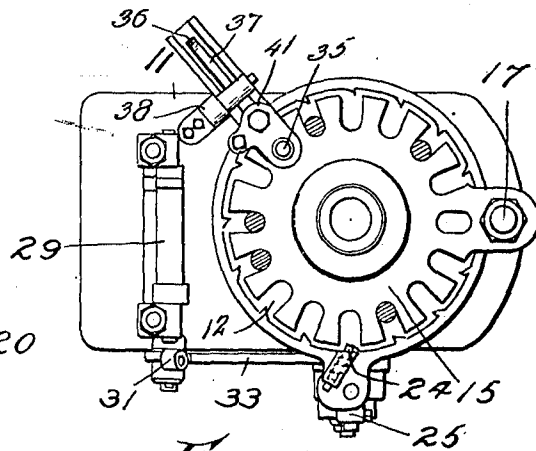
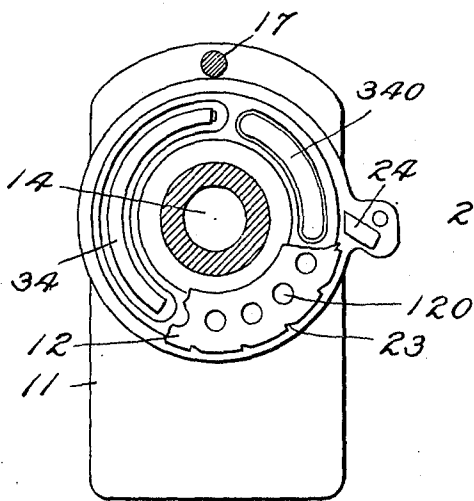
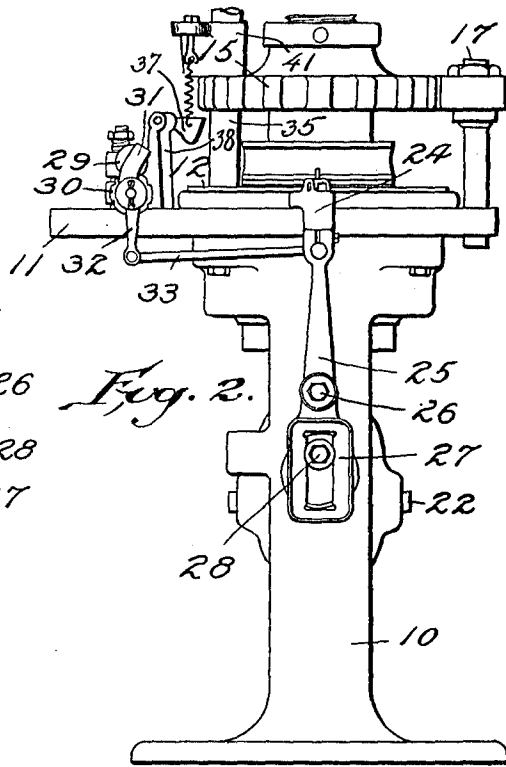
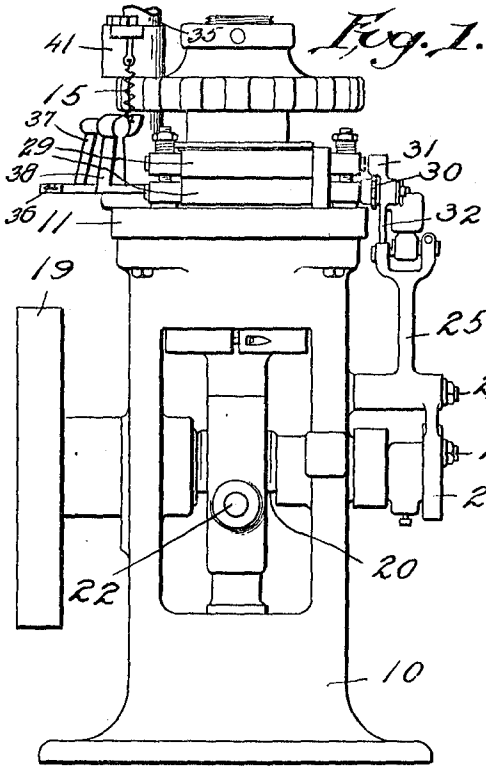


O. SMITH.  
PRESS.

APPLICATION FILED JUNE 25, 1914.

