March 24, 1931. C. S. IVORY 1,797,866

AMALGAM CARRIER

Filed July 29, 1930

Fig. 1.

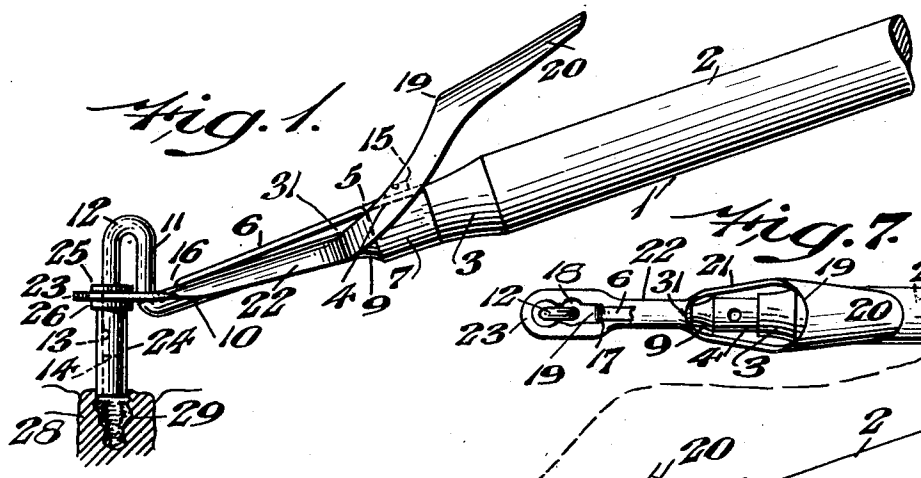


Fig. 7.

Fig. 2.

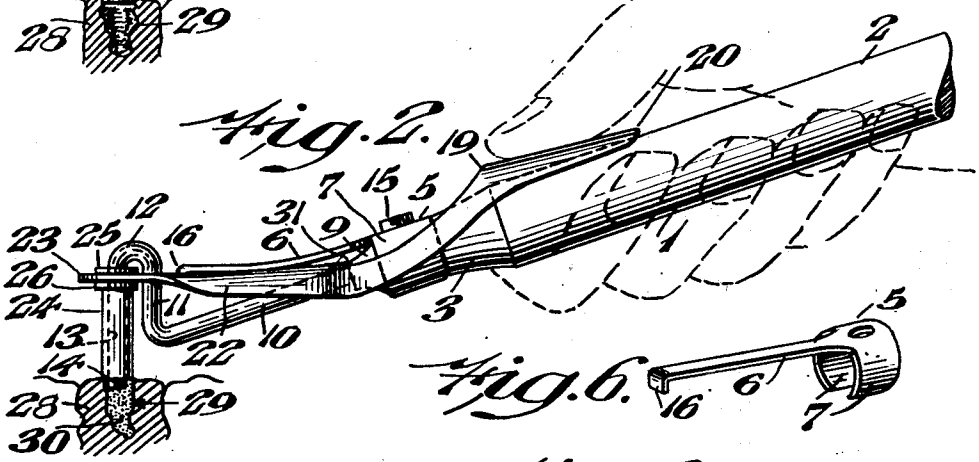


Fig. 6.

Fig. 3.

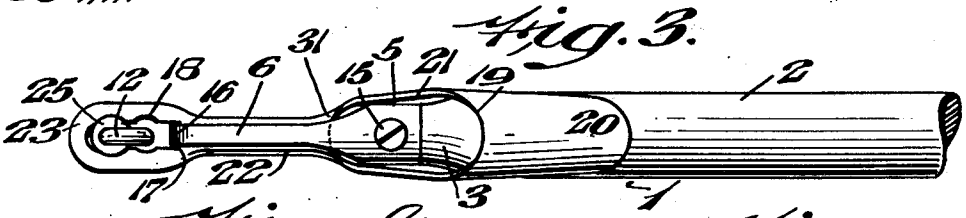


Fig. 4.

