Oct. 20, 1942. E. L. CHOTT 2,299,265

METHOD AND MEANS FOR PRODUCING DENTAL FILLINGS

Filed Aug. 11, 1941 2 Sheets-Sheet 1

Fig. 1.

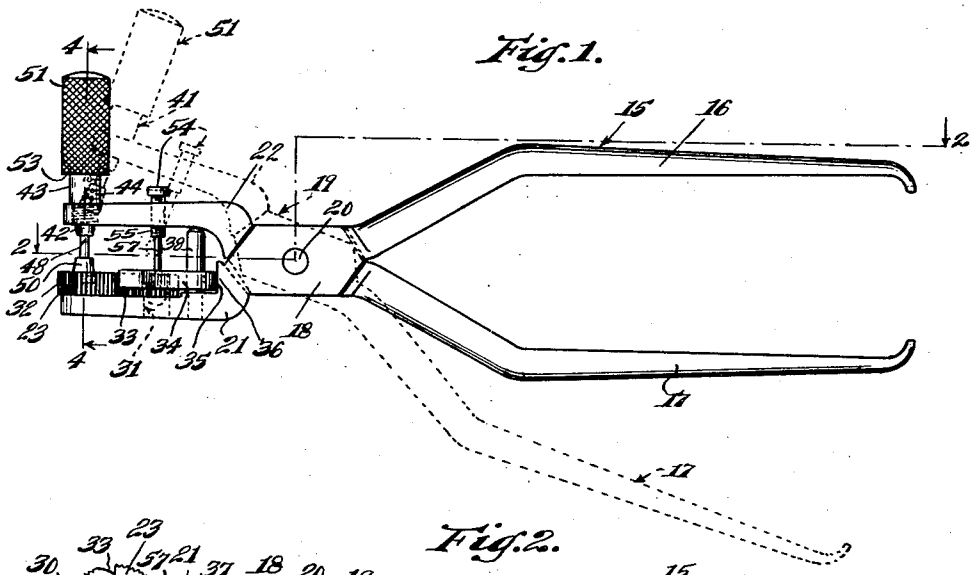


Fig. 2.

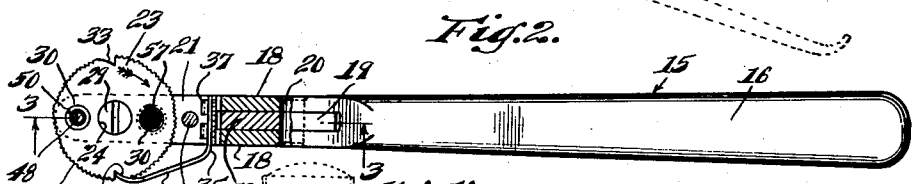


Fig. 6.

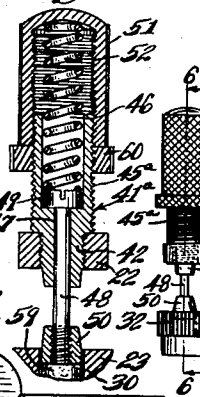


Fig. 7.

Fig. 5.

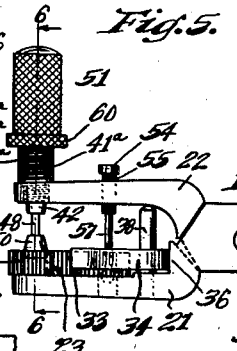


Fig. 4.

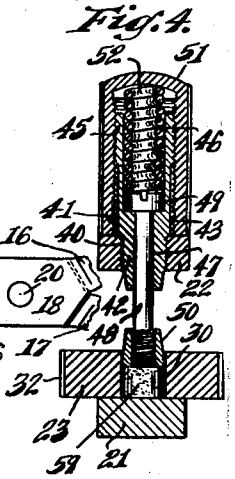


Fig. 3.

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METHOD AND MEANS FOR PRODUCING DENTAL FILLINGS

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Fig. 8.

