position therebetween. As shown, the unit **92** with its filter and moisture trap **93** delivers clean dry air under pressure to the valves V and V' of the implement Y, said air being conducted to the implement Y by the flexible tubing **40**. Said dry air is then usable as a de-fogging medium at the mirror M, as controlled by the valve V', and the air controlled by the valve V is returned to the component Z by a flexible tubing **41**. Air received at the component Z through the last-mentioned tubing **41** is then treated as circumstances require, it being preferred to add an oil mist to the air that is used to drive the head of the handpiece X, and to add water mist or spray to coolant air that is discharged at the head of said handpiece. Thus, I have shown the flexible tubing **8** extending to the handpiece from the oiler **95** to supply oiled drive air thereto, and the flexible tubing **9** extending to the handpiece from the sprayer **96** to supply moistened air thereto.

From the foregoing, each function of the means provided will be apparent and the resulting apparatus that I provide not only reduces loss of time but adds materially to the comfort of the patient. The dentist has control over both the de-fogging device for the mirror and over the speed of the handpiece. Cleaning out of debris can be accomplished with the jets **90** of the implement Y and work continued without interchange of tools and without continued removal and re-entry of tools into the patient's mouth.

Having described only a typical preferred form and application of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any modifications or variations that may appear to those skilled in the art and fall within the scope of the following claims.

I claim:

1. In combination, a fluid-driven rotary dental tool including an elongated body manipulatable by one hand of the operator, a separate control implement comprising an elongated body manipulatable by the other hand of the operator, fluid control valve means carried by said implement, and an auxiliary means also carried by said implement, a fluid conduit in said implement extending from said valve means to said auxiliary means, a supply means for driving fluid under pressure, flexible tubes connected to opposite sides of said valve means and respectively extending to said fluid supply means under pressure and to said rotary dental tool, and a valve actuator connected to said valve means and mounted on said implement in position to be engaged by the fingers of the hand holding the implement to actuate said valve means for selectively controlling the supply of driving fluid under pressure from said supply means to said rotary dental tool and to said fluid conduit for delivery to said auxiliary means, as desired.

2. The combination of claim **1** wherein a coupler is movably supported by one end of the elongated body of said implement to cause actuation of said valve means, said coupler containing a valve chamber and said tubes being connected to said coupler and communicating with said valve chamber therein.

3. The combination of claim **2** wherein the valve means comprises a valve seat within said valve chamber and a valve member fixed relative to said elongated body of said implement, movement of said coupler and valve seat relative to said body causing opening and closing of said valve means.

4. The combination of claim **3** wherein said valve actuator is movably supported by said body of said implement and interengages said coupler to move the same relative to said body of said implement and thereby actuate the valve-forming members relative to the other.

5. In combination, a fluid-driven rotary dental tool including an elongated body manipulatable by one hand of the operator, a separate control implement comprising an elongated body manipulatable by the other hand of the operator, auxiliary dental means mounted on one end of said implement, fluid passage means in said implement having discharge means adjacent said auxiliary dental means for delivery of fluid thereto, a fluid supply line connectable from a source of fluid under pressure to said implement, a first valve means on said implement operable to control the flow of fluid to said fluid passage from said supply line, a fluid delivery line from said implement to said dental tool to furnish driving fluid thereto, a second valve on said implement operable to control the flow of fluid from said implement to said dental tool, and valve actuating means on said implement respectively interengaging said valves and selectively engageable and operable by the fingers of the hand of the operator which holds and manipulates said implement to control the flow of fluid to said hand-piece to operate it and to furnish fluid to said auxiliary dental means, as desired.

6. The combination of claim **5** in which the auxiliary dental means is a mirror and the fluid passage discharge means on said implement being arranged to discharge fluid onto said mirror to remove deposits therefrom incident to the use thereof.

7. The combination of claim **5** in which the implement has means movably mounted on opposite end portions thereof respectively interconnected to said valves to operate the same selectively.

8. The combination of claim **7** in which said valve actuating means are mounted on said implement intermediately of the ends thereof and interengage said means on opposite end portions of said implement which are interconnected to said valves.

9. In combination, a fluid-driven rotary dental tool including an elongated body manipulatable by one hand of the operator, a separate control implement comprising an elongated body manipulatable by the other hand of the operator, auxiliary dental means mounted at one end of said implement, a discharge opening in said implement adjacent said auxiliary dental means, a valve chamber in said implement, a fluid passage extending through said body connecting said valve chamber with said opening, a first flexible tube having one end connectable to a fluid supply under pressure and the other end being connected to said valve chamber, a second flexible tube directly connecting said valve chamber with said rotary tool, valve means in said valve chamber for controlling the flow of fluid between said first and said second flexible tubes, a valve actuator mounted on said implement in position to be engaged by the fingers of the hand holding the implement for controlling the supply of fluid under pressure to drive the rotary tool, valve means in said fluid passage for controlling the flow of fluid to said discharge opening, and another valve actuator for said last named valve means mounted on said implement in position to be engaged by other fingers of the hand holding the implement for controlling the flow of fluid to said opening for discharge across said auxiliary dental means.

10. The combination of claim **9** wherein said valve means in said fluid passage is a variable orifice control valve capable of being opened variably by said second actuator to effect the volume of fluid flow across said auxiliary dental means.

11. A dental mirror device including a control implement for controlling the flow of fluid therethrough for auxiliary purposes and also for controlling the flow of fluid to a separate fluid-operated dental tool having handle means to support the same independently of said device, said mirror device comprising an elongated body arranged to be held by an operator in one hand and having a mirror on one end, said body having a fluid conduit extending longitudinally thereof and opening at one end thereof toward said mirror, a flexible tube connected to said body and extending therefrom for connection to said dental tool to supply driving fluid thereto, said body also having a pair of longitudinally spaced and independently actuatable finger-operated valves each capable of regulating the flow of fluid therethrough, means on said body connectable to a single fluid power supply source for supplying fluid under pressure to each of said valves, one valve being connected to said fluid conduit for controlling fluid flow through said implement to said opening at said one end thereof for delivery to said mirror and the other valve being connected to said flexible tube for controlling fluid flow to said fluid-operated dental tool.

12. The control implement of claim 11 wherein each of said finger-operated valves comprises a valve seat member and a valve member movable relative thereto, a fulcrum in the form of a ring fixed to and surrounding the body and a finger-operable lever pivotally engaging the fulcrum and being in the form of a collar extending over the body and engaging one of said valve members to actuate it.

13. The control implement of claim 11 wherein said implement has means movable longitudinally on opposite ends of the elongated body thereof and respectively carrying movable portions of said finger-operated valves, and valve actuators mounted movably upon said body of said implement between said longitudinally movable means and respectively engaging said means to move the same as desired to actuate said valves.

14. The control implement of claim 13 wherein said longitudinally movable means are sleeve-like means respectively carrying a movable member of said valves and operable to move the same relative to fixed valve members carried by the body of said implement.

15. The control implement of claim 14 wherein said valve actuators are annular collars surrounding said body of said implement and comprising lever members engageable at one end with ring-like fulcrum means fixed to said body, whereby said valves may be actuated regardless of which sides of said collars are engaged by the fingers of the operator.

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