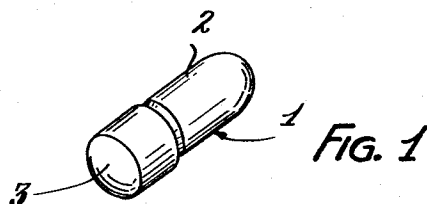
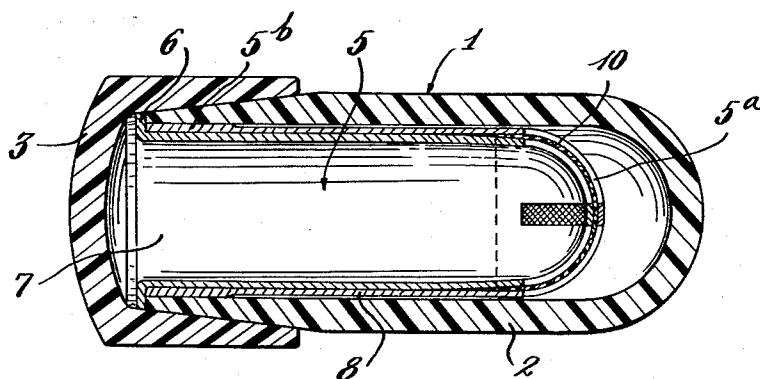
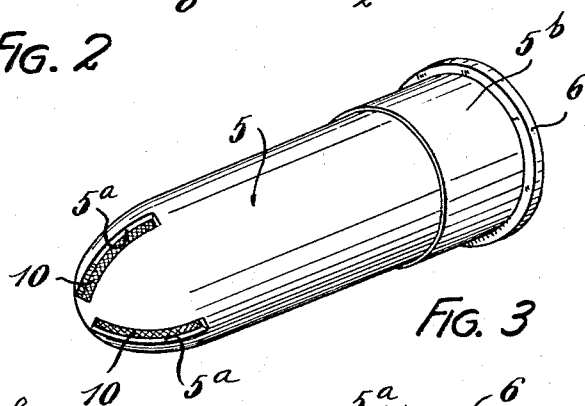
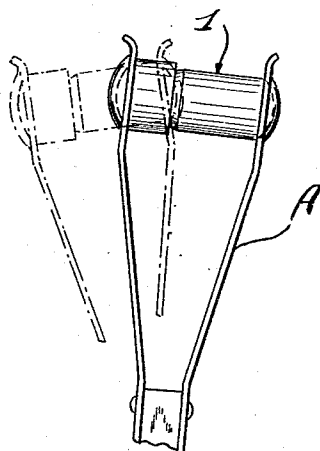
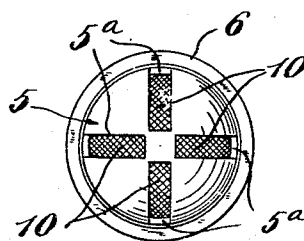


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L. L. SHORE
MEANS FOR SEPARATING AND RECOVERING
EXCESS MERCURY FROM AMALGAM MIX
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INVENTOR.
LOUIS L. SHORE
BY
West & Oldham
ATTORNEYS

UNITED STATES PATENT OFFICE

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MEANS FOR SEPARATING AND RECOVERING
EXCESS MERCURY FROM AMALGAM MIX

Louis L. Shore, University Heights, Ohio

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A primary purpose of this invention is to provide simple and inexpensive, yet highly efficient means for quickly and effectively separating excess mercury from silver amalgam used in dental fillings, and for doing so in a thoroughly hygienic manner.

At present I contemplate using my invention in connection with prevailing types of dental amalgamators characterized by a capsule-like mortar, containing a loose pestle, wherein the mercury and silver are placed, and which mortar is adapted to be removably held by suitable clamping means on the end of a lever that is vibrated with a peculiar motion conducive to a thorough mixing of the ingredients.

More limitedly, an object of my invention is to provide a strainer that may be conveniently placed in the mortar (assuming that the mixture and pestle have been removed), and in which the mixture may be deposited and the mortar closed and replaced in the amalgamator, and which will effectively serve to strain out or separate the excess mercury from the mixture when the amalgamator is again operated in the usual way.

A further object is to provide a construction that facilitates replacement of the foraminous element through which the mercury is strained; or, on the other hand, is so inexpensive that the entire strainer may be discarded after it has been used a reasonable number of times.

The foregoing objects, with others hereinafter appearing, are attained in the embodiment of the invention illustrated in the accompanying drawing wherein like reference characters designate like parts in the several views.