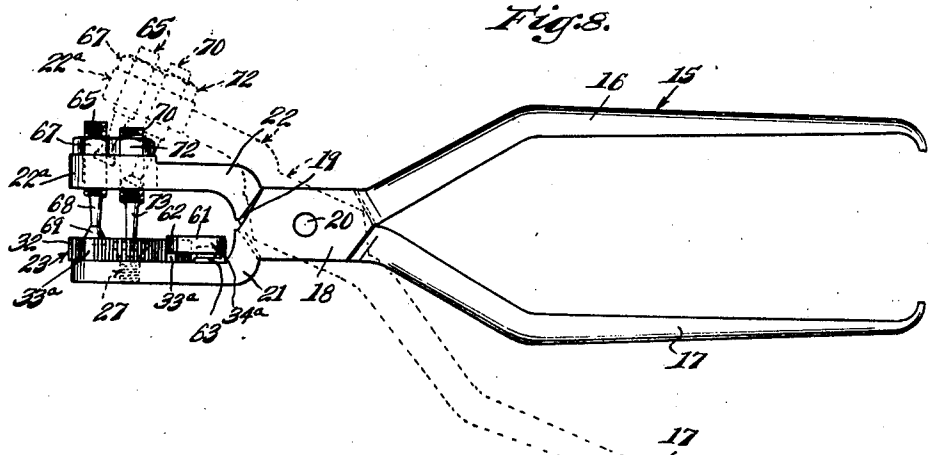


Fig. 9.

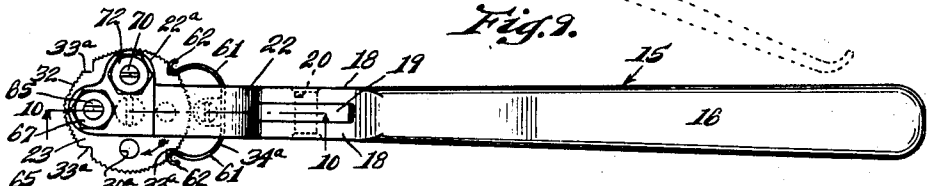
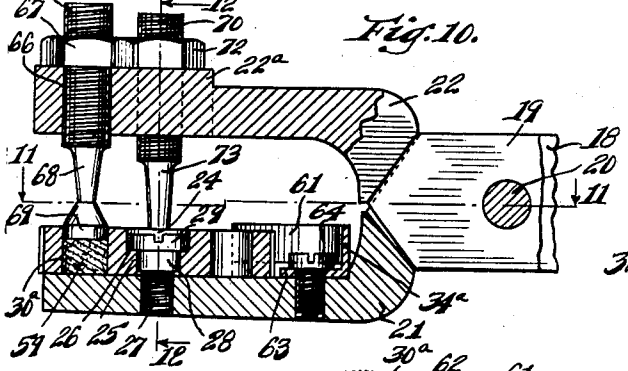


Fig. 10.



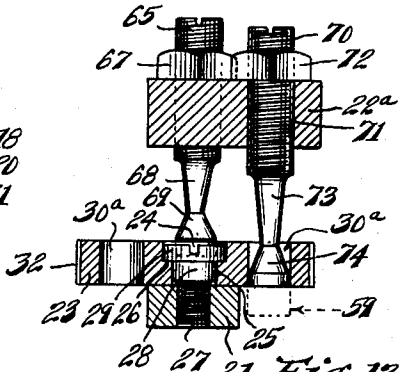


Fig. 12.

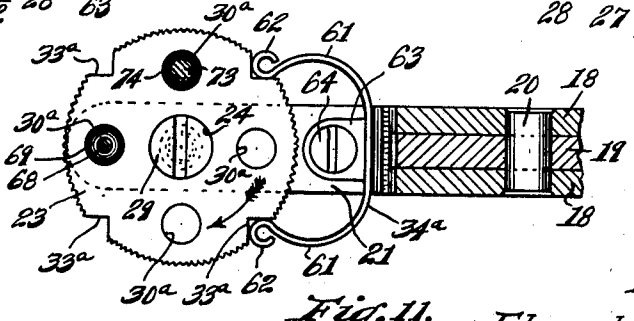


Fig. 11.

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UNITED STATES PATENT OFFICE

2,299,265

METHOD AND MEANS FOR PRODUCING DENTAL FILLINGS

Edward L. Chott, Chicago, Ill.

Application August 11, 1941, Serial No. 406,432

21 Claims. (Cl. 32—40)

This invention relates to method and means for receiving or holding and compressing or forming dental amalgams or the like and for expressing or expelling mercury or similar fluid content of a dental amalgam or similar material and for producing a filling of the necessary or proper degree of consistency, density or firmness, more especially for providing fillings or plugs preferably in the form of cylinders for filling tooth cavities quickly, accurately and efficiently.