Patented July 23, 1918.  
2 SHEETS—SHEET 1.

1,273,686.



Witnesses *Fig. 5.*

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Inventor

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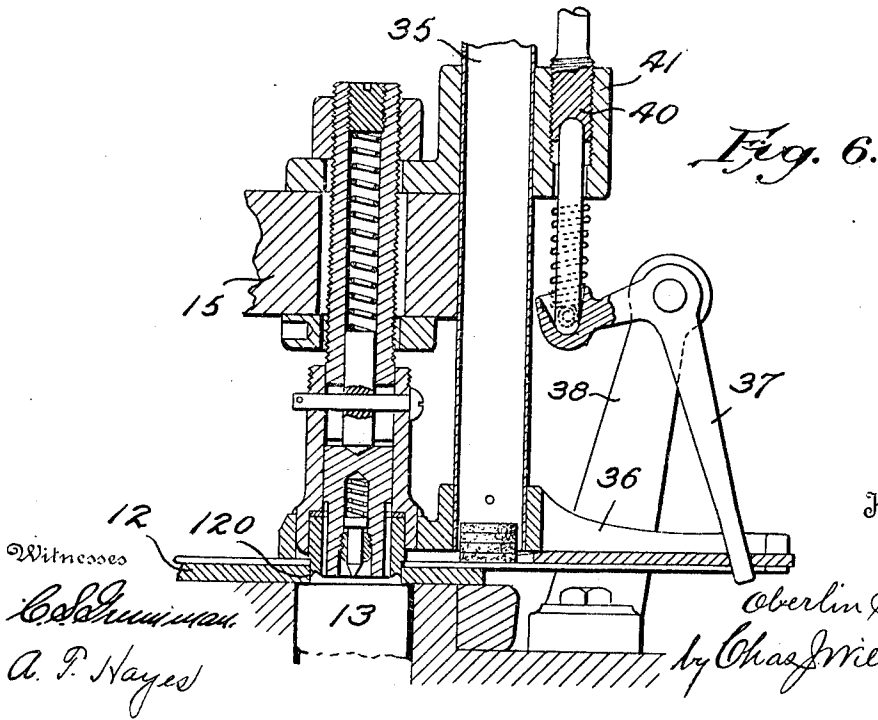
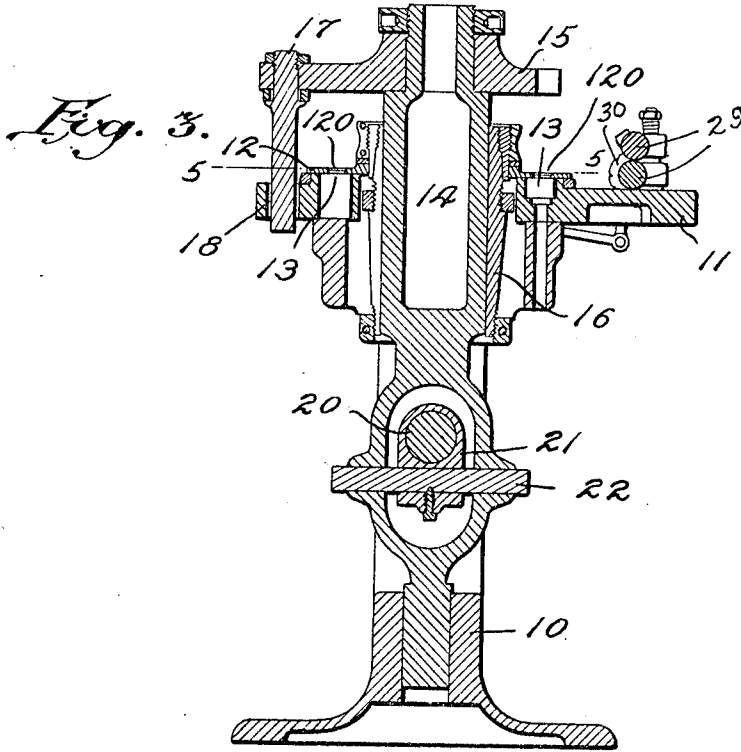
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2 SHEETS—SHEET 2.



