

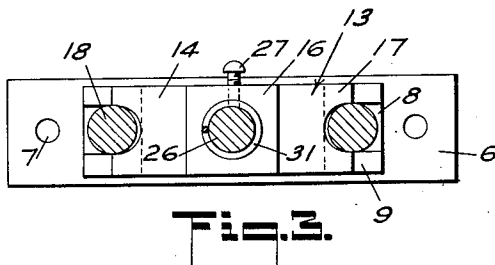
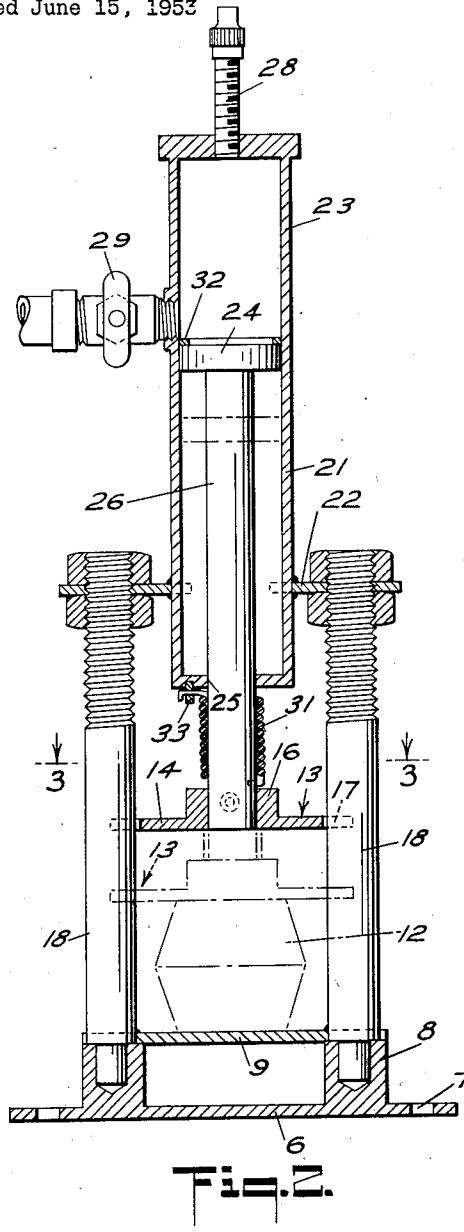
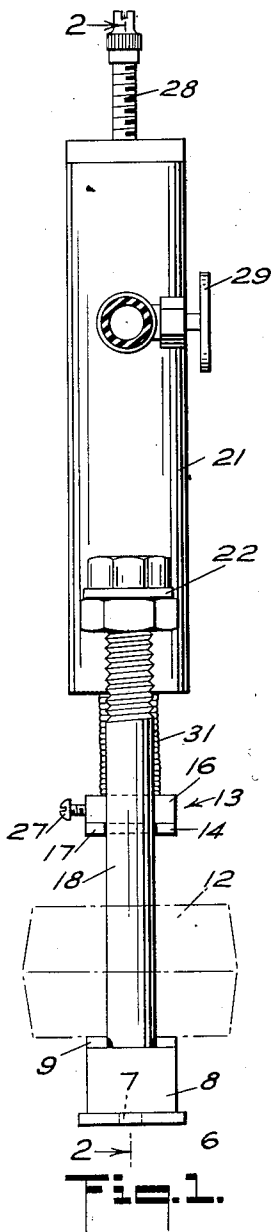
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PNEUMATIC DENTAL PRESS

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PNEUMATIC DENTAL PRESS

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1 Claim. (Cl. 100—266)

This invention relates to pneumatic presses, and more particularly to such presses which may be advantageously utilized in the pressing of certain types of dentures and the like.

Heretofore, in the manufacture of certain types of acrylic bridges, dentures, and the like, the mold or flask containing this material was placed between vertically spaced members arranged for movement towards each other so as to compress the flask therebetween. Conventionally, the movement of the members was effected by means of a manually engageable lever or by screwing one member towards the other, and it will be readily appreciated that the amount of compression resulting from such methods was to a large measure dependent solely upon the strength of the operator or technician.

Accordingly, it is an object of the present invention to provide a simple, inexpensive press having a fixed base member arranged to receive a dental flask and a vertically movable head selectively movable towards and from said base member, in which a pneumatic force is utilized to compress said flask between said head and base.

Another object of my invention is to provide a dental press of the character described in which means are provided for rapidly returning the movable head member to its uppermost or inoperative position following a pressing operation.

A further object of the invention is to provide apparatus of the above mentioned type including means for accurately guiding the movable head along its path of travel.

Still another object of the invention is to provide dental pressing equipment of the above character in which stop means are utilized for accurately positioning the movable head member at the end of each operational cycle.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claim.

