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H. H. ADAMS ET AL

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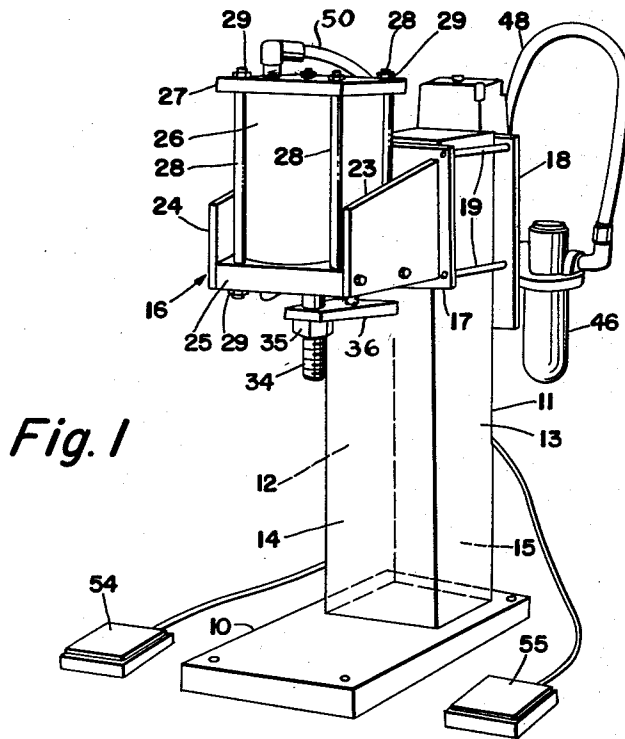


Fig. 1

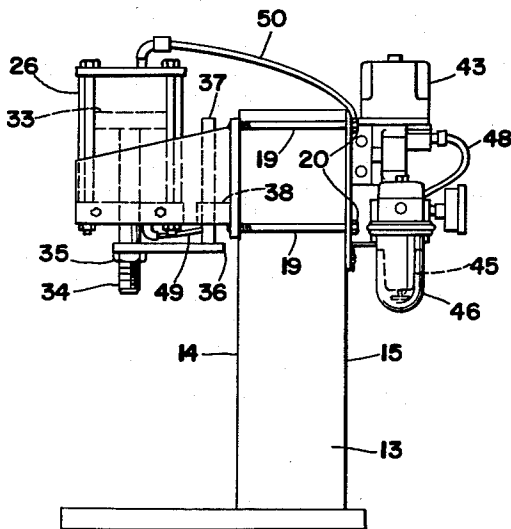


Fig. 2

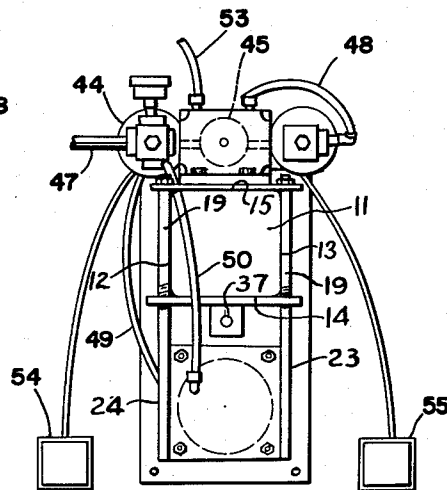


Fig. 3

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1

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This invention relates to fluid pressure operated presses of the type having a base, an upright, and a fluid pressure operated cylinder mounted on the upright. The cylinder has a piston therein movable by the fluid and the piston has a rod or ram attached thereto and projecting from the cylinder opposite the base, the space between the ram and base being commonly referred to as a gap.

In presses of this type it is sometimes desirable to adjust the gap to efficiently accommodate the operation to be performed by the press by raising or lowering the cylinder with respect to the base. It is an object of the present invention to provide a press in which such adjustment may be readily accomplished.

It is an other object to provide a press of the type described in which the press includes a head member which carries the cylinder and all other functioning parts of the press, other than the manually actuable controls, and in which the head member is supported by the column and may readily be vertically adjusted thereon.

It is another object to provide a press of the type described in which the cylinder is mounted on a vertically adjustable head member and the head member provides a means for guiding the cylinder ram.

Other objects of the invention will be apparent from the following description and from the drawings in which:

FIG. 1 is a perspective view of the press,

FIG. 2 is a side view, and

FIG. 3 is a top view.

The press has a base 10 having welded thereto a hollow upright 11 which is rectangular in cross section with each pair of the opposite sides of the column being parallel. In other words, side face 12 is parallel with opposite side face 13 and front face 14 is parallel with rear face 15.

