Jan. 14, 1969 R. L. NEWMAN 3,421,222

METHOD AND APPARATUS FOR FILLING DENTAL CAVITIES

Filed March 23, 1966 Sheet 1 of 2

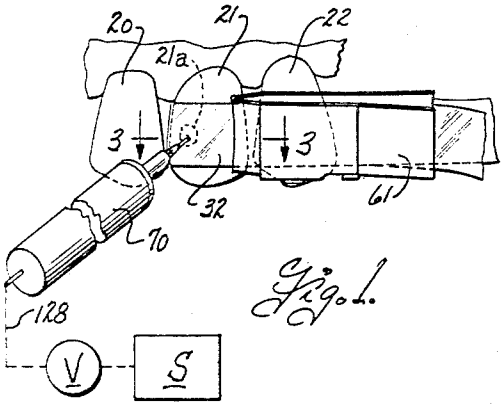


Fig. 1.

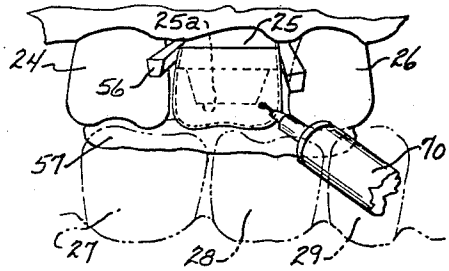


Fig. 2.

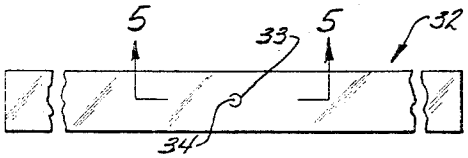


Fig. 4.

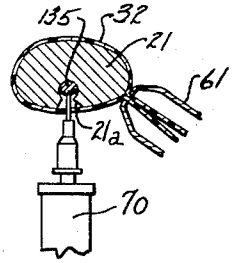


Fig. 3.



Fig. 5.

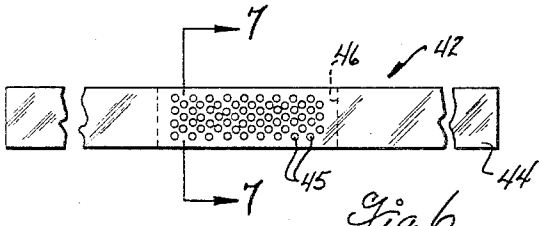


Fig. 6.

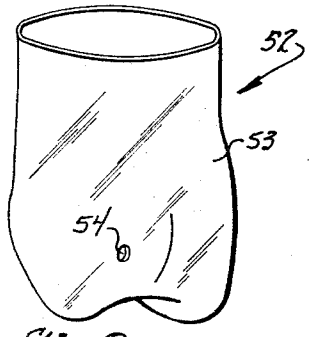


Fig. 8.

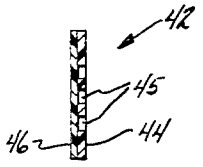


Fig. 7.

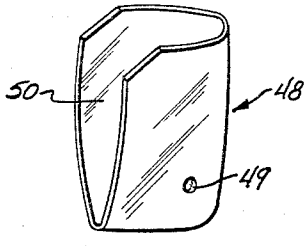


Fig. 8-A.

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Fig. 9.

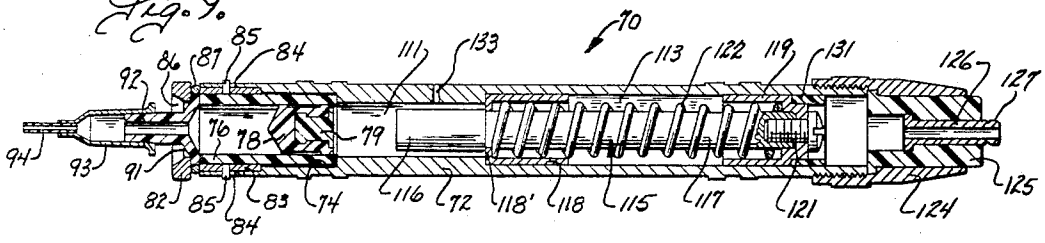


Fig. 10.

