

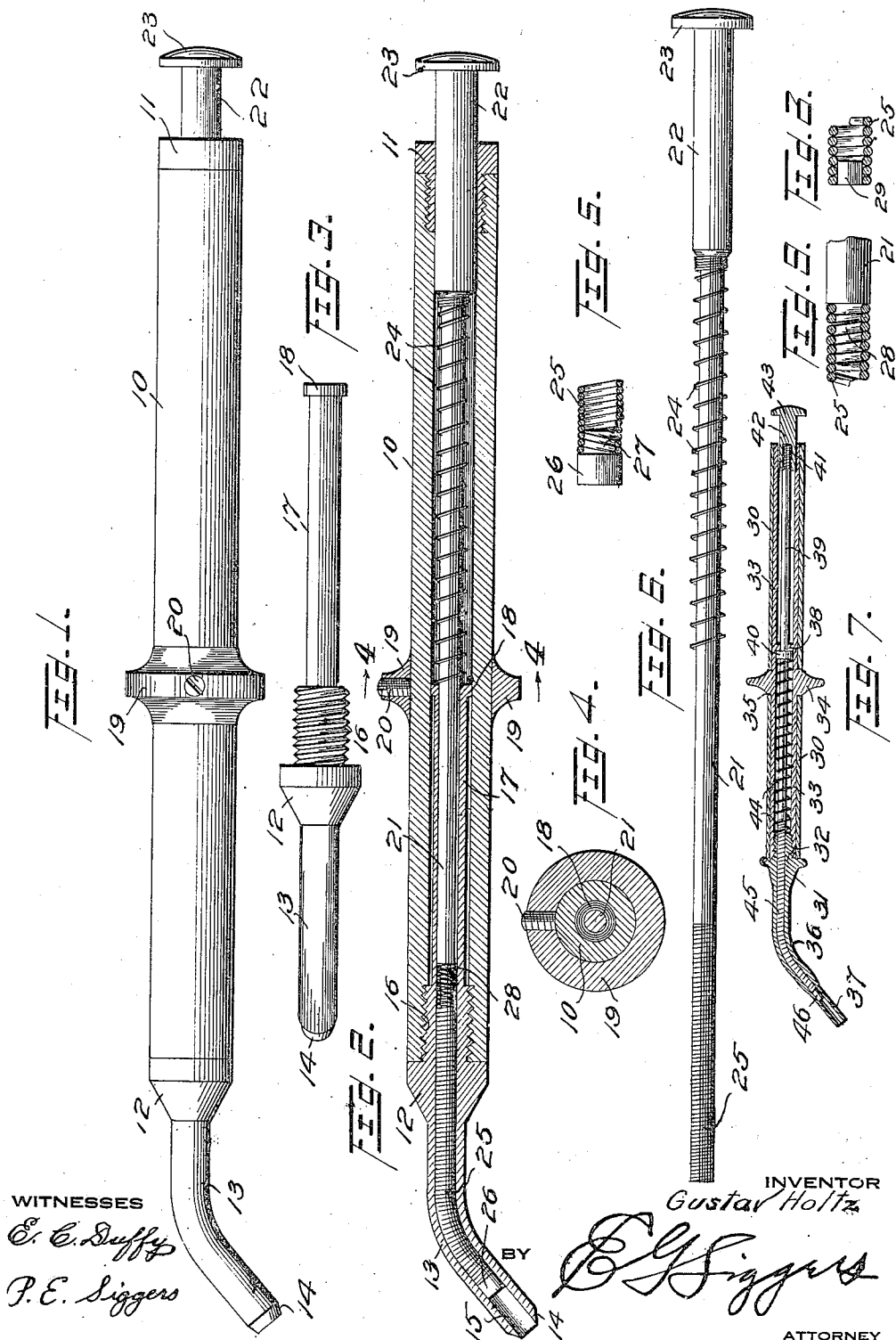
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AMALGAM CARRIER AND PLUGGER

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UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, GUSTAV HOLTZ, a citizen of the United States, residing at Gouldsboro, in the county of Wayne and State of Pennsylvania, have invented a new and useful Amalgam Carrier and Plugger, of which the following is a specification.