The invention embodies a method and means whereby after the dental amalgam usually consisting of mercury and an alloy are properly triturated and spread over the palm of the hand or otherwise formed into a coagulated mass it is rolled into a cylinder, roll or rope and divided into approximately equal portions or sufficient thereof taken and compressed to the desired degree of hardness or solidity and to express or expel as much mercury, liquid matter or moisture therefrom as possible and formed into a plug or cylinder which is then expelled for use in filling or plugging into a tooth cavity.

An object of the invention is to provide a novel method and means or appliance for compressing the amalgam with the desired or required degree of pressure and hardness to express, expel, extrude or squeeze out as much mercury or wet content of the amalgam as possible or desired according to the solidity desired or required for a particular filling and to simultaneously eject a previously formed plug or cylinder for use, thus permitting the same to be produced with quickness and dispatch and in the exact density desired.

Another object of the invention is to provide means for successively compressing and expressing the amalgam into usable shape in the form of a cylinder or plug as a filling and ejecting the same, thereby eliminating the necessity of using the fingers to compress the amalgam, usually between the thumb and forefinger of one hand and with the assistance of the thumb and forefinger of the other hand pressing thereon to obtain a firm pressure, for expressing the mercury from the dental amalgam at much tiring manual effort and unsatisfactory results both in production and fillings produced from the use thereof.

Another object is to provide for accurate adjustment of the compressing pressure or to eliminate any give or spring action to the compressing means or plunger and to render the same absolutely rigid or positive in its action.

Still another object is to provide an amalgam compressor and expressor with ejecting means, in the form of a simple tool of the type of pliers or otherwise, which can be economically produced and sold, and which is simple to use and foolproof. However, it is here stated that the basic idea does not require a tool in the form of pliers to be gripped and operated by hand, but merely two jaws, however moved together and separated and provided with means for holding or receiving the amalgam and compressing the same to express the mercury therefrom and eject the plug so formed for use in a filling.

Further objects and advantages will appear and be brought out more fully in the following specification, reference being had to the accompanying drawings, in which:

Fig. 1 is a side elevation of one form of amalgam compressor and expressor;

Fig. 2 is a plan section taken on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged fragmentary vertical section of the tool taken on the plane of the line 3—3 of Fig. 2;

Fig. 4 is an enlarged cross or transverse vertical section taken on the line 4—4 of Fig. 1, but with the pressure cap screwed down and the spring compressed to its limit;

Fig. 5 is a fragmentary side elevation of a modified form of tool;

Fig. 6 is an enlarged cross or transverse vertical section taken on the line 6—6 of Fig. 5;

Fig. 7 is a view similar to Fig. 6, but showing the pressure cap screwed down and the spring compressed to its limit as in Fig. 4;

Fig. 8 is a side elevation of another form of tool;

Fig. 9 is a top plan view of the device shown in Fig. 8;

Fig. 10 is an enlarged fragmentary vertical section taken on the line 10—10 of Fig. 9;

Fig. 11 is a horizontal section taken on the line 11—11 of Fig. 10; and

Fig. 12 is a cross or transverse vertical section taken on the line 12—12 of Fig. 10.

By way of explanation it is here stated that the appliance basically embodies a pair of jaws one of which has means for receiving the relatively soft amalgam after being triturated and the other of which is adapted to be moved relatively to the first jaw by hand or power for the purpose of compressing theamalgam held in a chamber of the first jaw for compressing the same and expressing the mercury content therefrom, while a previously formed compressed mass or plug is being ejected at another point, either or both of the

jaws being relatively movable in divergent or parallel relation.