Inventor

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# UNITED STATES PATENT OFFICE.

OBERLIN SMITH, OF BRIDGETON, NEW JERSEY.

PRESS.

1,273,686.

Specification of Letters Patent.

Patented July 23, 1918.

Application filed June 25, 1914. Serial No. 847,302.

*To all whom it may concern:*

Be it known that I, OBERLIN SMITH, of Bridgeton, in the county of Cumberland, and in the State of New Jersey, have invented a certain new and useful Improvement in Presses, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to presses employing a reciprocating tool-carrying ram and in particular to presses in which a plurality of operations may be simultaneously performed, and the object of my invention is generally to improve the construction of presses of this class in such matters as ease and convenience of access to the tools, multiplication of the number of operations that may simultaneously be performed, increasing the strength or stiffness of the structure, while at the same time rendering it compact, and simplifying and lessening the cost of construction, and to attain this object and provide a press having other advantages which those skilled in the art will readily appreciate, my invention consists in the press having the construction substantially as hereinafter specified and claimed.

As it will be recognized my invention may be embodied in structures of various forms, but it will sufficiently illustrate my invention to show one embodiment thereof, and in the accompanying drawings—

Figure 1 is a front elevation of a press embodying my invention;

Fig. 2 is a side elevation thereof;

Fig. 3 is a vertical section from front to rear;

Fig. 4 is a top plan view;

Fig. 5 is a horizontal section on the line 5—5 of Fig. 3, in a plane just above the die-carrying dial, a portion of the latter being broken away to reveal the structure below;

Fig. 6 is a detail view in vertical section of the cork feeding device, the press shown to illustrate my invention being one for the manufacture of the familiar bottle closure composed of united disks of sheet metal and cork.

Referring to the drawings in connection with a detailed description of the press

shown, it will be found that the bed or frame 10 is in the form of a vertical standard to the top of which is secured a table 11. Upon the top of the table is journaled a horizontally rotatable dial 12 having a circular series of holes 120 each for the reception of the blank or work, beneath which the bed is provided with a circular series of dies 13, the press shown being one in which the tools consist of cooperating punches and dies and the punches being carried by a ram 14. The ram 14 passes centrally through the dial and table having above the dial a head 15 in the form, as shown, of a disk with a series of radial notches, or slots in its periphery, or circumference, each of which is adapted to detachably hold a suitable punch, or tool to cooperate with an alining die below. The ram has a body, which for convenience of construction is preferably cylindrical, which has a sliding fit in a bearing in the upper part of the standard, said bearing being in the form of a sleeve 16 which is mounted in the upper part of the standard and externally has a tapering, or conical form so that when a nut thereon is moved longitudinally (it being a split sleeve) it may be adjusted to secure the desired bearing fit and to compensate for wear. As the ram-reciprocating means is below the dial supporting table it will be seen that there is no frame structure required that conceals, or obstructs access to the tools, but the latter above the dies and punches are so completely exposed that the fullest possible access thereto is possible and the number of tools that may be provided is not diminished, or reduced, as would be the case with such an arrangement of the frame structure, as would house, or cover portions of the tool-carrying head and dial.

Since the bearing body of the ram is cylindrical in the case of the press shown, I provide a stud or post 17 which is attached to the ram head and passes through a hole in the table which it slidably fits and thereby the punch-carrying head is prevented from rotating. Obviously, if the ram body were given a rectangular, or other flat sided form no device, such as the stop or post

would be necessary to prevent it from rotating.

A very important advantage from my construction is the possibility of making the ram of great length compared with the height of the press, that is to say, without enlarging the size of the press, but on the contrary providing a very compact structure, the ram can be of such great length as greatly to add to the stiffness of the structure and preclude lateral lost motions of the ram.

