

July 7, 1936.

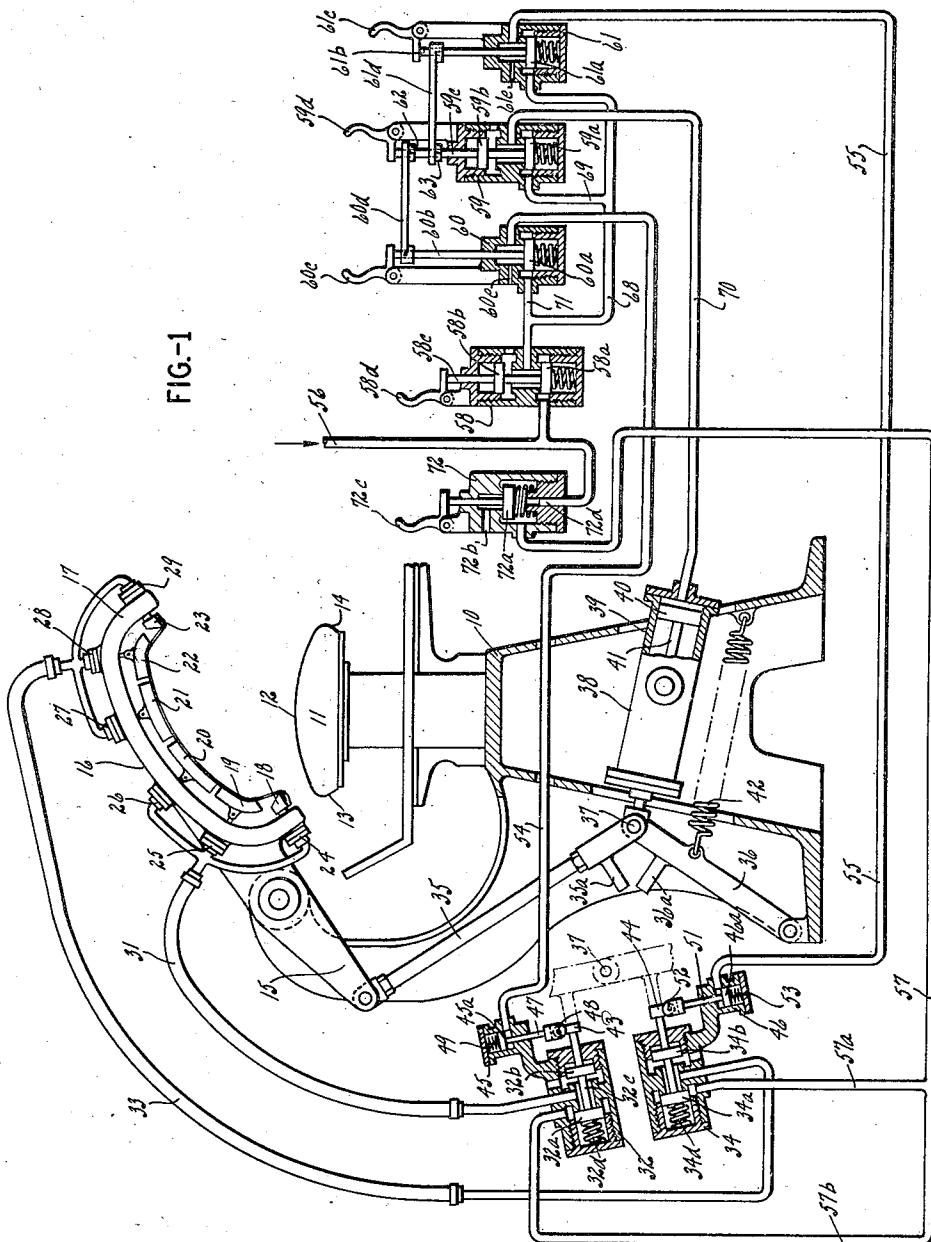
C. S. MALOTT, JR

2,046,785

CHEST MEMBER FOR PRESSING MACHINES

Filed March 28, 1935

2 Sheets-Sheet 1



INVENTOR
CLIFTON S. MALOTT JR.

BY
Brockett, Hyde, Higley & Meyer
ATTORNEYS

July 7, 1936.