Mounted on upright 11 is a head assembly generally indicated as 16. It includes a front plate or bracket member 17 which fits flat against front face 14 and rear plate or bracket member 18 which fits flat against back face 15. The plates are attached to each other and held in position on column 11 by four bolts 19, there being one of such bolts at each corner of plate 17. Bolts 19 fit snugly against side faces 12 and 13 of the upright and one end of each bolt is threaded into tapped openings in plate 17. The other ends of bolts 19 pass through plate 18 and are secured by nuts 20.

Welded to plate 17 are a pair of brackets 23, 24 and bolted to the brackets is a plate 25 which serves as a closure head for a fluid pressure cylinder 26. The cylinder has another closure head 27 held in place by tie rods 28 which pass through head members 25 and 27 and are secured by nuts 29.

Cylinder 26 has a piston 33 therein and attached to this piston is a rod or ram 34 which projects through a central opening in cylinder head 25. Clamped between a shoulder on ram 34 and a nut 35 is an arm 36 which rigidly carries a guide pin 37 and the latter projects through an opening in a plug 38 which is welded to plate 17.

2

Mounted on the rear side of plate 18 is a control valve 43, a filter 44, a pressure regulator 45, and an air line lubricator 46. The filter 44 has a port for connection to a conduit 47 for supplying air under pressure. Pressure regulator 45 connects to the downstream side of filter 44 and the outlet side of the pressure regulator is connected to an inlet port for lubricator 46. The latter contains a supply of oil which is drawn into the air in finely divided form as the air passes therethrough, the purpose of the oil being to lubricate piston 33 within its cylinder.

The outlet side of lubricator 46 is connected by means of a flexible hose 48 with an inlet port in control valve 43. The latter is a solenoid controlled four-way valve and has a pair of discharge ports which are connected by means of flexible hoses 49 and 50 with the opposite ends of cylinder 26. The valve also has an exhaust port to which an exhaust conduit 53 may be connected. The solenoid valve 43 is controlled by means of manually operated switches 54, 55. The parts are so arranged and connected that actuation of switch 54 will cause valve 43 to operate so as to connect its inlet port with hose 50 for admitting air under pressure above piston 33 to move the latter and ram 34 downwardly. At the same time, valve 43 connects hose 49 leading from the lower side of piston 33 to exhaust line 53. Upon actuation of switch 55 the position of valve 43 is reversed so as to connect the inlet port therein with hose 49 for admitting air under pressure to the lower side of piston 33 and for connecting hose 50 with exhaust conduit 53, thus causing piston 33 and ram 34 to retract or raise. During such lowering and raising movement of ram 34 the latter is guided and supported by guide pin 37 in lug 38.

When it is desired to adjust the gap between cylinder 26 and base 10, nuts 20 are loosened and the entire head assembly is moved upwardly or downwardly, as the case may be, and nuts 20 are then retightened. When the nuts are tightened the head assembly retains its position on upright 11 by frictional engagement of plates 17 and 18 with front and back faces 14 and 13 of upright 11. The engaging faces of plates 17 and 18 on upright 11 are wide and flat so as to accurately and rigidly hold the head against frontward or backward tipping.

Bolts 19, being snugly against opposite sides 12 and 13 of upright 11, and being vertically spaced a substantial distance from each other, effectively prevent sideward tilting or tipping of the head assembly.

In this manner a press construction is provided in which the head assembly may be quickly and easily adjusted in its vertical position on the upright and when anchored in place is firmly supported by the four faces of the upright against tilting in any direction. The faces of the upright provide guide surfaces without requiring expensive machining or extra parts and the entire construction is simple and inexpensive. Although the press illustrated is arranged for pneumatic operation, it is evident that the valve and other units attached to plate 18 can be replaced by a valve and other parts for operating cylinder 26 with a hydraulic fluid. Likewise, other changes may be made in the detail construction or operation of the press within the scope of the invention as claimed.

We claim:

1. In a press, a base, an upright on said base having parallel side faces and parallel front and rear faces, a first plate engageable with said front face, said first plate

3

carrying a fluid pressure cylinder, a ram within said cylinder extending therefrom and movable by fluid pressure, a second plate engageable with said rear face, said second plate carrying means for controlling flow of fluid to said cylinder, and a pair of bolt means on each side of said upright connecting said plates and being operative releasably to clamp said first plate against said front face and said second plate against said rear face in selected positions along said upright, said bolt means in each pair being vertically spaced a substantial distance from each other and engaging said side faces for locating the sidewise position of said plates on said upright.

2. The press of claim 1 in which said first plate has a lug provided with an opening connected thereto, and said

4

ram has a pin connected thereto and slidable in said opening for guiding said ram.

References Cited by the Examiner

UNITED STATES PATENTS

64,584	5/67	Schubeus	100—214 X
2,372,021	3/45	Seiden.	
2,877,705	3/59	Wilson	100—214

FOREIGN PATENTS

1,094,418	12/54	France.
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