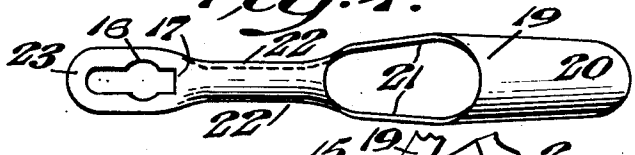


Fig. 8.

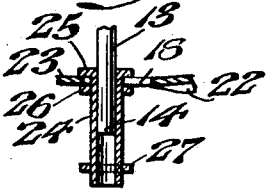
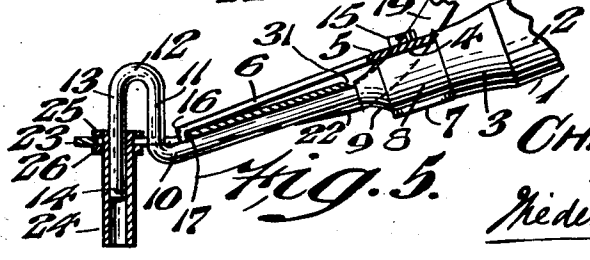


Fig. 5.



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UNITED STATES PATENT OFFICE

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AMALGAM CARRIER

Application filed July 29, 1930. Serial No. 471,517.

There has heretofore been much difficulty experienced in properly and expeditiously handling and applying amalgam or soft filling to dental cavities on account of the nature of the filling materials employed and the inefficiency of the implements used, and my present invention relates to a novel amalgam carrier, which can be readily operated by a slight manual pressure upon a novel lever and plunger construction. My novel device is easy to operate, readily kept clean, and can be readily assembled or dismantled for the purposes of inspection or repair or replacement of parts and being adapted readily and instantly to deposit the amalgam at the desired point in small, large or fissure cavities wherever situated. Further by my novel device the danger of either the cavity or filling becoming unduly moistened with saliva during the operation is reduced to a minimum.

To the above ends my invention consists of a novel amalgam carrier, comprising a handle, a manually operated lever and a coacting amalgam carrier and its adjuncts, whereby the amalgam or filling material may be readily manipulated in either large or small quantities and readily expelled or forced into the cavity of the tooth to be treated.

Figure 1 is a fragmentary elevational view of an embodiment of my invention as it appears preparatory to performing its function of applying or inserting amalgam in the cavity of a tooth.

Figure 2 is a view similar to Figure 1 showing the amalgam being ejected from my novel amalgam carrier into the cavity of the tooth.

Figure 3 is a fragmentary top plan view of the device.

Figure 4 is a top plan view of the finger piece and lever member removed from the handle.

Figure 5 is a fragmentary side elevational view, partly in section, of details forming a part of the invention, showing the construction and arrangement thereof.

Figure 6 is a perspective view of the spring member which maintains the finger piece and lever of the device in the normal position shown in Figure 1.

Figure 7 is a fragmentary top plan view of the device with parts broken away to more clearly show the arrangement and disposition of the various parts.

Figure 8 is a longitudinal sectional view, partly in elevation, of certain parts directly associated with the amalgam carrier, showing a modified form of construction.

For the purpose of illustrating my invention I have shown in the accompanying drawings forms thereof which are at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring to the drawings:—

1 designates my novel amalgam carrier, the same comprising the handle member 2, which is of reduced diameter at its forward portion 3, and is provided with a top wall or seat 4, upon which is seated the rear portion 5 of the flat spring 6, said rear portion having the pendent resilient arms or clips 7, which engage or clamp the rounded front portion 8 of the handle member, which is continued and tapered as at 9, and then reduced and continued as indicated at 10. The forward end of the member 10 is deflected upwardly as at 11, thence curved as at 12, and then deflected downwardly as at 13 to form the plunger element, whose terminal end 14 serves to expel the amalgam as will be explained. The rear end of the spring 6 is held in position by the screw or similar fastening device 15, and the front end thereof is provided with the downwardly deflected lip 16, which engages the rear wall 17 of the slot 18 in the front end of the lever member 19, which is composed of the rear finger piece or member 20, which is recessed or cut out as indicated at 21, to clear the rear portions of the spring 6. The forward portion of the lever 19 in advance of the recess 21, has its walls at 22 bent downwardly into a U-shape so as to engage and be guided by

the cylindrical portion 10, and said walls 22 at their front end terminate in the flattened portion 23, having the slot 18 already referred to.