Referring more particularly to the drawings illustrating one embodiment of the invention in which the same is shown as a hand tool or implement, and particularly to the form shown in Figs. 1 to 4 inclusive of the drawings, the tool is generally designated at 15 and shown in the form of a pair of pliers having an upper handle 16 and a lower handle 17 with interfitting bearing portions 18 and 19 respectively pivotally connected as at 20 to move and swing relatively. As shown, the handles cross and the upper handle is provided with a lower rectilinear jaw 21 while the lower handle is provided with an upper rectilinear jaw 22. One of the jaws is provided with a chamber shaped as desired in which the amalgam is compressed by coacting means carried by the other jaw and as shown for this purpose, a disk 23 is mounted on the lower jaw 21 preferably to turn through the medium of a central opening 24 the upper portion of which is enlarged relative to the reduced lower portion 25 forming an upwardly facing shoulder 26. A pivot screw 27 is extended through the opening and threaded into a threaded opening in the lower jaw 21 and has an intermediate unthreaded portion 28 which fits the portion 25 of the opening and an enlarged screw head 29 received in the upper portion 24 of the opening, thus mounting the disk to freely turn thereon against the top face of the lower jaw while holding the same from displacement. The disk is provided with a plurality, preferably a pair of diametrically opposite openings 30 forming chambers cooperating with the top face of the lower jaw to produce a socket or mould. These openings may be of any desired shape but are preferably cylindrical as shown so that the resultant compressed body or plug will be correspondingly shaped. The lower jaw is also provided with a corresponding opening 31 inwardly relative to the pivot mounting of the disk, which latter is preferably knurled at its edge as indicated at 32 so that it may be readily turned with the fingers. This knurled edge is also provided with a plurality, preferably two diametrically opposite notches 33, disposed equidistantly between the openings or in a plane 90° therefrom whereby a diametrical line connecting the notches is disposed normal to a diametrical line connecting the openings. The notches may be acute angled with one side radial and the other side at acute angles thereto or as the chord of the disk or otherwise for the engagement of an inturned free end of a spring pawl 34 having its inner end bent at a relatively sharp obtuse angle as indicated at 35 to form an anchoring portion which fits against a shoulder 36 formed by recessing the lower jaw with the shoulder extending vertically and having apertures to receive anchoring screws 37. In this way, if the disk is turned, the pawl will ride over the knurled edge and when engaged in the notches will prevent retrograde rotation of the disk so that it may be turned in only one direction to advance one hole from a compressing position closed at its lower end by the upper face of the jaw 21 toward the free end of the latter to a discharging position over the opening 31 in the inner portion of the jaw and so that this may be successively repeated in the operation of the appliance so that the material may be simultaneously compressed with the discharge of a previously formed compressed mass or body in the form of a cylindrical plug for use as a filling or otherwise. In order that the jaws may be limited in their relative movements toward each other to prevent breakage of parts and control the degree of compression, a stop or limit pin 38 has a threaded shank 39 threaded in a corresponding threaded bore in the lower jaw 21 inwardly of the opening 31 for engagement with the bottom face of the upper jaw 22 as it is thought will be obvious from an inspection of Figs. 1 and 3 of the drawings. In Figs. 1 and 3 the jaws are shown moved toward each other in solid lines and the stop or limit pin may be slightly spaced from or positively engage the bottom face of the upper jaw but preferably the latter when the handles are moved to full compressing position with the jaws correspondingly related. The upper jaw 22 is also provided with a threaded hole or bore 40 near its free end in axial alinement with the chamber or opening 30 in the disk 23 and a cylinder 41 has a reduced threaded portion 42 threaded therein and vertically adjustable if desired but adapted by reason of the shoulder formed at the top of the threaded portion 42 to engage the top face of the jaw 22 as seen more particularly in Fig. 3. The cylinder also has an unthreaded portion 43 which may be slightly enlarged relative to the portion 42 and if desired provided with graduations or calibrations 44 in the form of any suitable markings with indicated pressure exerted by compressing the handles or moving the jaws together by hand or power in divergent or parallel relation for securing the necessary pressure upon the amalgam or other body to be compressed in the chamber. The upper enlarged portion of the cylinder above the calibrations is threaded as indicated at 45 and the upper enlarged bore portion 46 of the cylinder opens into a lower reduced bore 47 forming an intervening shoulder between facing upwardly. A plunger 48 operates in the reduced bore 47 and has an enlarged head 49 preferably a screw head operating in the enlarged upper bore portion 46 and adapted to seat against said shoulder. The lower end of the plunger 48 is provided with a compressor head 50 threaded or otherwise secured on the lower end of the plunger 48 and of frustoconical or other shape but corresponding to the shape of the openings or chambers 30. A knurled cap 51 internally threaded, is mounted on the externally threaded upper portion of the cylinder 41 for vertical adjustment thereon axially of the cylinder and plunger and receives a coiled expansion spring 52 between the closed upper end thereof and the head 49 of the plunger. The tension of this spring may be predetermined or made so that the exact pressure upon the amalgam may be regulated by turning the bottom edge 53 of the cap to an exact point on the calibrations 44 which indicates the pressure at the limited or complete pressure movement of the handles and jaws relatively until the spring 52 is compressed, with the cylinder 41 and reduced portion 42 moving over the head 49 and plunger 48 respectively, with the jaw 22. By turning or adjusting the cap 51, the spring pressure may be accurately regulated but when the coils of the spring are expanded in the positions shown in Figs. 1 and 2 there will be a slight additional movement to the upper jaw after contact and pressure of the compression head 50 against the amalgam due to the compression of the spring 52 and the coils moving toward each other or together until they assume the position shown

in Fig. 4 of the drawings or as indicated in dotted lines with reference to the position of the cap 51 as shown in Fig. 3. When the coils are in contact as seen in Fig. 4, further movement will be prevented and the connection will be rigid or by adjusting the cap 51 to a position to entirely compress the coils of the spring 52, there will be no resilient action but the plunger head will be absolutely rigid with the cap and upper jaw so that the pressure will be entirely controlled by the action of the upper jaw and in the present instance by the gripping of the handles and pressure thereon.