The ram-reciprocating crank shaft 20 is journaled in horizontal bearings in the press frame, being provided at one end with a driving pulley and fly wheel 19. Mounted on the crank portion of the shaft is a pitman block 21 to which is secured a rod 22 that projects on opposite sides thereof at right angles to the crank shaft, and slidably engages openings in the shank, or stem of the ram so that as the crank revolves the pitman block may slide to and fro at right angles to the axis of revolution of the crank shaft. Thus, what in effect is a universal joint connection is made between the ram and the crank shaft and the construction in this regard is extremely simple so that it may be cheaply made and may be easily put together and taken apart and it can accommodate itself in all directions and thus compensate for defects of construction so that no great pains need be taken by the workman for accurate construction by machining parts, or other close work so that nothing beyond ordinary workmanship is required.

The dial is rotated step by step to carry the work from die to die, and for this purpose its periphery is provided with ratchet teeth 23 adapted to be engaged by a feed pawl 24 carried by a rocking lever 25 mounted to rock on a horizontal pivot 26 projecting from the side of the standard. The lower end 27 of the lever is slotted and in the slot is a crank pin 28 upon the crank shaft 20.

As has before been stated, the press illustrating one embodiment of my invention is used in the manufacture of bottle closures. These are made of disks of metal, wax paper and cork. The paper in strip form wound into a roll is supported by a reel, the strip being carried from the latter and passed between a pair of feed rollers 29 journaled horizontally in bearings on the top of the table, and for operating the feed rollers one of them has upon one end a ratchet wheel 30 adapted to be actuated by a suitable pawl 31. Said pawl is carried by a rocking arm 32 which by a rod or pitman 33 is connected with the dial-indexing lever 25. The strip of paper after passing beyond the feed rollers is delivered in position to be operated upon by a punch and its cooperating die so as to form the disk. Means are provided for

heating the wax paper disks and thereafter cooling the cap parts which are heated. The metal cap to form a stopper being placed by hand in one of the receiving holes 120 before the station is reached in which the paper disk is inserted into the metal cap, when such station is reached by the rotation of the dial 12, the paper disk is placed in the metal cap and later the cork disk placed therein, and in the further rotation of the dial 12 with the assembled parts they are carried in succession over heating and cooling devices which may have the form and arrangement best shown in Fig. 5. The table 11 of the press immediately below the dial has two segmental recesses in which, respectively are placed a curvilinear heating pipe 34 that is supplied with steam and a curvilinear cooling pipe 340 which is supplied with cold water. The disks by the rotation of the dial are carried above the heating and cooling pipes, and are thereby subjected to their influences so that, first, they are heated, and thereafter are cooled.

The cork disks are placed in a stack, or pile in a vertical tubular reservoir 35, which is supported on the top of the press table with its lower end in position to discharge a cork disk at a time to the top of the dial in position to be engaged by a reciprocating feed bar, or slide 36, which engages the lowermost cork and slides it into position beneath the proper punch by which it is forced into the die with which that punch cooperates. Said slide is engaged by one arm of a bell crank lever 37 pivoted to an arm or bracket 38 rising from the table, whose other arm has a socket which receives the lower end of a pitman 39 whose upper end engages a socket 40 in an arm 41 carried by the ram so that upon the descent of the ram the bell crank lever will be moved in the direction to retract the slide while upon the ascent of the ram a spring connected with the bell crank lever and with the ram arm 41 will rock the latter in the reverse direction to impart a cork-disk feeding movement to the feeding slide. The spring connecting the bell crank lever and the ram arm is a yielding connection from which upward movement of the ram is transmitted to the bell crank lever 37 to impart the feeding movement to the slide.

The metal disks may be supplied to the feed dial recesses in any desired way which may be any of those well known in the art.

Having thus described my invention what I claim is—

In a press, the combination of a reciprocating ram having a head adapted to carry a circular series of punches, a dial adapted to carry a circular series of disks situated beneath the punch-carrying head, paper feeding means, means for reciprocating the ram situated beneath the dial, a disk reser-

voir, means for feeding disks delivered to  
the reservoir actuated by the reciprocation  
of the ram, a table supporting said dial and  
said paper feeding means, means for ap-  
5 plying a heating medium below a portion of  
the dial, and means for applying a cooling  
medium below another portion of the dial.

In testimony that I claim the foregoing I  
have hereunto set my hand.

OBERLIN SMITH.

Witnesses:

HUGH L. REEVES,

P. KENNEDY REEVES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."