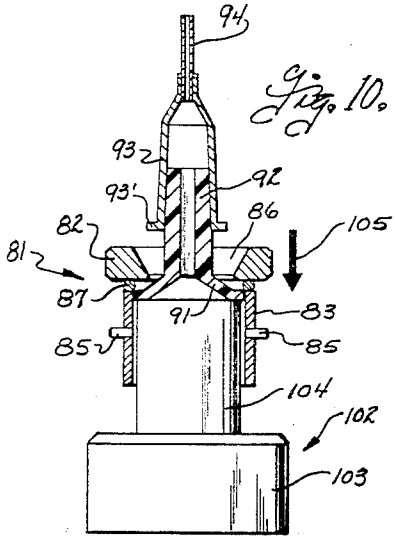


Fig. 11.

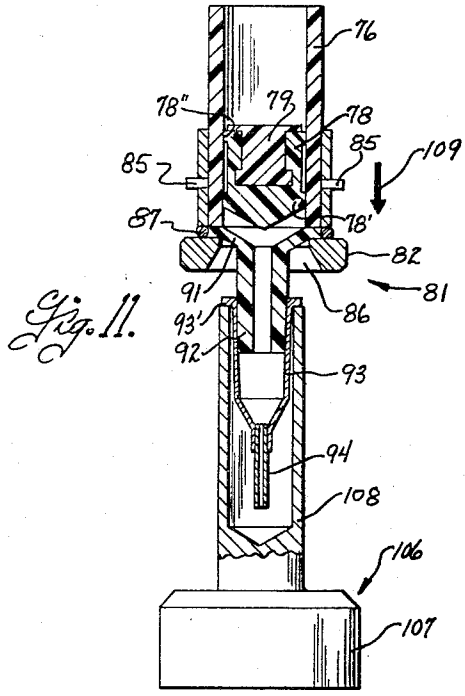


Fig. 12.

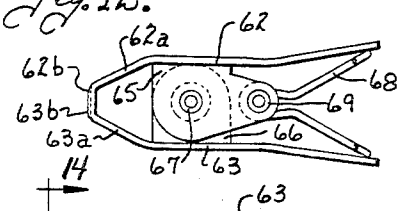


Fig. 13

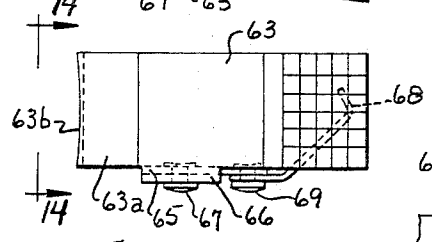


Fig. 14.

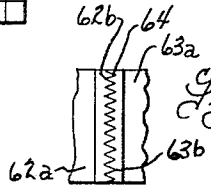


Fig. 15.

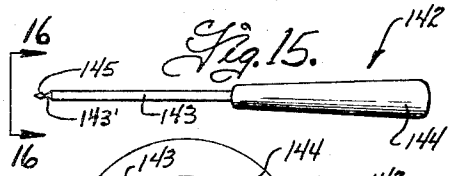
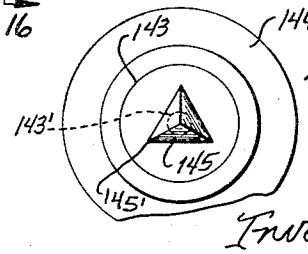


Fig. 16.



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3,421,222

METHOD AND APPARATUS FOR FILLING DENTAL CAVITIES

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U.S. Cl. 32—15 17 Claims
Int. Cl. A61c 5/12; A61k 5/02

ABSTRACT OF THE DISCLOSURE

The method includes securing a form over a cavity and providing an opening in the form, inserting a barrel through the opening and into the cavity, and introducing filling material through the barrel to fill the cavity from its inner portion toward the form. The disclosed apparatus includes a dispenser, several types of dental forms, a clamp, and a tool for providing the opening in the forms. The dispenser is operated by air pressure and has a removable cartridge in which the filling material may be prepared.

This invention relates to a method and apparatus for filling a cavity in a tooth.

It is an important object of this invention to provide a new and useful method and apparatus for filling cavities in teeth faster and easier than existing methods and apparatus.

Another object is to provide a method and apparatus for filling dental cavities in both anterior and posterior teeth.

It is another object of the invention to provide a method and apparatus for filling dental cavities and for procuring substantially perfect marginal adaption of the filling material on all portions of the cavity margins.

