Oct. 25, 1932. S. J. KRIVIG 1,883,968

DENTAL SWAGING PRESS

Filed June 28, 1930

Fig. 1

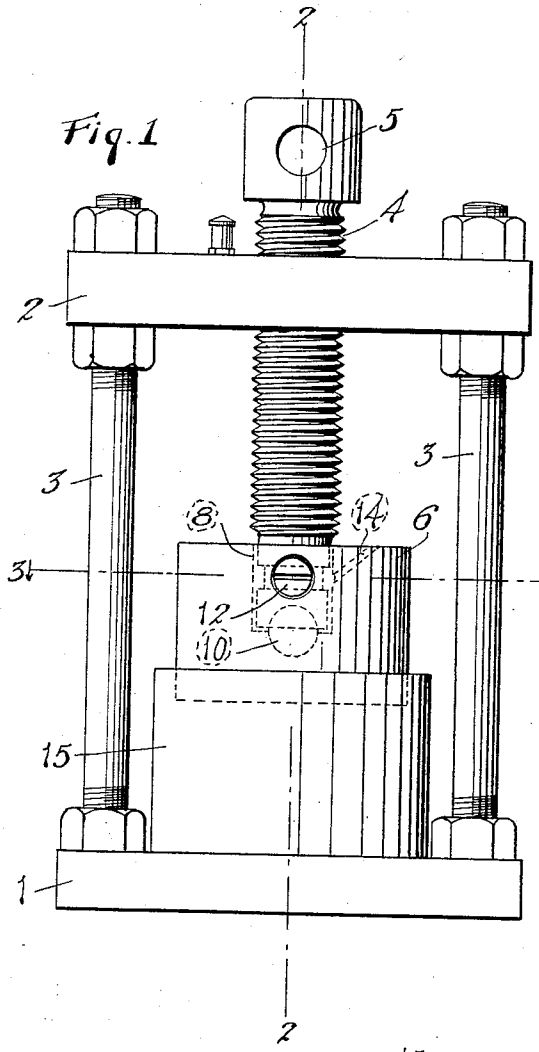


Fig. 2

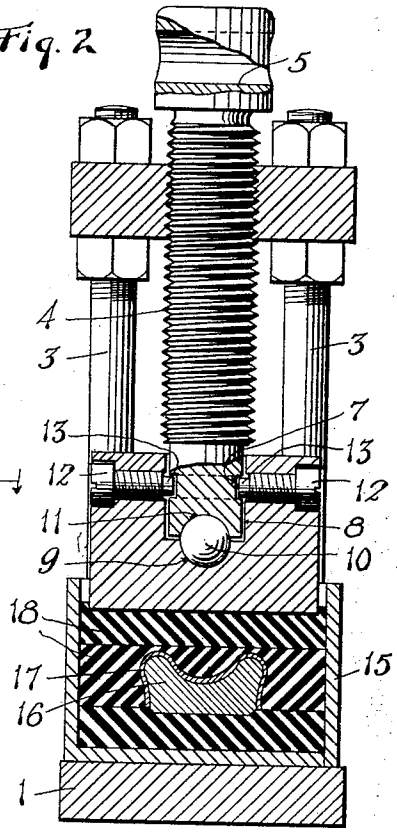
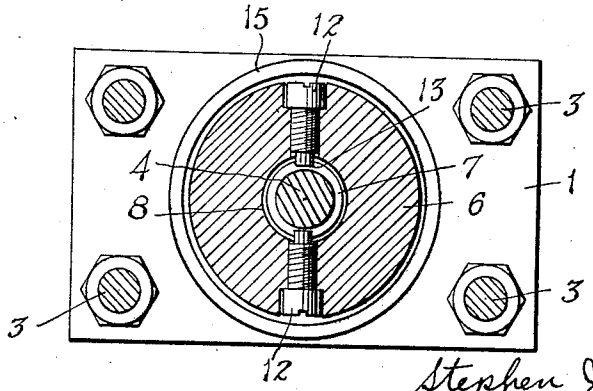


Fig. 3



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UNITED STATES PATENT OFFICE

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DENTAL SWAGING PRESS

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This invention relates to an apparatus for swaging dentures, such as plates and crowns, one object of the invention being to provide apparatus of this character embodying novel and improved features of construction whereby the apparatus shall be simple in structure, and easy and rapid in operation with a minimum number of separate parts to be handled and a minimum number of manipulations and adjustments required.

Other objects are to provide a swaging press including a frame having a top-piece and a base in opposed relation, a screw mounted in said top-piece to move upon rotation toward and from said base, and a head-block mounted on the end of said screw nearer the base to exert pressure upon a die or object arranged on said base, said block being connected to said screw for free rotation of said screw and said head-block and so that said head-block shall move with said screw upon longitudinal movement of the latter; to provide a press of the character described embodying novel and improved means for connecting said head-block to said screw whereby great pressures can be exerted uniformly upon said die or object through said screw and said block with relatively small power applied to rotation of the screw; to provide such means for connecting said head-block to said screw whereby said head-block can tilt relatively to said screw so as to permit the head-block to adjust itself evenly upon said die or object; and to obtain other advantages and results as will be brought out by the following description.