C. S. MALOTT, JR

2,046,785

CHEST MEMBER FOR PRESSING MACHINES

Filed March 28, 1935

2 Sheets-Sheet 2

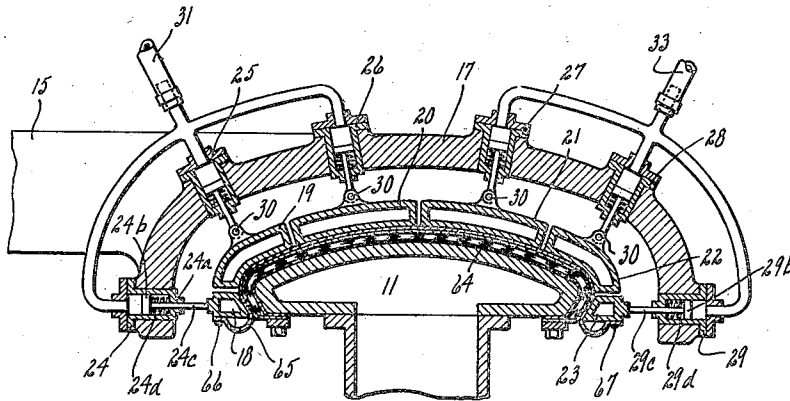


FIG-3

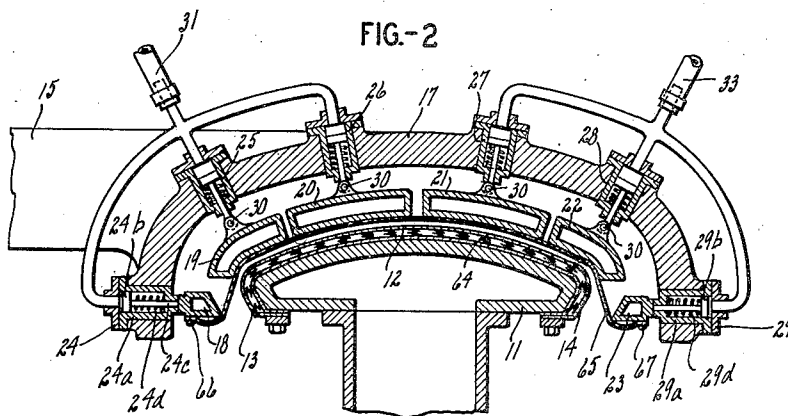


FIG-2

INVENTOR
CLIFTON S. MALOTT JR.
BY
Brockett, Hyde, Higley & Meyer
ATTORNEYS

UNITED STATES PATENT OFFICE

2,046,785

CHEST MEMBER FOR PRESSING
MACHINESClifton S. Malott, Jr., Norwood, Ohio, assignor to
The American Laundry Machinery Company,
Norwood, Ohio, a corporation of Ohio

Application March 28, 1935, Serial No. 13,504

20 Claims. (Cl. 68—9)

This invention relates to a pressing machine and more particularly to the type used in laundry and garment work.

An object of the present invention is to provide a pressing machine having pressing members with coacting concave and convex pressing surfaces respectively which are adapted to be moved to position adjacent each other and thereafter the concave pressing surface is contracted upon the convex surface.

Another feature of the invention is the provision of coacting pressing members, one of which is provided with a plurality of sections making up the pressing surface thereof, with fluid actuated means for moving these sections individually toward the coacting pressing member in a pressing operation.

My invention also contemplates in a pressing machine in which one of the members comprises a plurality of sections as above described, means controlled by the operator for selectively actuating a portion only of those sections for a pressing operation not involving the entire pressing surface of the two coacting members.

Another feature of my invention is the provision of a pair of pressing members, one of which has a concave pressing surface composed of a plurality of sections with power means for moving those sections toward the coacting pressing member, means including motion transmitting mechanism for placing the pressing members in position adjacent one another, and means actuated by the said mechanism for actuating the power means when the pressing members are in coacting relation.

Another feature of my invention is the provision of a concave pressing member comprising a plurality of sections adapted to coact with the convex surface of another member, and a flexible metallic sheet interposed between the sections of the concave member and the article to be pressed.

Another feature of my invention is the provision of a pair of coacting pressing members relatively movable into and out of pressing position and a fluid actuated locking member on one of the pressing members adapted to engage the other pressing member to hold the press closed.

Other objects and advantages of my invention include certain novel structural arrangements for carrying out the above outlined purposes as will more clearly appear from the accompanying drawings and the specification.

In the drawings, Fig. 1 is an end elevation

partly in section showing a pressing machine in open position which embodies my invention, certain of the parts are shown in section and the control mechanism is shown diagrammatically; Fig. 2 is a sectional view through the coacting pressing members of Fig. 1, showing them safely closed but before final pressure is applied; while Fig. 3 is a sectional view similar to Fig. 2 showing the pressing members completely closed.

