No. 716,677. Patented Dec. 23, 1902.

H. L. CRUTTENDEN.

COLLAPSIBLE DENTAL CEMENT INJECTING TUBE.

(Application filed May 12, 1902.)

(No Model.)

Fig. 1.

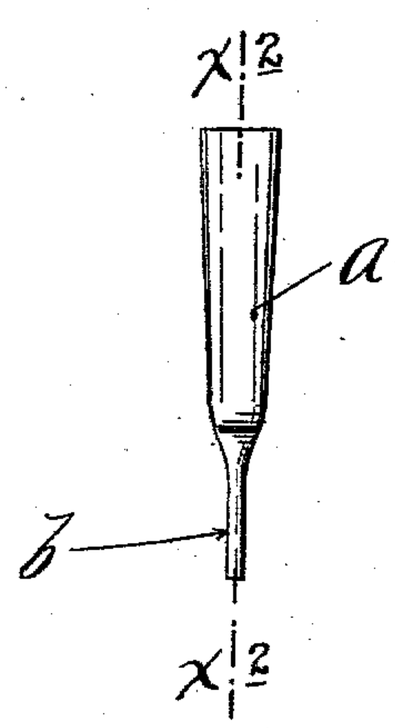


Fig. 2.

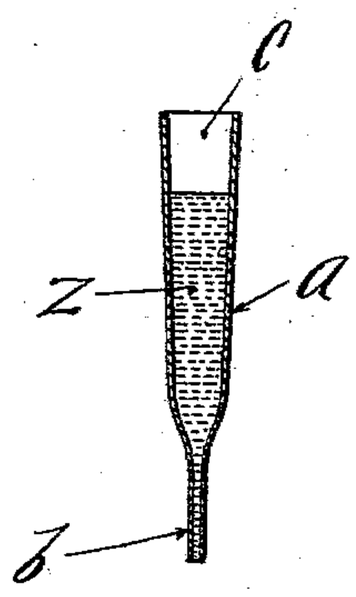
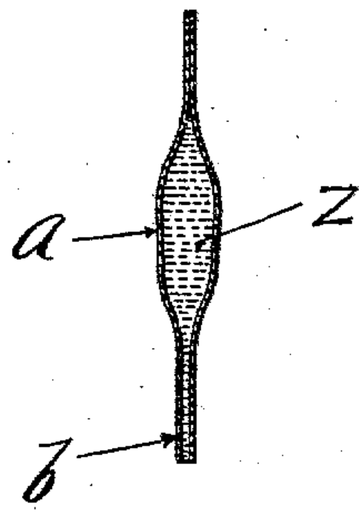


Fig. 3.



Witnesses.
N. D. Kilgore.
A. H. Opsahl.

Inventor:
Henry L. Cruttenden.
By his Attorneys.
Williamson & Merchant.

UNITED STATES PATENT OFFICE.

HENRY L. CRUTTENDEN, OF NORTHFIELD, MINNESOTA.

COLLAPSIBLE DENTAL-CEMENT-INJECTING TUBE.

SPECIFICATION forming part of Letters Patent No. 716,677, dated December 23, 1902.

Original application filed October 26, 1900, Serial No. 34,405. Divided and this application filed May 12, 1902. Serial No. 106,879. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. CRUTTENDEN, a citizen of the United States, residing at Northfield, in the county of Rice and State of Minnesota, have invented certain new and useful Improvements in Collapsible Dental-Cement-Injecting Tubes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention has for its object to provide a simple and efficient cement-injecting tube for injecting cement or other plastic material into the roots of teeth in setting crowns and bridgework, and is in the nature of a division of my prior application, Serial No. 34,405, filed October 26, 1900, entitled "Dental-cement injectors."

To the above ends the invention consists of the novel construction hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a plan view of a collapsible cement-injecting tube designed in accordance with my invention. Fig. 2 is a longitudinal section taken on the line $x^2 x^2$ of Fig. 1, showing the tube in normal condition, but loaded with cement; and Fig. 3 is a sectional view corresponding to Fig. 2, but showing the tube partially collapsed.

The character *a* indicates the body of the collapsible tube, which tube is open at one end and is formed at its other end with a contracted and attenuated or capillary discharge-nipple *b*, through which the cement is injected. The discharge-nipple *b* should be long enough to reach to the bottom of the cavity or canal of the root into which the cement is to be injected, and of course must be of such small diameter as to enable it to freely enter such cavity. This makes it possible to inject the cement from the first to the very bottom of the cavity and to drive out all air therefrom in the act of filling the cavity. As is evident, if any air should be caged in the bottom of the cavity by the cement the filling would not be complete, and bad results would follow.

The cement (indicated by the character *z*) is placed within the tube while in plastic condition through the large open end thereof, (indicated at *c*.) The tube *a*, it will be noted, is shown as slightly tapered toward the nipple *b* and is funnel-shaped at its junction with the said nipple. The former-noted feature is not very important; but the latter feature is highly important, as it prevents cement from lodging in the vicinity of the receiving end of the nipple. It will be noted that the large opening *c* of said tube is of the same or approximately the same diameter as the interior of the tube, thus making the insertion of the cement an easy matter. Even if the receiving end of the said tube were to be slightly expanded the tube would be considered as still having a receiving-opening of the same or approximately the same diameter as the interior of the tube.

To eject the cement from the tube through the nipple *b*, it is necessary first to close the large open end of the tube and then to collapse the tube by pressing the sides of the same together. So far as my present invention is concerned the tube may be collapsed either by pressure from the fingers or by the use of pliers or pincers—such, for instance, as is shown and claimed in my prior application above identified.

The collapsible tube may be made either of metal or tough paper; but in all cases it must, of course, be made of material which may be easily collapsed or pressed together, so as to eject the cement through the nipple *b*, as already described.

By actual usage I have demonstrated the efficiency of the device above described for the purposes set forth.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A collapsible dental-cement-injecting tube formed open at both ends, the opening at the one end being substantially the diamter of the interior of the tube, and the opening at the other end being through a capillary passage formed in a long attenuated neck portion which is adapted to be inserted into the cavity of a tooth, substantially as described.

2. A collapsible dental-cement-injecting

tube formed open at both ends, the opening at one end being substantially the diameter of the interior of the tube, and the opening at the other end being a capillary passage formed in a long attenuated neck portion, which neck portion is connected to the body of said tube by a gradually-flaring funnel-shaped section, and is adapted to be inserted into the cavity of a tooth, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY L. CRUTTENDEN.

Witnesses:

CHAS. N. CRUTTENDEN,

L. LOUISE ORR.