It will be noted that the disk or movable chamber member 23 is arranged so that one of the openings or chambers 30 is disposed beneath the compression member and the other opening is arranged beneath an ejector means so that a previously formed compressed plug may be forced out through the opening 31 as another plug is being compressed against the top face of the lower jaw 21. For this purpose a screw head 54 having a reduced threaded portion 55 is adjustably engaged in a threaded opening 56 at the inner portion of the upper jaw 22 and may have a resilient shank 57 of reduced size forming part of the screw or otherwise so as to flex or bend particularly where the jaws are pivoted and moved in diverging angles relative to each other radially so that an enlarged head which may be in the form of a ball 58 will be guided into the opening 30 therebeneath and if necessary deflected against the wall of the opening and guided therethrough without injury to any of the parts.

In the use of the device, the amalgam usually consisting of mercury and alloy is properly triturated and preferably formed into a cylinder, roll or rope which may be as soft as desired and this is preferably divided into equal portions from a body about one inch long although any desired quantity may be pressed into one of the openings 30 with the jaws separated as shown in dotted lines in Fig. 1. This amalgam is pressed into the opening 30 beneath the plunger so as to project in convex formation or be humped above the upper face of the disk 23 whereupon the jaws are brought together to cause the pressure head 50 to compress the amalgam and form a plug or body 59 shown substantially of cylindrical shape. When this body is compressed the jaws are separated and the disk turned so as to bring the opening 30 with the body therein beneath the ejector. In the drawings, the disk 23 as shown in Fig. 2 is turned one-half revolution or 180° in the direction indicated by the arrow or clockwise when the spring 34 will ride out of the engaged notch 33 and over the knurled edge until the pawl has engaged in the next notch. This will present the opening 30 which is empty and previously positioned beneath the ejector toward the free end of the jaws in position to receive the compressor head 50. This opening is filled with the amalgam which is pressed into the same by hand or otherwise with a firm pressure and then the appliance is operated to bring the jaws toward each other so as to force the compressor head against the amalgam at the desired pressure to produce another plug or cylinder body 59. At the same time, the enlarged head or ball 58 of the ejector is forced into the opening therebeneath to eject the body 59 previously compressed and formed therein and adhering to the walls of the opening, as indicated in Fig. 3. These plugs or cylindrical bodies are in condition for use as fillings inasmuch as the pressure of the pressure head 50 has expressed all superfluous mercury or liquid matter from the amalgam which due to the pressure is expelled or squeezed therefrom and will escape between the pressure head 50 and the wall of the opening 30 to be removed or shaken off so that the amalgam to be used in the filling will comply with all requirements necessary to produce a body which will have slight expansion and result in a comparatively dry lasting filling for a cavity.

In the form of the invention shown in the drawings, Figs. 5 to 7 inclusive, the structure is the same as the previously described form except that in lieu of the unthreaded portion 43 the cylinder 41 is threaded all the way down to the upper jaw 22 as indicated at 41*a* above the reduced threaded portion 42 and while this portion may be calibrated to indicate the pressure by adjustment of the tension of the spring 52, any suitable means may be provided for this purpose so that the user may readily determine the pressure and not leave the matter to guess or conjecture. The threaded portion 41*a* is the same size as the upper threaded portion 45*a* and formed as a continuation thereof but in this form, a lock nut or ring 60 may be threaded on said portions to set the cap at an adjusted position with the spring 52 partly compressed as shown in Figs. 5 and 6 and engaged against the bottom edge of the cap to lock the same in adjusted position or they may be turned down against the top face of the upper jaw 22 as shown in solid lines in Fig. 7 from the dotted line position shown therein, in which position the coils of the spring 52 are disposed in contact the same as shown in Fig. 4 in connection with the previously described form so that there will be a rigid connection between the top of the cap 51 and the head 49 of the plunger 48 so as to give the effect of a rigid unyielding compression when the compressor head 50 is forced against the amalgam in the compression chamber or opening.

