

Sept. 9, 1930.

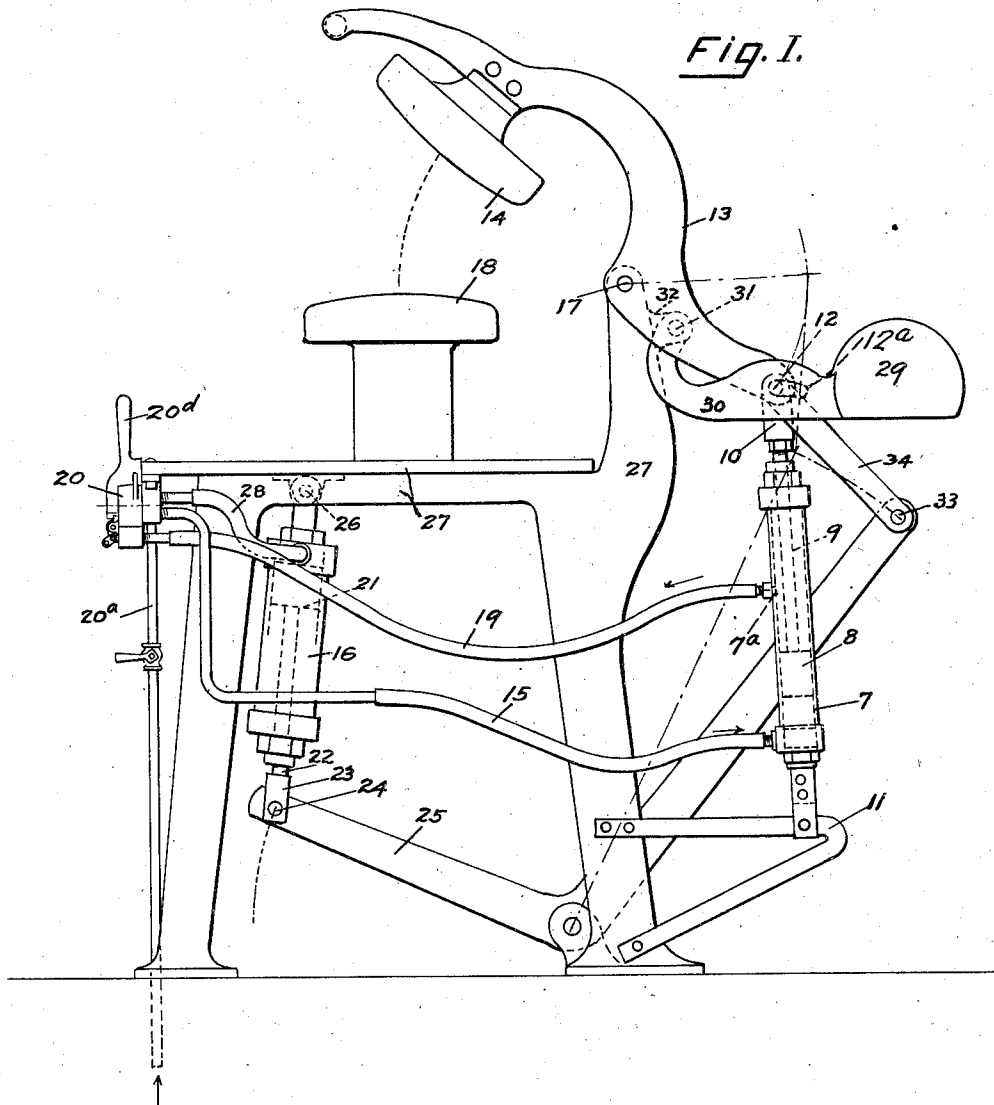
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1,775,427

POWER ATTACHMENT FOR PRESSING MACHINES

Filed June 24, 1929

2 Sheets-Sheet 1



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POWER ATTACHMENT FOR PRESSING MACHINES

Application filed June 24, 1929. Serial No. 373,234.

My invention relates to means for applying mechanical power to the well known pressing machine having a fixed pressing block or buck and a movable element adapted to contact with the first named element and with cloth or a garment between the two to be pressed.