In the drawing, Fig. 1 is a perspective view of the container that encloses the strainer; Fig. 2 represents a central longitudinal section through the container and strainer on a scale considerably enlarged over that of Fig. 1; Fig. 3 is a perspective view, and Fig. 4 an end view, of the strainer, both being drawn to an enlarged scale, and Fig. 5 is a view showing the device of my invention held within the vibrating arm of a dental amalgamator.

The container, designated generally by the reference numeral 1, consists of a cup-like receptacle 2, and a closure or cap 3. While this element of my combination may take various forms, I prefer, at present, to employ a container of substantially the same design and construction as the mortars used in prevailing types of dental amalgamators. In fact, the design shown in the drawing approximates the mortar of a well known amalgamating machine. The receptacle

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2 and the cap 3 are generally cylindrical with rounded or semi-spherical end walls and, in the present instance, the exterior surface of the peripheral wall of the receptacle, adjacent the open end of the latter, is gradually tapered or, in other words, made frusto-conical for frictional engagement with the reversely tapered inner surface of the peripheral wall of the cap 3. Obviously, other types of joints may be employed between the receptacle and cap of the container, but the one shown is entirely satisfactory, especially when the device is used in amalgamating machines of the kind referred to.

5 designates a relatively deep cup-like strainer which, in the present instance, is cylindrical throughout the greater part of its length and has a rounded bottom or end wall provided with slots 5^a that radiate from near the axis of the strainer. A flange 6 surrounds the open end of the strainer and its outer surface is shaped to fit the surrounding tapered inner surface of the cap 3. Consequently, when the cap is frictionally engaged with the tapered end of the receptacle 2, it will hold the flange 6 snugly against the end of the peripheral wall of the receptacle. Preferably, the strainer is composed of two nested shells. Pressed over the inner shell 7 is an outer shell 8, the beforementioned slots 5^a extending through both shells; and between the rounded bottom or end walls of the two shells is firmly clamped a foraminous element 10. This may consist of a piece of chamois or, preferably, a piece of fine mesh linen gauze, such as that shown in the dental profession as "squeeze" cloth, and the porosity of which is so fine that mercury will pass therethrough only under artificial force applied thereto.

I have indicated, by appropriate cross-hatching, that the receptacle 2 and cap 3 are made of plastic. The inner and outer shells of the strainer 5 may be made of metal, although plastic may be employed for this element of the combination, as well.

In the use of the invention, the mixture of silver and mercury, as taken from the mortar, is placed in the strainer which is now disposed within the receptacle 2. The cap 3 is applied to the receptacle and the container is placed within the vibrating arm A of the amalgamator, as shown in Fig. 5. When the amalgamator is operated the arm A will vibrate between the two positions indicated, respectively, in full lines and in dotted lines in Fig. 5, and this action will cause the excess mercury to be separated from the amalgam and impelled by inertia through

the slots 5^a and foraminous element 10 into the space or chamber between the end of the strainer and the end wall of the receptacle. The divergence of the outer surface of the bottom or end wall of the strainer with respect to the direction in which the mercury is thrown against it, will tend to deflect the mercury and thus prevent any appreciable amount passing back through the slots on the reverse throw of the vibrating arm.

While I have described, in detail, one form of the invention, I wish it to be understood that this is intended as illustrative rather than as limiting and that changes and modifications in design and construction may be made without departing from the spirit of the invention, so long as they fall within the scope of the appended claims.

It is to be understood, also that the invention is not limited to use with amalgamators of the kind described, but may be employed with other types of apparatus such, for example, as one that would act in a manner to impose centrifugal force on the enclosed mix and cause the excess mercury to be impelled through the foraminous wall portion or element of the strainer.

It is evident from the foregoing disclosure that the separation and recovery of excess mercury from amalgam mix used for dental fillings is greatly facilitated and rendered more sanitary than heretofore by my invention.

In order that the strainer 5 may be more readily inserted into and removed from the receptacle 2, the major portion of its peripheral wall is reduced in external diameter beyond an area designated 5^b adjacent the flange 6, said wall, within the area 5^b, being of such diameter that it will frictionally engage the wall of the receptacle and assist in holding the strainer in place within the container. A further advantage of the clearance thus provided between the major portion of the peripheral wall of the strainer and the opposed wall of the receptacle is that the mercury is permitted to spread out about the strainer when moving relatively thereto in a direction toward the cap 3, and this will tend to reduce pressure of the mercury upon the foraminous element 10 and its passage there-through into the interior of the strainer.