Still another object is to provide a method and apparatus in accordance with the above and which is usable for restoring incisal edges and crowns of teeth.

Another object of this invention is to provide a method and apparatus in accordance with the above object which provides substantial savings in cost.

Yet another object of this invention is to provide unique dental forms for use in the method of filling a cavity in a tooth.

Other objects and advantages of this invention will become apparent as the method and apparatus become better understood by reference to the following specification taken in conjunction with the accompanying drawings wherein:

FIGURE 1 is illustrative of the method of the present invention being used to fill a cavity in an anterior tooth and includes a view, in part perspective and in part diagrammatic, of a typical apparatus for performing the method;

FIG. 2 is illustrative of the method of the present invention being used to crown a posterior tooth;

FIG. 3 is a partial sectional view taken generally along lines 3—3 of FIG. 1;

FIG. 4 is an elevational view of a matrix strip constructed in accordance with the present invention;

FIG. 5 is a sectional view, on a larger scale and with exaggerated thickness, taken along lines 5—5 of FIG. 4;

FIG. 6 is an elevational view of another matrix strip constructed in accordance with the present invention;

FIG. 7 is a cross-sectional view taken along line 7—7 of FIG. 6 and on a larger scale and having exaggerated thickness;

FIGS. 8 and 8–A are perspective view of embodiments of tooth forms constructed in accordance with the present invention;

FIG. 9 is a longitudinal sectional view of a dispenser for filling material constructed in accordance with the present invention;

FIG. 10 illustrates a tool for securing a barrel to the end of a dispenser;

FIG. 11 illustrates a tool for removing the barrel and cartridge from the end of the dispenser after use;

FIG. 12 is a large-scale top plan view of a matrix clamp constructed in accordance with the present invention;

FIG. 13 is a front view of the matrix clamp of FIG. 12;

FIG. 14 is an end view taken along line 14—14 of FIG. 13;

FIG. 15 is an elevational view of a dental tool constructed in accordance with the present invention for cutting an opening in a matrix strip; and

FIG. 16 is an end view taken along line 16—16 of FIG. 15 and on a much larger scale.

Reference is now made more particularly to the drawings wherein similar reference characters indicate similar parts throughout several views. A plurality of anterior teeth 20–22 are illustrated in FIG. 1 and a plurality of posterior teeth 24–29 are illustrated in FIG. 2. The method of the present invention is particularly adapted for repairing or restoring damaged teeth. For example, the method may be used for filling a cavity 21*a* as in tooth 21; it may be used for repairing the incisal edge of a tooth; or it may be utilized for crowning as on tooth 25, or other repairing applications. Such repairs, in general, may hereinafter be sometimes referred to as cavities and it should be understood that this term may include any condition of a tooth which requires repair. While the drawings indicate repairing a cavity in an anterior tooth and crowning a posterior tooth, this is for illustrative purposes only and it should be understood that the present invention is not so limited.

The cavity 21*a* or 25*a* may be prepared for filling in the usual manner as, for example, undercutting the sides in a generally key-shape (FIG. 3) or, when a larger portion of the tooth is missing, providing a shoulder preparation by making all margins square and solid thereby avoiding thin, tapering edges (FIG. 2). The cavity preparation may include lining the cavity with a cement, a primer, or a pulp-capping composition. The preparation may also include moisture exclusion by physical or chemical means to exclude moisture from the cavity during placement of the filling material.

Following the preparation of the cavity, a form is secured in position over the cavity. The type of form used depends on the character or type of cavity being filled. For example, if the cavity is in the side of the tooth, a matrix strip such as shown in FIGS. 4–7, may be used. If an incisal edge or occlusal surface is to be repaired, or the tooth crowned or capped, a tooth form such as shown in FIGS. 8 and 8–A, may be used. While such repairs may hereinafter sometimes be referred to as applying to an incisal edge it should be understood that this includes occlusal surfaces. Also, tooth forms and matrix strips may hereinafter be referred to as forms or dental forms and it should be understood that such terminology is not limited to a particular type of matrix, tooth form or the like.