The amalgam carrier 24 comprises the short tubular member seen at the left of Figures 1, 2, and 5, whose upper end is seated in the slot 18 and provided with the top flange 25, which rests on the top of the member 23, and is secured in position with respect thereto by the bottom washer 26, as will be understood from Figure 5. The members 25 and 26 can be welded or brazed to the member 23 so that the parts 23, 24, 25, 26 and 19 function as a unit, as is evident. In Figure 7, I have shown the amalgam carrier as provided with a lower flange 27, which may be employed if desired as a stop or check when the amalgam carrier 24 is inserted in the cavity of a tooth.

The function and manner of operation of my device have been in part indicated from the foregoing description, but will be more fully apparent in the following brief description:—

Assuming the amalgam carrier 24 to be filled with any suitable amalgam 30 which may be, for example, the well known mercury type, and the end of the amalgam carrier 24 to be placed adjacent the upper portion of a tooth 28 and partly within the cavity 29 thereof, the depression of the finger piece 20 of the lever member 19 by the thumb or hand of the operator as shown in dotted lines Figure 2, will cause the rocking of the lever member 19 about the point 31 as a fulcrum thereby raising the flattened end portion 23, and consequently the amalgam carrier 24 attached thereto, as hereinbefore described. As the amalgam carrier 24 rises or advances upwardly the plunger element or rather the terminal end 14 thereof will expel a quantity of amalgam 30, contained within the small bore or interior of the amalgam carrier 24, into the cavity 29 of the tooth 28, as shown in Figure 2. The amalgam 30 now within the cavity 29 of the tooth 28 may be packed or compressed in the usual manner by the operator while maintaining the finger piece 20 in the position shown in Figure 2, in order to keep the terminal end 14 in the position shown; i. e. protruding beyond the end of the hollow amalgam carrier 24. It will be observed in this connection that the terminal end 14 in addition to its functions as a plunger will now serve as a small ram or packing element in compressing the amalgam 30 into the cavity. The device in this respect performs not only the functions of containing the amalgam and then inserting the same in the cavity of a tooth, but also as an implement for the packing of the amalgam into the tooth in accordance with well known methods employed.

Particular attention is directed to the simplicity of means by which the functions above indicated are accomplished. The lever member 19 including the finger piece 20 is preferably made from a stamping of sheet metal while the amalgam carrier 24 may be made from cut sections of metal tubing whereon the flange 25 which rests on the flattened portion 23 of the lever member 19 and the washer 26 engaged against the underneath of the said flattened portion 23 may be crimped, welded, brazed, etc., or formed integral therewith. The handle member 2 may be formed of metal while the reduced end at 10 may be either formed integral with the handle 2, or secured thereto in any desired manner. The entire device it will be observed may be produced at a nominal cost. There are practically no parts to get out of order in the instrument, while replacements, when required in the course of time, may be made with the utmost ease and dispatch by removing the little screw 15, and substituting a new spring 6 or lever member 19.