In the form of the invention shown in Figs. 8 to 12 inclusive, the structure is the same as previously described with respect to the handles and jaws except that in this instance the upper jaw is provided with a thickened portion or boss 22*a* preferably at the top which is extended laterally at one side as shown in Fig. 9 to form a wing or extension beyond the side face or edge of the jaw. The disk 23 instead of being provided with two diametrically opposite openings 30 is provided with four equidistantly spaced openings 30*a* located 90° apart and notches 33*a* of corresponding number equidistantly spaced between the openings the same as are the notches 33 with respect to the openings 30 in the previously described forms. However, whereas the notches 33 are acute angled with one side extending radially and the other substantially at the acute angles thereto or as a chord of the disk, the notches 33*a* are substantially right angular or comparatively wide with the sides extending in the same direction as the chord of an arc or secant to receive the coacting ends of a bow spring pawl 34*a*. This spring has a pair of arcuate or curved arms 61 with coiled or rolled ends 62 turned outwardly to engage in the notches 33*a* and an intermediate or center anchoring tongue 63 bent from a blank or strap from which the spring is formed and said tongue or ear is apertured to receive a fastening such as a screw 64 which may take the form of the stop or limit pin 38 previously described and

which is threaded into a threaded bore or socket in the lower jaw 21 as seen more particularly in Figs. 3 and 10. A threaded plunger 65 is threaded through a hole 66 through the thickness of the upper jaw 22 near the outer end thereof and may be adjusted to effect pressure against the material or amalgam to be compressed through the threaded hole 66 to regulate its projection from the bottom face of the jaw 22. A lock nut 67 is threaded on the plunger 65 against the top face of the upper jaw at the boss 22*a* to set the plunger at any desired position. The plunger has a reduced shank 68 corresponding to the plunger 48 and a compression head 69 corresponding to the head 50 so as to fit and act in the openings 30*a* upon the amalgam 59 to produce the necessary plug or filling body as previously described. The ejector in lieu of the construction heretofore described consists of a screw 70 engaged in a threaded bore 71 in the jaw 22 at the boss or thickened portion 22*a* and adjustable therein as desired. A lock nut 72 is engaged on the threaded portion or screw 70 to lock the ejector in adjusted position and the shank 73 thereof which may be resilient and of reduced formation has an enlarged head 74 which may be of any desired shape such as globular corresponding to the ball 58, tapered or otherwise as seen more particularly in Fig. 12 so as to eject the cylindrical body or plug 59 from the opening 30*a* positioned at the extension of the disk beyond the side face of the lower jaw 21 beneath the wing formed on the boss 22*a* 90° from the opening in which the amalgam is compressed against the top face of the lower jaw 21. In this form it is unnecessary to provide an opening in the lower jaw through which the plug is discharged from the opening 30*a* overhanging the lower jaw as seen in Fig. 12 whereas in the previously described forms the opening 31 beneath an opening 30 is necessary in order to permit a cylindrical body or plug 59 to be ejected as seen in Fig. 3. However, the action is the same otherwise and in the operation, the material is first pressed into one of the openings 30*a* beneath the compression head or plunger and compressed by moving the jaws toward each other. When this body is compressed, the disk 23 is turned one-quarter of a revolution in a clockwise direction as indicated by the arrows in Figs. 9 and 11 so that the opening 30*a* without a compressed plug therein is brought beneath the compressor and filled with the amalgam which is pressed thereinto so as to hump above the top face of the disk in convex formation or with a little surplus amalgam, the tool is again operated to compress said amalgam and simultaneously eject the previously formed plug or cylinder 59 from its opening 30*a*. Thus, not only can the amalgam be compressed into a body of any desired density or hardness and the mercury expressed or squeezed therefrom according to the physical characteristics desired in the filling or to render the same as dry as desired, but this pressure can be accurately regulated in each instance, since the screw 65 may also be calibrated in connection with the bottom edge of the jaw 22 to readily set the device for any desired pressure or to render the compression positive by reason of the plunger and pressure head being absolutely rigid with the upper jaw 22 and with no resilient action or give such as is produced by the resilient mounting consisting of the cap 51 and spring 52 when the coils of the latter are spaced apart so that after the plunger head is brought into engagement with the amalgam in the compression chamber or opening there will be a slight movement upward of the plunger against the spring and with the latter during the compression thereof. As soon as the coils are brought together this movement is stopped or by initial adjustment to set the coils together, this action may be made rigid in the beginning as previously stated. It is not necessary to make the device in the form of a hand tool or pliers as the jaws may move in parallel relation as well as in divergent relation radial to a common pivot or center and in the method described, the compression of the amalgam to produce a relatively hard solid body for a filling, the expressing of the mercury and the ejection of a previously formed body is accomplished in one operation and simultaneously so as to permit the entire operation with quickness and dispatch as well as with greater accuracy than has heretofore been practiced and without the manual effort required where the amalgam is pressed between a thumb and forefinger of one hand and with the assistance of the thumb and forefinger of the other hand which is both tiring and unsatisfactory in addition to producing a product which is not nearly as desirable as an accurately regulated pressure-produced product rendered possible with the present device.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims. Of course, the form shown in Figs. 8 to 12 inclusive may be provided with a stop means to limit the closing movements of the jaws, such as the stop or limit pin 38, as shown.