The matrix of FIGS. 4 and 5, generally designated 32, is advantageously made of synthetic resin and has a height less than the overall height of an ordinary tooth and a length substantially greater than the circumference of the tooth. While the thickness may vary in accordance with the strength of the material, the embodment illustrated has a thickness in the range of about .002–.004 inch. Approximately mid-way between the ends of the

strip is provided a generally U-shaped slot **33**, conveniently formed by a punching operation. The slot defines a flap **34** which is flexible and movable laterally from the strip about a line connecting the ends of the slot to provide an opening in the matrix strip, as shown in FIG. 5.

The matrix strip shown in FIGS. 6 and 7, generally designated **42**, has a shape approximating that described above for matrix strip **32**. Matrix strip **42** comprises a first elongate strip **44** having a plurality of openings **45** located in a central portion intermediate its ends. A second flexible strip **46** is secured to the first strip in any convenient manner and underlies the openings to provide a closure therefore. The second strip is preferably made of synthetic resin which is readily rupturable for rupturing by a total inserted through a selected opening **45**, but strong enough to span the adjacent openings **45** without dishing into the openings when the cavity is filled with material. Preferably the second strip is sufficiently resilient to substantially reclose the opening when the tool is removed therefrom. For small cavities, the first layer may be of synthetic resin about the thickness described above for strip **32**. For larger cavities, the first layer is advantageously stainless steel to provide greater strength to span the cavity. With the plurality of openings, preferably spaced in staggered relationship, as shown, the dentist is assured that at least one opening overlies the cavity. As an aid in visually locating the openings, the first layer is preferably colored and the second layer is preferably transparent. I have found that a blue first layer is particularly advantageous and that the contrast between it and a clear second layer makes it easy to locate the opening over the cavity. It is contemplated that matrix **42** may also be constructed of one layer having a plurality of openings 45 therein and that these openings be at least partially refilled with a readily rupturable synthetic resin. It is necessary, however, that the underside of the matrix provide a smooth surface to overlie the cavity. As indicated above, it is preferably that the rupturable synthetic resin be resilient to substantially reclose when the tool is removed therefrom.

A tooth form **48** (FIG. 8–A) is preferably utilized when it is necessary to repair the incisal edge of a tooth. To provide access for filling a cavity, an opening **49** is preferably provided in wall **50** of the tooth form. A tooth form or cap forms **52** (FIG. 8) is used when it is necessary to crown or cap a tooth. To provide access for the filling of the cavity, as shown in FIG. 2, an openings **54** is provided in wall **53** of the tooth form.

While either matrix strip **32** or **42** is advantageously utilized for filling cavity **21***a*, FIG. 1 illustrates matrix **32** in use. Prior to positioning, the strip may be pulled over the rim of a dentist's mirror or any round edge to concave the surface and avoid cupping the filling. This is particularly applicable to large cavities. The opening in matrix **32** is positioned over the cavity **21***a* and the strip is doubled upon itself to provide a loop extending around the tooth **21** and with the end portions of the strip in juxtaposition. The dentist then pulls on the end portions to tighten the central portion of the strip against the tooth and clamps the end portions in an area adjacent the tooth to hold the central portion tightly against the tooth. The clamping is advantageously performed with a matrix clamp **61**.

A preferred matrix clamp, generally designated **61**, is illustrated in FIGS. 12–14. The clamp comprises elongate members **62**, **63** having inwardly tapered portions **62***a*, **63***a* and opposed nose portions **62***b*, **63***b*. Each nose portion is provided with a plurality of five teeth **64** arranged to interfit with teeth of the opposite nose portion. The outer surface of nose portions **62***b*, **63***b*, is preferably concave, as shown in FIG. 13, to generally conform to the labial surface of a typical anterior tooth. In this manner, when clamped on a matrix strip, the strip is gripped closely adjacent the tooth over its entire width. Adjacent one side of the clamp are arms **65**, **66** mounted on members **62**, **63**, respectively. The arms are pivotally connected by means of a fastener **67** and arm **65** conveniently has a rearward extension for mounting a spring **68**, as by fastener **69**. The spring is advantageously U-shaped and has its legs extending sidewardly and upwardly into engagement with members **62**, **63**. It will be noted that this arrangement of arms **65**, **66**, and spring **68** is disposed generally at a side of the members **62**, **63** thereby leaving the area therebetween substantially open for reception of a matrix strip. After the matrix is looped around a tooth and its end portions placed in juxtaposition, the clamp is easily opened and slipped over the matrix strip from the side opposite arms **65**, **66**. With this arrangement there is no interference with the matrix strip and the strip is held closely adjacent the labial surface of an anterior tooth across the entire width of the strip.