These machines commonly operate by foot or hand power or a combination of them, though some have heretofore been operated by compressed air and steam.

The objects of my invention are to provide a simple and positive means of applying power to the movable element in two stages; the first stage being a movement with light force that will cause the two elements to come together, but not with sufficient force to injure a workman should his hand or fingers be caught between the two elements, and a second movement with very considerable force that will accomplish the function of the pressing machine, and devices that will so tie and interlock the two movements that it will be impossible in the operation of the machine to reverse the order of the application of the two forces or to apply the second and greater force until the first one has completely functioned and brought the heads so close that it will be no longer possible for a hand or part of it to be placed between the heads, thus avoiding the danger inherent with all heretofore power operated machines of this character of a hand being caught between the two blocks subjected to extreme pressure and in connection with a blast of hot steam.

These objects and others that will be particularly pointed out in the subjoined specifications and claims are accomplished by the mechanism shown in the accompanying drawings, in which Fig. I is a diagrammatic side view of a pressing machine showing the application of my new device, Fig. II is a front view of my new control valve, Fig. III is a side view of Fig. II partly cut away to disclose features of its construction, Fig. IV shows the operating face of the valve proper illustrated in Fig. II, Fig. V is the valve seat that the valve proper of Fig. IV works on and showing the several ports and Fig.

VI is the back side or reverse view of the valve seat shown in Fig. V.

A cylinder, 7, containing a piston, 8, attached to a piston rod, 9, and having a head, 10, is pivotally supported by a frame member, 11, and the head, 10, is pin-connected by a pin, 12, to a lever, 13, which operates a movable head, 14; a flexible supply conduit, 15, preferably a hose, is attached to the lower portion of the cylinder, 7, as a means for ingress and egress of motivating fluid, preferably compressed air. It will be noted that there are two cylinders shown in the assembly, the one just designated as 7 being markedly smaller in diameter than the second cylinder indicated by the numeral 16. The indifference in size merely serves as notice that they are intended to exert different degrees of force.

When compressed air is admitted through the conduit, 15, it will be seen that the piston, 8, will tend to rise and carry its attached parts applying power to the pin, 12, which will in turn cause a movement of the lever, 13, which is pivoted on the pin, 17, tending to bring together the movable head, 14, and the fixed head, 18, with a force directly proportionate by well known mechanical laws, to the pressure supplied through the conduit, 15, the diameter of the piston and length of levers.

As the piston, 8, rises in the cylinder, 7, and when the two heads, 14 and 18, have been brought together, or approximately together, the piston, 8, will uncover a port, 7^a, in the wall of the cylinder, 7, and permit communication through a conduit, 19, to the back of the valve, 20, and a flow of the motivating fluid through said conduit, 19, the purpose of which will be hereinafter explained in detail.

The cylinder, 16, contains a piston, 21, shown in dotted outline, to which is attached a piston rod, 22, and a piston head, 23, through which is a pin, 24, forming an operative connection with the bell crank lever, 25. The cylinder, 16, is pivotally attached by the pivot lug, 26, to the frame of the machine, 27, and supplied with motivating fluid through the flexible conduit, 28, which provides

means for ingress and egress of said motivating fluid. Though it is no part of my present invention, means for returning both pistons to their former positions are diagrammatically shown by the counter-balance
 5 weight member, 29, which is pivotally attached to the frame, 27, by a weight arm, 30, a pin, 31, and a double lug, 32. A diagrammatic operative connection between
 10 the weight arm, 30, and the head, 10, is shown by the pivot, 12, the head of which projects into the slot, 12^a.

The bell crank lever, 25, is attached by the pin, 33, to the link, 34, and the pin, 12, to the lever, 13, forming a toggle joint, and it will be noted that when the piston, 8, has functioned to the extent of bringing the heads, 14 and 18, together, that this toggle joint connection will be in such position that the
 15 piston, 21, will be able to make a very considerable movement in the cylinder, 16, to compass a comparatively slight movement of the head, 14, and thus apply to it a very considerable force, very much greater in fact
 20 than the comparative sizes of the cylinders, 16 and 7, and length of levers would seem to indicate.