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

1. The method of forming a dental filling consisting in compressing a relatively soft amalgam to express or expel mercury or other wet content thereof and compress the same into the form of a solid body of predetermined form while simultaneously ejecting a previously formed solid body.

2. The method of forming a dental filling consisting in compressing a relatively soft dental amalgam of alloy and mercury at a set pressure to express or squeeze out mercury content thereof and compress the same into the form of a solid body of predetermined shape and then ejecting said body while simultaneously compressing another quantity of amalgam to form a similar body.

3. The method of compressing and expressing a dental amalgam or the like to produce a filling consisting of compressing the amalgam in a chamber of predetermined shape to form a relatively solid body and squeeze out or remove mercury content therefrom for disposal and simultaneously ejecting a previously formed body for use.

4. The method of forming a dental filling consisting in compressing a relatively soft dental amalgam to express mercury therefrom and compressing the same into a solid body under exact predetermined pressure to form a body in the shape of a plug or cylinder and subsequently ejecting said body while simultaneously compressing another quantity of amalgam to express

mercury therefrom and compress the same into a solid body during said ejection.

5. The method of forming a dental filling consisting in compressing a mass of relatively soft dental amalgam in a confined space to express mercury therefrom and compress the same into a solid body under a predetermined pressure according to the nature and composition of the amalgam in the shape of a plug or cylinder and simultaneously ejecting a previously compressed mass so that while one body is being compressed and the mercury expressed therefrom a previously formed body is being ejected.

6. Means for producing a dental filling or the like including means movable relatively, one means having a plurality of compression chambers, a plunger adapted to operate in each of said chambers to compress a mass of dental amalgam therein in one position, said chambers being movable to another position and means acting in said chambers in the last named position to eject the previously compressed body relatively with the operation of said plunger.

7. An appliance for forming a dental filling in the shape of a solid body including coacting jaws movable to compressing and releasing positions, one jaw having a plurality of cavities and means on the other jaw to operatively enter a plurality of said cavities to compress a body in one cavity and eject a body from another cavity in which it has been previously compressed, substantially at the same time.

8. An appliance for forming a dental filling in the shape of a solid body including coacting jaws movable into compressing and releasing positions, one jaw having a plurality of cavities and means on the other jaw to enter one of said cavities and compress the body therein, means to set the last named means to compress the body under exact predetermined pressure, said cavities adapted to be moved to another position and means simultaneously actuatable with the compressor to eject a previously formed body from a cavity.

9. A device for producing a dental filling or the like consisting of rotatable means for receiving and holding a body to be compressed, means coacting therewith for compressing said body into a predetermined shape and simultaneously expressing wet content thereof such as mercury in a dental amalgam, said receiving and holding means adapted to be moved to ejecting position and means coacting therewith for discharging said body from said receiving and holding means after a body has been compressed therein and while simultaneously compressing another body.

10. An appliance for producing dental fillings consisting of a pair of coacting jaws movable toward and away from each other, one jaw having movable means with a plurality of compression chambers adapted to receive the amalgam to be compressed in one position, means on the other jaw to compress the amalgam in the first position and moved to another position and to simultaneously move another chamber to the first position and means on the second jaw to discharge the compressed body from said chamber in the second position while the first means on the second jaw is compressing amalgam in another chamber, said body when compressed serving to express the mercury from the amalgam.

11. An appliance for producing dental fillings consisting of a pair of coacting jaws movable toward and away from each other, one jaw having movable means with a plurality of compression chambers adapted to receive the amalgam to be compressed in one position and moved to another position, means to compress the amalgam in one chamber in one position thereof, means to discharge the compressed body therefrom in said latter position, said body when compressed serving to express the mercury from the amalgam, means carried by one of the jaws to eject a previously formed body simultaneous with the compression of another body and means for placing said compression means under resilient cushion action, said means adapted to be set to render the same rigid.