When a tooth form, **48** or **52**, is to be used, one of proper size is first selected. Preferably, the size of the form is such that it closely engages the surface of the tooth. The position of opening **49** or **54** is then selected and the opening formed by any convenient manner as by a dental burr. The form is then slipped onto the tooth and properly positioned. When repairing an incisal surface, proper aligning and positioning is important, likewise, when capping a tooth, a proper occlusion is important, and the dentist may have the patient "bite," as shown in phantom in FIG. 2, to aid in positioning the tooth form. When such positioning is determined, the form is advantageously held by a layer of dental wax **57** which is applied to the surface of the tooth form and adjacent tooth surfaces. It can be seen that this procedure is advantageous since the proper occlusion or alignment of the incisal edge is determined prior to filling the cavity or repairing the tooth. Wedges **56** are inserted between the tooth form and an adjacent tooth to keep the material from oozing into the gum area.

After the dental form is secured into position in a manner described above, the cavity is ready to be filled. A particulariy advantageous dispenser for this purpose is described below.

A filling material dispenser, generally designated **70**, is illustrated in FIG. 9. The dispenser has a generally cylindrical elongate body portion **72** having an internal compartment **74** adjacent its left end as viewed in FIG. 9. A removable cartridge is disposed in the compartment **74** for holding the filling material and includes a preferably tubular body portion **76** and having a piston disposed therein. The piston includes a tapered rubber plunger **78** and a plastic insert **79**. The rubber plunger is movable toward the left end of the compartment to force the filling material out of the compartment and has annular flanges **78'**, **78''** (FIG. 11) in engagement with the inner wall of body **76** to generally provide a seal therewith and force substantially all the material out the compartment. A closure assembly, generally designated **81**, is arranged to overlie the end of the body **72** and has a cap **82** and a neck portion **83** for insertion between the body and the cartridge as shown in FIG. 9. Bayonet slots **84** are provided in the body **70** for receiving pins **85** to hold the closure at the end of the dispenser and to tighten the cartridge body **76** against the rear side of compartment **74**. Closure **82** has an opening **86** therein, through which extends a cartridge closer. As shown, the cartridge closer includes a cover portion **91** flaring outwardly from the cartridge at an angle generally complementary to the surface of the plunger **78**. In this manner the plunger may force substantially all the material from the cartridge. A hollow neck portion **92** communicates with the cartridge and is generally coaxial with the cartridge inner surface. A neck engaging member **93** is frictionally secured to the neck portion **92** and has a barrel **94** extending therefrom. For use in the present invention, the outer diameter of barrel **94** is less than the size of the cavity and the inside

diameter is of a size sufficient for passage of a flowable filling material therethrough. The extremity of barrel **94** may be generally square, as shown, or tapered slightly to provide a sharp cutting edge for easily piercing second layer **46** of the matrix strip (see FIG. 7).

Closure **82** has a generally U-shaped spring **87** thereon and adjacent one end of neck **83** for engaging and supporting cover portion **91** in position. For this purpose, a tool **102** is provided. The tool comprises a base portion **103** and a generally upright head **104** on the base. Head **104** has a diameter approximating that of cartridge body **76** for engaging cover portion **91**. The neck and barrel assembly is loosely inserted through opening **86** and inverted on tool **102**, as shown in FIG. 10. Cover portion **91** is engaged and held by spring **87** by movement of closure **82** in a direction indicated by arrow **105** in FIG. 10.

FIG. 11 illustrates another tool, generally designated **106**, for use in removal of the barrel and neck assembly after the dispenser has been used for filling a cavity. Second tool **106** includes a base **106** and a generally upright tubular body **108** attached thereto. Tubular body **108** has an inner diameter sufficient for receiving neck engaging portion **93** therebetween and has a length sufficient so that its upper end may engage flange **93'** of tube engaging portion **93**. After use of the dispenser, the cartridge is advantageously removable from the cavity along with the closure assembly **81**. Thus, for removal of the neck and barrel assembly and the cartridge from closure **82**, neck engaging portion **93** and barrel **94** are inserted into tubular member **108** until flange **93'** engages the end of tubular member **108**. Further movement of closure **82** in a direction indicated by arrow **109** disengages the neck and barrel assembly and the cartridge from the closure. The cartridge and neck and barrel assembly are conveniently made of relatively inexpensive materials so that these portions may be discarded after use, thereby eliminating the necessity of cleaning any parts of the dispenser.