It will be understood that in filling the carrier, the parts initially appear as seen in Figs. 1 and 5, and the operator places his finger under the lever 20, and the open end of mouth of the carrier is pushed into the mass of plastic amalgam or filling material thereby filling the space below the end 14 of the plunger. The amalgam is then expelled or deposited in the tooth cavity by a slight movement of the thumb of the operator, as seen in Fig. 2, the thumb lever 19 being relatively short and enabling the operator readily and firmly to grasp the handle 2. I am aware of prior constructions of amalgam carriers, and my invention is differentiated therefrom by the employment of the spring 6 of novel construction, best seen in Fig. 6, and by the lever having its walls 22 constructed to form ways or a guiding trough with respect to the rod member 10, and my manner of fulcruming the lever at the point 31, against the contiguous shoulder, best seen in Figs. 5 and 7, is also novel, as is the collocation of spring, lever, and amalgam carrier.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. A device of the kind described comprising in combination, a handle, a lever member rockingly mounted on said handle, said lever member having an amalgam carrier secured on a portion thereof, said amalgam carrier

coacting with a plunger element secured to said handle, and a spring having its rear end secured to said handle and its front end bearing on said lever.

2. A device of the kind described comprising a handle having a plunger secured at one end thereof, said plunger being inserted in a hollow amalgam carrier, said amalgam carrier being movably sceured in a slot formed on a portion of a lever member rockingly mounted on said handle, and a spring having its rear end secured to said handle and its front end bearing on said lever.

3. A device of the kind described comprising a handle provided with a reduced portion merging with a plunger, and a lever member rockingly mounted on said reduced portion and pressed into engagement with the same by a spring secured to said handle, said plunger being received in a hollow amalgam carrier, said amalgam carrier being removably secured to said lever member.

4. A device of the kind described comprising a handle having a tapering portion, a spring removably secured on said tapering portion, and a lever member rockingly mounted on a reduced portion of the handle and fulcrumed against a shoulder of the latter, said lever member having a slot removably receiving a tubular amalgam carrier, said amalgam carrier coacting with a plunger formed on said reduced portion whereby when said lever member is depressed amalgam within said tubular member will be ejected therefrom.

5. A device of the kind described comprising a handle having secured thereto a plunger, said plunger being secured to a reduced portion of said handle, said reduced portion serving as a fulcrum for a rockingly mounted lever member, said lever member having movably secured thereto a tubular amalgam container, said tubular amalgam container being rotatably and slidably confined in a slot formed at one end of said lever member, and resilient means detachably secured to said handle for normally maintaining the lever member in position to retain a quantity of amalgam within the interior of the amalgam carrier, said amalgam being ejected from the amalgam carrier when said lever member is depressed at one end.

6. A device of the kind described comprising in combination, a handle, a lever member rockingly mounted on a shoulder on said handle, an amalgam carrier removably secured to said lever member, said amalgam carrier coacting with a plunger element integrally formed with said handle, and a finger piece secured to said lever member for operation thereof.

7. A device of the kind described comprising a handle provided with a tapering and a reduced portion, said reduced portion merging with a plunger, a lever member rockingly mounted on said reduced portion as a fulcrum point and pressed into engagement with the same by a resilient member detachably secured on said tapering portion, said plunger being received in a hollow amalgam carrier, said amalgam carrier being removably and slidably secured to said lever member.

8. A device of the kind described comprising a handle having a reduced front portion terminating in a vertical portion functioning as a plunger, a spring having its rear end secured to said handle and its front end provided with a pendent terminal lip, a lever having a recess whose front wall is fulcrumed on a shoulder of said handle below said spring, said lever having a slot in the front thereof whose rear wall is engaged by said lip, and an amalgam carrier receiving said plunger and secured to the front of said lever and movable with respect to said plunger.

9. A device of the kind described comprising a handle having a reduced front portion terminating in a vertical portion functioning as a plunger, a spring having its rear end secured to said handle and its front end provided with a pendent terminal lip, a lever having a recess whose front wall is fulcrumed on a shoulder of said handle below said spring, said lever having a slot in the front thereof whose rear wall is engaged by said lip, and an amalgam carrier receiving said plunger and secured to the front of said lever and movable with respect to said plunger, the side walls of said lever below said spring being deflected downwardly to form a trough shaped guide.

CHESTER S. IVORY.