Certain features of my invention are applicable to various types of pressing machines but I have illustrated the same as applied to a well known type of machine having a frame 10 on which is mounted a stationary pressing bed 11 which has a convex pressing surface comprising a central pressing portion 12 and side pressing portions 13 and 14. Pivotally mounted on the frame is a head lever 15 which carries a head member indicated generally at 16 and which comprises a frame 17 on which are mounted a plurality of pressing sections indicated at 18 to 23. These sections collectively form a concave pressing surface adapted to coact with the convex surface of the bed 11 and more particularly certain of the sections are adapted to coact with the central portion 12 of the bed and the sections 18 and 23 may also coact with the portions 13 and 14 of the bed to provide a side pressing action.

The head member is constructed so that when the pressing members are in position adjacent one another the head may be contracted upon the bed member for a pressing operation. This construction is best shown in Figs. 2 and 3 wherein fluid actuated motors numbered from 24 to 29 are carried by the frame 17, there being one motor for each of the pressing sections 18 to 23 and since the construction of each of these units is the same one only will be described, it being understood that similar suffixes refer to similar parts. Motor 24 comprises a cylinder 24a in which reciprocates a piston 24b whose piston rod 24c is connected to the pressing section 18. A spring 24d biases the pressing section toward the frame. The piston rods may be directly connected to their respective pressing sections as shown at 18 and 23 or they may be pivotally connected as indicated at 30 so as to permit the sections to adjust themselves somewhat during a pressing operation. It will be understood that the pressing sections may be formed hollow as shown and provided with a suitable heating medium, which might be electrical if desired. The pressing sections 18 to 23 may extend the entire length of the pressing member or groups of the

same may be provided along the length of the pressing member as desired. It will be understood that the arrangement shown at 18 to 23 may be duplicated along the length of the pressing member if necessity requires.

Fluid means is provided for operating the motors 24 to 29 which may comprise a single source or preferably the motors are arranged in groups so that part only of them may be used when the pressing operation is such as to require less than the whole number of pressing sections. In the arrangement shown motors 24, 25 and 26 are provided with motive fluid through a common conduit 31, the flow through which is controlled by valves in casing 32. Motors 27, 28 and 29 receive their fluid supply through conduit 33 which is controlled by valves in casing 34. By grouping the motors and providing a common supply of motive fluid for the entire group, the pressure exerted by each motor is substantially equal to that of its companion motors.

The valves in casings 32 and 34 are the same and one only will be described. In casing 32 is housed a normally closed inlet valve 32a and a normally open outlet valve 32b which are mounted on a common stem 32c so that they may be actuated together. A spring 32d maintains the valves in their normal positions.

Means is provided for relatively moving the coacting pressing members to position adjacent one another for a pressing operation and in this particular instance the head member 16 only is moved although those versed in this art will understand that both pressing members might be moved. The means here provided comprises a pair of toggles 35 and 36 pivotally connected together at their knuckle 37 and pivoted at their upper end to the head lever 15 and at their lower end to the frame. A cylinder and piston motor 38 suitably mounted in the frame has a cylinder 39 in which reciprocates a piston 40 whose piston rod 41 is connected to the toggle mechanism so that a stroke rearwardly of piston 40 moves the toggles to substantially straightened position as indicated in broken lines Fig. 1, at which time the head member is moved to the position of Fig. 2. A spring 42 normally biases the toggles toward broken position.

Means is provided for actuating the motors 24 to 29 automatically upon movement of the pressing members into pressing relation adjacent one another. The specific means comprises lugs 35a and 36a on their respective toggles which are adapted to actuate the valve stems 32c and 34c when the toggles reach substantially straightened position. This action will serve to close the outlet valves and open the inlet valves in casings 32 and 34 so as to initiate the flow of motive fluid to motors 24 to 29 inclusive.

Means is provided under control of the operator by which a part only of the motors 24 to 29 may be actuated during a pressing operation, assuming that all of said motors are not required. To this end the abutments 43 and 44 are normally positioned where they will be engaged by lugs 35a and 36a as these move into position to actuate stems 32c and 34c. These abutments may be moved out of their operative position, however, in which case the lugs will be ineffective to actuate their companion valve stems and the motors associated with the control valves so affected will not be actuated. This mechanism comprises servo motors 45 and 46 which are similarly constructed and one only

will be described. Motor 45 has a piston 45a whose piston rod 47 is pivotally connected at 48 with abutment 43. A spring 49 biases the abutment toward its effective position. Fluid supply lines 54 and 55 conduct motive fluid to the servo motors 45 and 46 respectively for retracting the pistons against the biasing spring whereby to move the abutments 43 and 44 respectively out of effective position.