An exemplary means for dispensing materials through the barrel is illustrated in the right hand portion of FIG. 9 and is disposed in the hollow cylindrical portion of body **72**. As illustrated, the body defines a second compartment **111** communicating with internal compartment **74** and a third compartment **113** communicating with second compartment **111** and having a larger diameter for reason which will hereinafter become apparent. A plunger assembly, generally designated **115**, is disposed in compartments **111** and **113** and includes a body portion **117** and a head portion **116**, of slightly larger size, attached thereto. A first sleeve **118** is disposed around the left end of body **117** and a second sleeve **119** is attached to the right hand end thereof as by fastener **121**. A compression type spring **122** is disposed around body **117** and extends between sleeves **118** and **119**. The spring holds the plunger assembly in the position illustrated with the rear edge of head **116** engaged with sleeve flange **118'**. The right hand end of dispenser body **72** is conveniently threaded for receiving a threaded closure **124** thereon. An insert **125**, conveniently made of plastic, is held by the threaded closure and has a metal tube **126** extending therethrough. Tube **126** conveniently has a collar **127** disposed outside of insert **125** for reception of an air line coupling through which air may be fed under pressure to third compartment **113**. Such a supply of gas under pressure is usual in dentist offices and includes a supply S and a valve V disposed in air line **128** (FIG. 1) which may be coupled to tube **126**. When the valve V is opened, air, conveniently under 30 p.s.i. pressure, is fed through line **128** and tube **126** into third compartment **113**. A gasket **131** is mounted on second sleeve **119** and is arranged to engage the surface of third compartment **113** whereby the air pressure will cause the plunger to move into engagement with piston insert **79** and dispense material through the barrel. At the extremity of the movement, sleeve **119** will engage sleeve **118** thereby controlling the movement of head **116** thereby preventing any excessive pressure against closure assembly **81**. An air vent **133** is provided in body **72** and communicating with second chamber **111** to relieve any compression during movement of the plunger for dispensing and to relieve the interior to atmosphere when air pressure is removed, thereby allowing the plunger assembly to return the position illustrated.

A suitable material for use in the method is "Bonfil" sold by L. D. Caulk Co. of Milford, Del. This material, when mixed in accordance with instructions is readily flowable and lends itself for use in the present invention. The removable cartridge may advantageously be used as a receptacle for mixing the material preparatory to use. It can be seen that the cartridge can stand upright on its right end, as viewed in FIG. 9. Also, its opposite end is generally open to provide access for the insertion of materials to be mixed. The tight seal provided by flanges **78'**, **78''** on plunger **78** prevent the loss of material during such mixing.

It is now deemed obvious that the above described apparatus can be utilized to quickly and easily fill dental cavities. In the method illustrated in FIG. 1, a matrix strip is secured in position. The tubular barrel **94**, which has an outer dimension less than the size of the cavity, is inserted through an opening in the form and into the cavity. A flowable filling material, as at **135** in FIG. 3, is dispensed through the tubular barrel and into the cavity. Since the barrel is disposed inside the cavity, it can be readily seen that the first amount of material dispensed will be dispensed in the rear portion of the cavity and thus the cavity is filled from its inner portion toward the tooth surface, and all air is forced out by the filling material **135**. While maintaining the air pressure on the dispenser, the barrel is removed from the cavity and the opening is preferably reclosed to provide a substantially smooth outer surface of the filling material. After proper curing time, the matrix may be removed. When the matrix is in the form of the embodiment illustrated in FIGS. 4 and 5, the opening is advantageously reclosed by the repositioning of flap **34**. When the matrix is in the form illustrated in FIGS. 6 and 7, the barrel **94** is inserted through opening **45** and into engagement with second strip **46**. Further movement of barrel **94** pierces strip **46** and allows the barrel to be disposed inside the cavity. Second strip **46** is advantageously resilient so that, when the barrel is withdrawn, the opening made by the barrel is substantially reclosed.