Having thus described my invention, what I claim is:

1. Means for separating excess mercury from an amalgam mix, said means comprising a container, and a strainer within the container of an appropriate size to receive a quantity of mix suitable for a dental filling and in which the mix is adapted to be placed, the cross-sectional area of the strainer throughout the major portion of its length approximating the internal cross-sectional area of the container, said strainer including an imperforate peripheral wall and a foraminous end wall, the latter being disposed in spaced relation to an end wall of the container thereby to provide a mercury receiving and retaining compartment, the porosity of the foraminous end wall being sufficiently fine to preclude passage of the mercury therethrough except under the influence of artificial force applied thereto, said container being adapted for attachment to a part of a suitable apparatus for imparting movement to said means such as will cause the mercury to be impelled by inertia through said foraminous wall portion into the mercury receiving compartment.

2. Means for separating excess mercury from

an amalgam mix, said means comprising a container that consists of an open end receptacle and a closure therefor, and a strainer in the form of a cup of an appropriate size to receive a quantity of mix suitable for a dental filling and that fits within the receptacle and has a flange about its perimeter that overlies the wall of the receptacle about the open end of the latter, the closure cooperating with such flange in a manner to hold the strainer in place within the receptacle, the strainer including a foraminous wall portion at the bottom thereof which is spaced from the opposed end wall of the container thereby to provide a mercury receiving and retaining compartment, the porosity of said foraminous wall portion being sufficiently fine to preclude passage of the mercury therethrough except under the influence of artificial force applied thereto, said container being adapted for attachment to a part of a suitable apparatus for imparting movement to the said means such as will cause the mercury to be impelled by inertia through said foraminous wall portion into the mercury receiving compartment.

3. Means for separating excess mercury from an amalgam mix, said means comprising a container consisting of a relatively deep receptacle including an end wall and a peripheral wall, and a cap telescoping over the open end of the receptacle and having holding engagement with the peripheral wall of the receptacle, and a relatively deep strainer in the form of a cup and of an appropriate size to receive a quantity of mix suitable for a dental filling removably fitted within the receptacle and having an end wall in spaced relation to the end wall of the receptacle, the end wall of the strainer being foraminous and of a porosity sufficiently fine to preclude passage of the mercury therethrough except under the influence of artificial force applied to the mercury, the strainer being held in place within the receptacle by said cap.

4. The combination defined by claim 3, wherein the interior of the peripheral wall of the receptacle is cylindrical and the strainer includes a cylindrical peripheral wall, a substantial portion of which latter wall adjacent the open end of the receptacle is of a diameter to frictionally engage the peripheral wall of the receptacle, the remaining portion of the peripheral wall of the strainer being of lesser external diameter thereby to provide clearance between the same and the surrounding portion of the wall of the receptacle.

5. Means for separating excess mercury from an amalgam mix, said means comprising a container consisting of a relatively deep receptacle including an end wall and a peripheral wall, and a cap telescoping over the open end of the receptacle and having frictional holding engagement with the peripheral wall of the receptacle, a relatively deep strainer in the form of a cup and of an appropriate size to receive a quantity of mix suitable for a dental filling removably fitted within the receptacle and having an end wall in spaced relation to the end wall of the receptacle, the interior of said end wall of the receptacle being concave and the bottom of the strainer being shaped substantially complementary thereto and disposed in spaced relation to said end wall thereby to provide a mercury receiving and retaining compartment between the bottom of the strainer and the end wall of the receptacle, said bottom of the strainer having apertures, and a fine mesh foraminous element

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applied to the bottom of the strainer and extending across said apertures, the porosity of said foraminous element being sufficiently fine to preclude the passage of mercury therethrough except under the influence of artificial force applied to the mercury.

6. The combination defined by claim 5, wherein the apertures in the bottom of the strainer consist of slots that radiate from near the center of the bottom of the strainer.

7. Means for separating excess mercury from an amalgam mix, said means comprising a container that consists of a relatively deep receptacle having a cylindrical peripheral wall and a substantially semispherical end wall, the exterior surface of said peripheral wall being frusto-conical adjacent the open end of the receptacle, and a cap shaped to telescope over and frictionally engage the frusto-conical portion of the peripheral wall of the receptacle, a relatively deep strainer in the form of a cup and of an appropriate size to receive a quantity of mix suitable for a dental filling and having a cylindrical peripheral wall of slightly less external diameter than the internal diameter of the corresponding wall of the receptacle and having an end wall complementary to and spaced from the end wall of the receptacle to provide a mercury receiving and retaining compartment between said end walls, the strainer having an outwardly extending flange about its open end which overlies the

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end of the peripheral wall of the receptacle and whose outer surface coincides with the extended frusto-conical surface of the peripheral wall of the receptacle whereby, when the aforesaid cap is applied to the receptacle it will serve to hold the strainer in place within the receptacle, the end wall of the strainer having openings, and a fine mesh foraminous element applied to the bottom of the strainer and extending across said openings.

8. The combination defined by claim 7, wherein the strainer comprises an inner shell and an outer shell, and the foraminous element is disposed between said shells.

LOUIS L. SHORE.

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