The valve, 20, is composed of the parts illustrated in the several views, Figs. II, III, IV,
 30 V and VI.

A supply conduit, 20^a, supplies motivating fluid from any convenient source, and at a pressure commensurate with the required results, which will be largely a function of
 35 the diameter of the pistons, 8 and 21. The supply conduit, 20^a, has direct communication through the channel, 20^b, to the inlet ports, 20^c, and flow of the motivating fluid from said inlet ports, 20^c, is controlled to the
 40 two cylinders, 7 and 16, by appropriate movements of the handle, 20^d, which causes the recesses, 20^e and 20^f, to register with the ports, 20^c, which is in communication with the conduit, 15, or 20^h, which is an exhaust
 45 port open to the atmosphere and adapted to discharge the contents of cylinder, 7, on appropriate occasion; 20ⁱ is a port that communicates with the flexible conduit, 28, and by appropriate movement of the handle 20^d,
 50 will cause the recess, 20^e, to cover both 20^c and 20^f at the same time, or 20^f and 20ⁱ at the same time, thus providing means for charging and discharging motivating fluid to and from cylinder, 16, for the purpose indicated.

It will thus be seen that when the handle, 20^d, is placed in one position that a closing movement will take place and the head, 14, will be brought in contact with the head, 18, with moderate force and that an interval of
 60 time is required for this movement. When this function has been accomplished and the port, 7^a, uncovered, a flow of motivating fluid will pass through the flexible conduit, 19, and actuate the spring loaded piston, 20^k, which
 65 operates through its piston rod, 20^l and the

link, 20^m, to cause a movement or recession of the lock, 20ⁿ, which unlocks the lever, 20^d, and allows it to be thrown to the position indicated by the dotted outline and marked HP (for high pressure) from the position where
 70 it is shown in full outline and marked LP (for low pressure).

When the function of the press has been fully accomplished and it is intended to discharge all of the cylinders and allow the
 75 heads to return to their normally open position and motivating fluid to be exhausted from both cylinders, then the lever, 20^d, will be thrown to the position shown in the dotted outline and designated by X. Then also
 80 pressure will be removed from the piston, 20^k, and the spring will relock the lever, 20^d.

It is of course possible to arrange these several ports through which motivating fluid
 85 flows in numerous ways so that following the exact routine as described is unimportant. My drawings show a semi-rotative slide valve but a semi-rotative plug valve will function
 90 equally well if properly constructed, and a double D slide valve can also be made to accomplish the same result; therefore, I do not restrict myself to the exact construction
 95 illustrated in the drawings, but what I claim as new and desire to secure by Letters Patent, is—

1. A pressing machine having a fixed and a movable pressing element, means for operating the movable pressing element comprising
 100 a cylinder having a piston operatively connected to the movable pressing element, a port in the cylinder positioned to be uncovered by the piston upon movement thereof
 105 to effect initial pressure between the pressing elements, a motor operatively connected to the movable pressing element to effect final pressure, control means for the motor, fluid
 110 operated stop means to prevent effective operation of the control means, a fluid conduit between the port in the cylinder and the fluid
 115 operated stop means, whereby upon the uncovering of the port the control means may be effectively operated to cause the motor to function.

2. In a pressing machine having a fixed element and a movable element and cylinder
 120 and piston means for moving the said movable element, of a first cylinder and piston means operatively connected to said movable
 125 element and a second cylinder and piston means operatively connected to said movable element, and normally locked means for controlling said second cylinder and piston
 130 means, and a port in said first cylinder positioned to be uncovered by the said first piston to unlock the controlling means for the said
 135 second cylinder and piston in the sequence as specified.

3. In a pressing machine having a fixed head and a movable head and operative lever
 140 connections for said movable head, of a plu-

10 rality of cylinders adapted to apply different successive degrees of force to said movable head, normally locked operative means for controlling the second cylinder, a port in the first cylinder positioned to be uncovered by a contained piston, conduit means from said port to the said lock whereby motivating fluid for unlocking the said locking means may flow from said first cylinder to said locking means for the purpose specified.

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