Referring to the accompanying drawing in which corresponding and like parts are designated throughout the several views by the same reference characters.

Figure 1 is a side elevation of a swaging apparatus embodying my invention.

Figure 2 is a transverse vertical sectional view on the line 2—2 of Figure 1, and

Figure 3 is a horizontal sectional view on the line 3—3 of Figure 1.

Specifically describing the illustrated embodiment of the invention, the apparatus includes a press comprising a base 1 and a top-piece 2 connected by vertical standards or tie rods 3 so as to form a complete frame. Preferably the base 1 and top-piece 2 are rectangular in plan view, although this is not essential to the invention, and obviously the base and top-piece can be connected by other means than the tie rods 3.

A pressure screw 4 is threaded into the top-piece 2 so as to move toward and from the base 1 upon rotation of the screw, and the screw may be rotated by any suitable means; for example the end of the screw may be provided with a transverse opening 5 into which may be inserted a rod or the like to provide a handle.

Upon the end of the screw near the base is mounted a head-block 6. As shown in the drawing, the said end of the screw 4 has a circumferential groove 7, and the block 6 has a socket 8 to loosely receive the end of the screw. The base of the socket 8 has a substantially semi-spherical seat 9 in which is arranged a ball 10, and the extremity of the screw 4 has a similar seat 11 to receive the ball 10. The ball and the seats 9 and 11 are so related to the extremity of the screw and the base of the socket 8, that the extremity of the screw is held in spaced relation to the base of the socket, and direct contact of the screw with the block is made through the ball. At diametrically opposite points in the block are threaded set screws 12 which have reduced end portions 13 to loosely enter the circumferential groove 7, as clearly shown in Figure 2 of the drawing.

With this construction, the block and the screw may freely relatively rotate. Also the play between the ends 13 of the set screws 12 and the groove 7 permits the block and screw to have relative longitudinal movement, and the ball 10 in conjunction with the loose engagement of the ends 13 of the screws with the groove 7 permits the block to have a limited tilting movement relative to the screw. Preferably a hole 14 is provided in the top of the block and directed into the socket 8 for the purpose of supplying lubricant to the socket so as to lubricate the engaging surfaces of the block, the ball and the screw.

In use of the press, the object or material to

be operated upon is placed upon the base beneath the block, and obviously rotation of the screw in the proper direction will cause pressure to be exerted by the block upon the object or material.

For swaging dental plates I have shown one type of apparatus which may be used, although obviously other suitable types may be utilized if desired. The illustrated apparatus includes a die cup 15 in which is arranged a die 16 over which is placed a sheet of metal or the like 17 to be swaged. Upon the metal plate is arranged a suitable forming substance, for example, one or more discs of rubber 18. The cup 15 is of a size and shape to loosely receive the head-block 6, and in operation of the apparatus after the die 16, plate 17 and discs 18 have been placed in the cup, as shown in Figure 2 of the drawing, the screw 2 is rotated to force the head-block against the discs 18. The pressure thus produced compresses the rubber discs and causes the plate 17 to tightly conform to the die 16, as shown in the drawing, whereby the plate 17 is swaged.

It will be observed that in this operation the head-block may tilt relatively to the screw so as to adjust itself to any unevenness in the material in the die cup and thus exert uniform pressure over the whole area of the rubber disc. Also, the ball contact between the screw and the head-block enables great pressures to be exerted by the screw through the block with relatively small power applied to rotate the screw, friction between the screw and the head block being at the minimum; and this construction also reduces the tendency of the head-block to rotate with the screw so as to reduce torsion upon and deformation of the rubber discs 18. After the swaging operation, rotation of the screw in the opposite direction causes movement of the block with the screw out of the die cup, whereupon the die cup may be removed from the base and the swaged plate taken out of the cup.

The only separate parts required to be handled are the parts in the die cup, and the only manipulations required in operating the press are the placing of the die materials in the cup, the locating of the cup on the base, and the rotation of the screw, so that operation of the apparatus is extremely simple and rapid.

The invention may be embodied in other details of construction than those illustrated without departing from the spirit or scope of the invention, and therefore I do not desire to be limited in the construction or use of the invention except as required by the following claim when construed in the light of the prior art.

Having thus described my invention, what I claim is:

A press of the character described, comprising a frame having a base and a top-piece in spaced relation, a screw mounted in said top-piece to move upon rotation toward and from said base, said screw having a circumferential groove adjacent one end, a head-block having a socket to rotatably receive said end of the screw, a ball arranged between the extremity of said screw and the base of said socket, and diametrically opposite axially alined set screws in said head-block each with one end loosely arranged in said groove to connect the head-block to the screw, so that said head-block has a limited relative longitudinal and tilting movement and free relative rotation upon said screw.

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