This invention relates to amalgam carriers for plugging the alloy into a cavity of a tooth.

An object of the invention is to provide an improved instrument which will enable the dentist to place fillings in cavities without the same coming into contact with any parts of the mouth.

Other objects are to provide an amalgam carrier which will hold the alloy without danger of dropping particles thereof, said carrier being aseptic, easily taken apart and sterilized, and not corroded by amalgam.

An additional object is to provide an improved form of dispensing or feeding plunger which is particularly adapted to work in a curved tube or carrier.

The invention will be best understood from the consideration of the following detailed description taken in connection with the accompanying drawing forming a part of this specification, with the understanding however, that the invention is not confined to any strict conformity with the showing in the drawing, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Figure 1 is an elevation of the preferred embodiment of the invention.

Figure 2 is a longitudinal section thereof.

Figure 3 is a top plan view of the carrier proper shown removed from the barrel.

Figure 4 is a cross section on the line 4-4 of Figure 2.

Figure 5 is a detail view showing the connection between the cable and the plug at the free end of the cable.

Figure 6 is an elevation of a modified form of plunger in which the plug at the end of cable is wholly enclosed by the same.

Figure 7 is a longitudinal section on a reduced scale of a modified form of the invention.

Figure 8 is a detail sectional view of the connection between the plug and the cable in that form of the plunger disclosed in Figure 6.

Figure 9 is a detail sectional view showing the connection between the cable and the stem of the plunger.

10 represents the barrel of the implement, the same carrying at its rear end a plug 11 by means of screw-threads, as shown. At the forward end of the barrel a carrier 12 is removably held by means of a screw-threaded reduced section 16. This carrier preferably includes a neck or tube 13 which is bent as the drawing discloses, and has its free or working end beveled, as indicated at 14. This beveling of the end of the carrier enables the dentist to work with more sureness. The carrier 12, as Figure 2 discloses, has a bore or passageway 15 of the same diameter throughout running the entire length thereof; and extending inwardly from the screw-threaded extension 16, is an extension tube 17 having an annular flange 18 at its free end. The tube 17 is of less diameter than the longitudinal bore of the barrel while the flange 18 fits snugly within said bore.

Mounted on the outside of the barrel 10 is a collar 19. This collar is properly shaped to conform to the fingers of the operator and is held upon the barrel in the proper position by a set-screw 20. The purpose of this adjustability of the collar is to permit the operator to adjust the instrument to fit his hand.

Within the barrel a plunger is held for feeding or dispensing the amalgam. This plunger includes as its principal parts an elongated stem 21, a rod 22, a push button 23, and a cable 25. The stem 21 is of such size as to fit the bore 15 of the carrier and its tubular extension. The rod 22 is slidable within the bore of the barrel and through a concentric bore provided in the plug 11. A portion of the rod, when other parts are in their normal position, extends without the barrel, as Figures 1 and 2 in-

dicate, and the button 23 mounted on the free end of the collar is always without the barrel. Usually the button 23 will be of the same diameter as the barrel itself. The cable 25 is of a size to fit snugly within the bore of the carrier.

The spring 24 is mounted on the stem 21 of the plunger and bears at one end against the annular flange 18 while at the other end it is fixed in any desirable way to the inner end of the rod 22. This spring, unless compressed, holds the plunger in the position depicted in Figure 2; but when the operator holds the instrument with two fingers on one side of the collar 19 and presses against the push button with his thumb the plunger will be advanced to dispense the amalgam. When the amalgam is pushed out of the carrier the spring will return the parts to their normal position.