An ordinary matrix strip (not shown) may also be utilized in this method. Such a strip may be secured in position as described above and a reclosable opening formed in the strip to allow the barrel to be inserted in the cavity. For this purpose, an advantageous dental tool, generally designated **142**, is provided (FIGS. 15 and 16). The tool includes an elongate body portion **143** having a handle **144** adjacent one end and a barbed point **145** at its other end. The barbed point is advantageously of a pyramidal shape providing sharp points **145'** at its base. The base is mounted on body **143** by means of a reduced body section **143'** which is preferably of smaller size than the base to form points **145'**. The point **145'** may be placed against the normal matrix to cut a slit therein and thereafter the pyramidal head inserted through the slit. The point **145'** is then moved crosswise of the slit and retracted from the cavity thereby providing an opening into the cavity. This opening will have an irregular flap at the exterior surface of the matrix. In this manner, there is no irregularity on the interior surface and the flap can be reclosed after filling of the cavity.

It is now deemed obvious that the method of the present invention may be utilized for filling cavities in the side of a tooth and that it may also be utilized for repairing incisal edges of teeth or for capping a tooth, if desired. The method of the present invention provides a means for properly positioning a tooth form prior to dis-

pensing of the filling material into the form. In this manner, no impression need be taken and the capping or tooth repair can be quickly performed during one office call. A capping or crowning performed with this method will thus cost from ⅓ to ⅕ the cost of a repair which requires an impression and a number of office calls.

While I have thus described a preferred method of the present invention and preferred apparatus for use in the method, the invention in its broader aspects is not limited to the specific steps and mechanisms shown and described, but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

I claim:

1. A method of filling a cavity in a tooth comprising the steps of:
(a) preparing the cavity to be filled;
(b) securing a form in position over the cavity and contiguous to the tooth, and providing an opening in the form to communicate the cavity with the exterior of the form,
(c) inserting an end of a generally tubular barrel having an outer dimension less than the size of the cavity through the opening in the form and into the cavity so that the end of the tubular barrel is disposed inwardly of the form,
(d) introducing a flowable filling material through the tubular barrel and into the cavity to fill the cavity from its inner portion toward the form; and
(e) removing the tubular barrel from the cavity.

2. A method as set forth in claim 1 wherein the step of securing a form in position includes doubling an elongate flexible strip upon itself to provide a loop extending around the tooth with a central portion overlying the cavity and end portions in juxtaposition, pulling on the end portions to tighten the central portion against the tooth, and clamping the end portions in an area adjacent the tooth to hold the central portion tightly against the tooth.

3. A method as set forth in claim 1 wherein the form has a shape generally conforming to at least a portion of the outer surface of the tooth including at least a portion of the incisal edge thereof and has an open end whereby the form may be slipped onto the tooth; and the step of securing a form in position includes positioning the form with a portion overlying the cavity and aligning the occlusal surface thereof to provide a proper occlusion, wedging the form generally contiguous to the tooth with at least one wedge engaged with the form and an adjacent tooth, and applying a dental wax to the form and an adjacent surface to hold the form in position.

4. A method as set forth in claim 1 including the step of cutting a slot in the form with an instrument having a sharp point and a laterally extending barb, inserting the barb through the slot, moving the barb generally crosswise of the slot, and retracting the barb to thereby provide an opening in the form.

5. A method as set forth in claim 1 including: placing a quantity of flowable filling material in a container associated with the tubular barrel prior to inserting the tubular barrel through the opening in the form; and wherein the step of introducing the filling material through the tubular barrel comprises applying air pressure on a movable wall in the container to move the wall toward the tubular barrel and force the filling material into the cavity.

6. A method as set forth in claim 1 wherein the step of providing the opening in the form includes rupturing the form by the tubular barrel as the tubular barrel is inserted into the cavity.

7. A method of filling a cavity in a tooth comprising the steps of:
preparing the cavity to be filled;
providing a form including a first layer having a plurality of openings therein and a second layer of readily rupturable synthetic resins affixed to the first layer and spanning the openings;
securing the form over the cavity and contiguous to the tooth with at least one of the first layer openings positioned over the cavity;
rupturing the second layer adjacent said one of the first layer openings with a tubular barrel to provide an opening through the second layer;
inserting an end of the tubular barrel through the opening and into the cavity;
introducing a flowable filling material through the tubular barrel and into the cavity to fill the cavity from its inner portion toward the form; and removing the tubular barrel from the cavity.