Referring to said drawing:

Figure 1 is a side elevational view of the apparatus of my invention.

Figure 2 is a sectional view taken substantially in the plane indicated by line 2—2 of Figure 1.

Figure 3 is a sectional view taken substantially in the plane indicated by line 3—3 of Figure 2.

As hereinabove mentioned, the dental press of my invention is illustrated and described for use with air pressure, rather than hydraulic pressure, for the reason that the average dental laboratory is usually equipped with a source of compressed air. However, it will become apparent as the description of my apparatus progresses, that hydraulic pressure could be used in connection with my apparatus.

The press includes a generally rectangular support stand

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6 having apertures 7 therein, by means of which the entire press may be screwed or otherwise secured to a suitable work bench or table. A pair of lugs 8 extending vertically above stand 6 for a relatively short distance provides a support for a fixed base member 9, here shown as a flat rectangular plate, upon which a dental flask 12 is arranged to be supported. As is well known in the art, such flasks are utilized in the pressing of acrylic bridges, dentures and the like, and normally, it is desirable to position such flasks on the press with the ends of the flask extending beyond the respective pressing elements as indicated in Figure 1 of the drawing.

A vertically reciprocating head member 13 is positioned over the base 9, and as will be presently explained, such member is arranged for movement from an upper inoperative position as shown by solid lines in Figure 2 to an operative position pressing down on the upper surface of flask 12, as indicated by the dot-dash representation of the head. Head member 13 preferably includes a generally rectangular plate 14 and a centrally disposed annular collar 16, the latter affording means for connecting the head to an actuating member as will be presently explained. It will be further noted that the opposed ends of plate 14 are bifurcated, as indicated at 17, the grooves formed by such bifurcations being slidably engaged by a pair of vertical posts 18 which extend upwardly from the base plate 9. In this manner, the movable head member is positively guided during its vertical reciprocating movement.

Means are provided for imparting forceful downward movement to the head 13, and as here shown, such means preferably include a fluid cylinder 21 aligned with and supported by the posts 18 by brackets 22. Mounted for vertical sliding movement in the chamber 23 of the cylinder is a piston 24, the latter having an axially extending piston rod 26 whose lower end passes through an aperture 25 formed in the cylinder and which may be received in the previously mentioned collar 16 of the head member, and releasably secured thereto by a set screw 27 or the like. Thus, as the piston is forced downwardly in the cylinder, the head member will likewise be positively urged towards the base 9. Adjacent the upper end of the cylinder, I provide a connection 28 by means of which compressed air may be introduced into the chamber 23 for forcing the piston downwardly and operatively compressing the flask 12.

After the desired amount of compression force has been applied, a pressure relief valve 29 may be manually opened, permitting the compressed air to be released from the upper portion of the chamber 13, and a spring 31, operatively positioned between the lower end of the cylinder and the head 13, will forcibly return the head, piston rod and piston to their uppermost positions. Desirably, an annular member 32 is provided in the chamber 23 to define a positive stop for the upper position of the piston 24, such upper position naturally being disposed below the relief valve opening. The spring 31 may be mounted in any desired manner to afford the foregoing results but I have preferred to illustrate the same as a tension spring having one end engaged with a depending lug 33 formed on the cylinder 21, and the other end engaged with the piston rod 26 adjacent the lower end of the latter.

From the foregoing description, both the method of construction and the mode of use of my apparatus should be apparent. In operation, it is only necessary for the operator or technician to place the flask on the base plate 9, open a suitable valve (not shown) to permit compressed air to enter the cylinder and force the head member downwardly, and then open the relief valve, the spring 31 returning the head member to its upper or inoperative position. This construction will permit large pressures to be imposed on the flasks with a minimum of

effort on the part of the operator, and its simple construction will permit an economical installation in any dental laboratory.

I claim:

A dental press apparatus comprising a generally rectangular horizontal base member adapted to support a dental flask, a generally rectangular horizontal head member overlying said base member, vertically disposed guide rods, said head member having opposed end portions of bifurcated form slideably engageable with said guide rods, 5
a vertically disposed fluid cylinder, means on said guide rods for supporting said cylinder in a vertical stationary position overlying and spaced from said head member, said cylinder having a fluid inlet at the top thereof and a fluid outlet in a side portion thereof, a piston within said 10
cylinder and having a downwardly directed centrally disposed piston rod, means releasably connecting the lower end of said piston rod with said head member, means within said cylinder subjacent said fluid outlet limiting the 15

upper position of said piston, and spring means interposed between said cylinder and head member normally urging said piston to said upper position, said spring means encircling the lower end portion of said piston rod subjacent said cylinder and having ends respectively secured to said piston rod and the lower end of said cylinder.

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