12. An appliance for producing dental fillings consisting of a pair of coacting jaws movable toward and away from each other, one jaw having movable means with a plurality of compression chambers adapted to receive the amalgam to be compressed in one position and moved to another position to permit discharge of the compressed body therefrom, means on one jaw to compress the amalgam in one chamber, said body when compressed serving to express the mercury from the amalgam, means carried by one of the jaws to eject a previously formed body, spring means for placing said compression means under resilient cushion action, said means adapted to be set to render the same rigid, means to adjust the tension of the spring means to a predetermined point and to set the same, and means to limit the movement of the jaws relatively.

13. An appliance for forming an amalgam into a solid body for use as a filling and of predetermined shape comprising coacting jaws, one jaw having a disk provided with a plurality of chambers movable to a plurality of positions and adapted to be held in such positions, means carried by the other jaw for compressing said amalgam in at least one chamber in one position of the disk under predetermined pressure to compress the same and express excess mercury therefrom, said chamber with a compressed body therein adapted to be moved to a position to release the body when disposed in another position and means also carried by said second jaw to eject said body when the jaws are brought together to compress another body and produce from the amalgam a body of the desired solidity and composition in the form of a homogeneous mass.

14. A device for forming a dental filling consisting of a pair of coacting jaws movable into compressing and releasing positions, one jaw having a cavity to receive amalgam and movable to different positions and means on the other jaw for exerting pressure on the amalgam in one position to form a solid mass, express mercury from said mass and means on the same jaw to enter said cavity in another position thereof to simultaneously eject the filling simultaneously with the compression of another body of material by the first means.

15. In appliances for forming amalgam into a solid body for use as a filling comprising two members movable relatively, a disk rotatably mounted on one member and having a plurality of cavities, said disk being movable to several stations and a ram and an ejector on the other member cooperating with said cavities at each station to compress a body in one cavity and simultaneously eject a previously compressed body from another cavity.

16. A device for forming dental fillings consisting of relatively movable members, a plurality of chambers on one member each adapted to be

closed in one position by said member and open in another position, a ram adjustably mounted on the other member to cooperate with a chamber in its closed position and compress a body therein and an ejector carried by the same member for cooperatively ejecting a previously formed body from a chamber in open position.

17. A device for forming dental fillings consisting of relatively movable members, a plurality of chambers on one member each adapted to be closed in one position and open in another position, a ram having a plunger adjustably mounted in the other member to cooperate with a chamber in its closed position for compressing a body therein and an ejector carried by the same member for simultaneously ejecting a previously formed body from a chamber in open position, a cylinder in which said plunger is movable, a cap adjustable on the cylinder and a spring in the cap for engaging the ram.

18. A device for forming dental fillings consisting of relatively movable members, a plurality of chambers on one member each adapted to be closed in one position and open in another position, a ram movably mounted in the other member under adjustable spring pressure to cooperate with a chamber in its closed position and compress a body therein and an adjustable ejector carried by the same member for cooperatively ejecting a previously formed body from a chamber in open position.

19. An appliance for forming an amalgam into a solid body for use as a filling comprising coacting jaws, one jaw having a member provided with a plurality of cavities and movable to a plurality of positions, means to hold said member in each of said positions, said cavities being closed at the bottom in one position and open in another position, means carried by the other jaw for compressing said amalgam in at least one cavity at a time in one position of the member to compress the amalgam therein and express the liquid content and mercury therefrom, and means carried by said second jaw to eject said body so compressed in another position of the member.

20. Means for producing a dental filling including jaws movable relatively, one jaw having a disc provided with a plurality of compression chambers and rotatable to several stations, and a plurality of plungers adapted to operate in individual chambers in different stations, one of said plungers adapted to compress a mass of dental amalgam in the chambers at one station and another of said plungers adapted to eject the previously compressed body at another station and both being simultaneously movable.

21. A device for forming dental fillings consisting of relatively movable jaws, a plurality of chambers in one jaw adapted to be closed in one position by said jaw and open in another position, a ram adjustably mounted on the other jaw to cooperate with a chamber in its closed position and compress a body therein and an ejector carried by the same member for simultaneously ejecting a previously formed body from said chamber in an open position, said ram comprising a sectional container with one part fixed to the jaw and the other part adjustable thereon and a spring in the container and engaged with the ram whereby the tension of the spring on the ram may be adjusted.

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