A special feature of the present invention is the flexible cable adapted to move outwardly and inwardly in the bore of the carrier. This flexible cable may be regarded as a coil spring whose coils are close together so as to form practically a continuous metallic surface. The forward end of the stem 21 is screw-threaded, as indicated at 28 in Figures 2 and 9, and a plurality of coils of the carrier engage with these screw-threads to hold the cable truly on the end of the stem. A small amount of solder may make the union between the cable and the stem a permanent one. The screw-threads 28 are of such shape as to receive the individual coils which by reason of their resilience and their complementary shape, exert a clamping action which will hold the cable to the stem under all conditions of service. The pitch of the threads 28 and of the coils of the cable is precisely the same so that the stem may be screwed into the end of the cable.

The outer end of the cable carries a plug 26 which is indicated in Figure 5 and is held to the cable in precisely the same way as the stem 21 is, by a screw-threaded extension 27. The plug 26 engages directly with the amalgam in the bore of the carrier and pushes it ahead of it into the cavity.

The plunger illustrated in Figure 6 differs from the plunger of Figure 2 only in having its plug 29 (see Figure 8) enclosed wholly by the cable where it may be held by solder or any other well known means. In either form of plunger, the cable fits the walls of the bore of the carrier very snugly so as to exert a cleansing or scouring action on the same, avoiding any possibility of amalgam adhering thereto. Each form of plunger may be removed at will from the barrel by simply pulling outwardly thereon and when so removed it may be cleaned or it may itself be used or may be

used to clean out the bore of the carrier by inserting the plug end into the beveled end of the neck 13.

The modified implement shown in Figure 7 comprises an outer barrel 30, an inner barrel 33, a carrier 31 held to the inner barrel by a screw-threaded section 32, a plunger, and a collar 34 integral with the inner barrel 33. The carrier has a bent neck 36 and a free reduced end 37 which is a bevel. The collar 34 extends through an annular slot 35 provided in the outer barrel 30. The inner barrel is divided into two parts by a plunger 38.

The plunger includes a stem 39 rising within the inner barrel having at one end a collar 42 screw-threaded thereon with a button 43 at the outer end. The spring 44 is threaded on that portion of the stem 39 between the carrier 31 and a stop 40 which is fixed to the stem. This stop 40 is adapted to bear against the flange 38 when the parts are in their normal position. The collar 42 fits into the bore of the inner barrel 43 while the stop 40 fits in the same bore on the opposite side of the flange 38. When the button 43 is pressed inwardly the spring 44 is compressed, as will be clear. The end of the stem 39 remote from the button 43 has a cable 45 secured thereto which cable is provided with a plug 46 adapted to work back and forth in the bore of the carrier 31 when the plunger is reciprocated.

In order to clean the implement shown in Figure 2 all that is necessary to do is to withdraw the plunger and unscrew the carrier. On the other hand, when employing that form of the invention shown in Figure 7, it will be necessary to unscrew both the carrier 31 and the button 43. This feature of the form of the instrument of Figure 2 I consider to be the important part of my invention.

Having thus described my invention, I claim:

1. In a dental implement, an imperforate barrel, a collar slidable on the barrel, means for holding the collar in any desired position on the barrel so that the implement may be adapted to different sized hands, said collar when adjusted maintaining a fixed position on the barrel and means mounted in the barrel to force filling material out from the implement, said means being operable from one end of the barrel and movable in the direction of the collar.

2. In a dental implement, a barrel, a tubular filling carrier at one end of the barrel, said carrier having a tubular extension received within the barrel, said extension having an annular flange at its end snugly fitting the bore of the barrel, means mounted in the barrel and leading through the extension and carrier for feeding filling material, and means interposed between

said feeding means and said flange to hold the feeding means automatically in a certain position. 10

3. In a dental implement, a barrel, a tubular filling carrier at one end of the barrel, said carrier having an extension received within the barrel, said extension having an annular flange at its end of a size to fit snugly within the barrel, means 5 mounted in the barrel for feeding filling material, and a spring interposed between said feeding means and said flange to hold the feeding means normally in retracted position. 10

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature. 15

GUSTAV HOLTZ.