8. A method of filling a cavity in a tooth compising the steps of:
preparing the cavity to be filled;
forming a generally U-shaped slot in a flexible form to provide a flexible flap movable laterally from the form in an area adjacent the ends of the slot to provide an opening in the form;
positioning the U-shaped slot over the cavity and securing the form contiguous to the tooth;
inserting an end of a generally tubular barrel having an outer dimension less than the size of the cavity through the opening in the form and into the cavity;
introducing a flowable filling material through the tubular barrel and into the cavity to fill the cavity from the inner portion toward the form;
removing the tubular barrel from the cavity; and
thereafter closing the flap to substantially cover the opening.

9. An apparatus for filling a cavity in a tooth comprising, in combination:
(a) a dental form contiguous to the surface of the tooth adjacent the cavity and including a wall overlying the cavity, said wall having an opening therein overlying the cavity, and means connected to the wall defining a closure for said opening;
(b) means engaged with the dental form for holding the same in position contiguous to the tooth; and
(c) means for dispensing a dental filling material in plastic state and including a cartridge for holding the filling material, a tubular barrel having an end sized for insertion through the dental form opening and into the cavity, and means for feeding the filling material from the cartridge into the cavity through the tubular barrel.

10. A combination as set forth in claim 9 wherein the dental form wall is in the shape of an elongated flexible strip having a length greater than the circumference of the tooth for wrapping around the tooth; and including clamping means for gripping the strip and securing the same contiguous to the tooth, and means for engaging the strip and cutting the opening therein.

11. An apparatus for filling a cavity in a tooth comprising, in combination:
a dental form contiguous to the surface of the tooth adjacent the cavity and including a wall overlying the cavity, said wall comprising a first elongate strip having first and second ends, said first strip having a length greater than the circumference of the tooth and so arranged that a central portion intermediate the ends may be wrapped around the tooth, said first strip having a plurality of openings in said intermediate portion at least one of which overlies the cavity, a second strip of underlying the first strip and providing a closure for said openings, and the second strip being of readily rupturable material for rupturing by a tool inserted through a selected one of the openings to communicate the cavity with the extension of the form;
means engaged with the dental form for holding the same in position contiguous to the tooth; and

means for dispensing a dental filling material in a plastic state and including a container for holding the filling material, a tubular barrel communicating with said container and having an end sized for insertion through the dental form opening and into the cavity, and means for feeding the filling material from the container through the tubular barrel and into the cavity to fill the cavity from its inner portion toward the dental form while the same is in position overlying the cavity.

12. An apparatus for filling a cavity in a tooth as set forth in claim **11** wherein the end of the tubular barrel is shaped for rupturing the second strip for the dental form as the end is inserted through said one of the dental form openings.

13. A dental form for use in filling a cavity in a tooth and for lying contiguous to the tooth adjacent the cavity, said dental form comprising: a wall overlying the cavity and having at least one opening therein overlying the cavity, and means connected to the wall defining a closure for said opening.

14. A dental form as set forth in claim **13** wherein said opening is in the shape of a generally U-shaped slot, and said last-mentioned means is a flexible flap formed by said U-shaped slot, said flap movable laterally from the wall generally about a line connecting the ends of the slot to provide access through said wall.

15. A dental form as set forth in claim **13** wherein the wall comprises a first elongate strip having first and second ends and a length greater than the circumference of the tooth, the first strip having an intermediate portion intermediate the ends for wrapping around the tooth and a plurality of openings in the intermediate portion; and wherein the last-mentioned means comprises a second flexible strip secured to the first strip and underlying the openings to provide a closure therefor, and the second strip being of readily rupturable material for rupturing by a tool inserted through a selected one of the openings in the first strip.

16. A dental form as set forth in claim **13** wherein said wall comprises a first elongate strip having first and second ends, said first strip having a length greater than the circumference of the tooth and so arranged that a central portion intermediate the ends may be wrapped around the tooth, said first strip having a plurality of openings in said intermediate portion; and wherein said last-mentioned means comprises a second flexible strip secured to the first strip and underlying said openings to provide a closure therefor, said second strip of readily rupturable material for rupturing by a tool inserted through a selected one of said openings overlying the cavity and into the cavity, and the second strip being sufficiently resilient to substantially cover the opening when the tool is removed.

17. A dental form as set forth in claim **16** wherein the first strip is of colored material and the second strip is of substantially transparent material whereby the openings in the first strip are well defined.

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