The control mechanism provides a two-hand control for motor 38 with additional manuals for use if a section of the pressing head is to be disabled. The supply of motive fluid is indicated at 56 and conduits 57, 57a and 57b supply the valves in casings 34 and 32. Valve casings 58 and 59 are similarly arranged and one only will be described. In valve casing 58 there is a normally closed inlet valve 58a and a normally open outlet valve 58b mounted on a common stem 58c for actuation by a manual 58d. Valve casings 60 and 61 are similar and therefore one only will be described. Valve casing 60 houses a normally closed inlet valve 60a having a stem 60b which is actuatable by a manual 60c. Rigid with stem 60b is an arm 60d which extends to valve stem 59c and overlies a collar 62 on the latter valve stem so that as valve stem 60b is actuated valve stem 59c will move with it. In a similar manner arm 61d overlies a collar 63 on valve stem 59c so that as valve stem 61b is actuated valve stem 59c will move with it. Casings 60 and 61 each have a small outlet port 60e and 61e so that any leakage through valve 60a or 61a will be ineffective to disable the mechanism connected with servo motors 45 and 46.

The pressing bed may be supplied with suitable padding such as the spring padding 64. The sections of the pressing head are preferably covered by a common cover member extending across the entire head so as to produce a better ironing operation on the material resting on the bed. In the form shown a flexible metallic sheet 65 extends across the sections 18 to 23 and is carried in a suitable manner by the frame 17. In the form shown this connection is made by riveting at 66 and 67 the sheet 65 to the pressing portions 18 and 23 respectively.

It will be noted from an inspection of Fig. 3 that the portions 18 and 23 serve as locking members to hold the pressing members in engagement whether the portions 18 and 23 be utilized for a side pressing operation or not. My invention therefore contemplates the use of one or both of these members as a locking member to hold the head and bed in pressing engagement when desired.

The operation of the mechanism described with the parts in the position of Fig. 1 is as follows: The operator arranges the lay of the work upon the bed 11 and if the pressing operation requires the entire surface of the pressing head she actuates manuals 58d and 59d. Motive fluid then flows through conduit 56, valve 58a, conduits 68 and 69, valve 59a and conduit 70 to motor 38. Piston 40 makes a stroke rearwardly and as the toggle mechanism reaches the broken line position of Fig. 1, lugs 35a and 36a acting through abutments 43 and 44 respectively engage their respective valve stems 32c and 34c which opens valves 32a and 34a at the same time closing valves 32b and 34b. Fluid then flows through conduit 57a, valve 34a and conduit 33 to motors 27, 28 and 29. Motive fluid also flows through conduit 57b, valve 32a and conduit 31 to motors 24, 25 and 26. This actuates the pressing sections

18 to 23 from the position of Fig. 2 to the position of Fig. 3, which causes a pressing operation. Upon release of manuals 58d and 59d motor 38 is evacuated through the normally open valves 58b and 59b but the press remains closed due to the locking effect of sections 18 and 23 which are in locking engagement with the bed.

For opening the press, a valve casing 72 is placed in conduit 57. This casing houses a valve disk 72a normally biased to close exhaust port 72b but movable by manual 72c to temporarily close the open inlet port 72d. Thus, when manual 72c is actuated the fluid supply from conduit 56 is cut off and fluid exhausts from conduit 57 through port 72b until motors 24 and 29 are evacuated. As sections 18 and 23 move out of their locking position impelled by springs 24d and 29d, spring 42 will become effective to break the toggle and move the head to its open position. The first movement of toggle links 35 and 36 will permit valves 32a and 34a to close.

If it is desired to perform a pressing operation upon the front half only of the pressing members, the operator arranges the lay of the work upon the bed 11 and actuates manuals 58d and 60c. Because of the interconnecting arm 60d, the valves in casing 59 will be actuated along with the valve in casing 60. The supply of fluid to motor 38 is the same as before described when manuals 58d and 59d were operated, so that the piston 40 makes a stroke which straightens the toggles and moves the frame 17 to position adjacent the bed. However, the opening of valve 60a supplies motive fluid through conduit 71, valve 60a and conduit 54 to servo motor 45, thus holding abutment 43 in ineffective position. Therefore, as the toggles straighten lug 35a is ineffective to actuate its associated valves but lug 36a actuates the valves in casing 34 to admit fluid to motors 27, 28 and 29 as before described. Upon completion of the pressing operation the operator actuates manual 72c as before. This deenergizes motor 29, whereupon the locking member 23 will be released and spring 42 will open the press.

If a pressing operation is to be performed upon the rear half of the pressing members only, the operation is similar to that already described except that manuals 58d and 61c are actuated. Because of arm 61d the valves in casings 59 and 61 will move in unison. The supply of motive fluid to motor 38 will be the same as that before described and the opening of valve 61a will supply fluid through conduit 55 to servo motor 46, thus holding abutment 44 in ineffective position as the press closes so that the valves in casing 34 are not operated. However, lug 35a will be effective to open the valves in casing 32 to energize motors 24, 25 and 26. At the close of the pressing operation manual 72c is actuated which evacuates motors 24, 25 and 26 and permits spring 42 to open the press.

It is thus seen that I have provided a pair of pressing members one of which is so divided into sections that it readily adjusts itself to inequalities of the surface being ironed. That is to say, as the parts move to the position of Fig. 2, the sections 19, 20, 21, 22 may adjust themselves to various portions of the garment not only by swinging about pivots 30 but also by moving the pistons of the associated motors 25, 26, 27 and 28 a greater or lesser distance in their cylinders if necessary. With the pressing surfaces thus adjusted the supply of motive fluid to the plurality of motors in the head member will create a sub-

stantially uniform pressure over the entire engaged surfaces.

What I claim is:

1. In a pressing machine, a pair of pressing members having coacting convex and concave pressing surfaces respectively, means for causing relative movement between said members to position them adjacent one another, and means for thereafter moving the pressing surface of the concave member into pressure engagement with the pressing surface of the convex member.

2. In a pressing machine, a pair of pressing members having coacting convex and concave pressing surfaces respectively, means for causing relative movement between said members to position them adjacent one another, and means for thereafter moving a part of the pressing surface of the concave member into pressure engagement with the coacting part of the pressing surface of the convex member.

3. In a pressing machine, a pair of pressing members having coacting convex and concave pressing surfaces respectively, means including motion transmitting mechanism for causing relative movement between said members to position them adjacent one another, and means actuated by said mechanism for thereafter moving the pressing surface of the concave member into pressure engagement with the pressing surface of the convex member.

4. In a pressing machine, a pair of relatively movable pressing members having coacting concave and convex pressing surfaces respectively, a plurality of sections forming the concave pressing surface of one member, fluid pressure actuated means for moving said sections toward the coacting pressing member, means for causing relative movement between said pressing members to position them adjacent one another, and means for supplying pressure fluid to said fluid actuated means.

5. In a pressing machine, a pair of relatively movable pressing members having coacting concave and convex pressing surfaces respectively, a plurality of sections forming the concave pressing surface of one member, fluid pressure actuated means for moving each of said sections toward the coacting pressing member, means for causing relative movement between said pressing members to position them adjacent one another, and means for supplying pressure fluid simultaneously to all of said fluid actuated means.

6. In a pressing machine, a pair of relatively movable pressing members having coacting concave and convex pressing surfaces respectively, a plurality of sections forming the concave pressing surface of one member, a cover member extending across said sections and carried in advance thereof, fluid pressure actuated means for moving each of said sections toward the coacting pressing member, means for causing relative movement between said pressing members to position them adjacent one another, and means for supplying pressure fluid to said fluid actuated means.

7. In a pressing machine, a pair of relatively movable pressing members having coacting concave and convex pressing surfaces respectively, a plurality of sections forming the concave pressing surface of one member, a flexible metallic member extending across said sections and carried in advance thereof, fluid pressure actuated means for moving each of said sections toward the coacting pressing member, means for causing relative movement between said pressing members to

position them adjacent one another, and means for supplying pressure fluid to said fluid actuated means.

8. In a pressing machine, a pair of coacting relatively movable head and bed pressing members, said head member including a frame, the pressing surface of said head member comprising a plurality of sections movable relative to said frame toward said bed member, fluid actuated means for moving said sections toward said bed member, means for relatively moving said members into position adjacent one another, and means actuated by relative movement of said members into adjacent position for energizing said section moving means.

9. In a pressing machine, a pair of coacting relatively movable head and bed pressing members, said head member including a frame, the pressing surface of said head member comprising a plurality of sections movable relative to said frame toward said bed member, fluid actuated means for moving said sections toward said bed member, means for moving said head member into position adjacent said bed member, and means actuated by said head member moving means for energizing said section moving means.

10. In a pressing machine, a pair of coacting relatively movable head and bed pressing members, said head member including a frame, the pressing surface of said head member comprising a plurality of sections movable relative to said frame toward said bed member, fluid actuated means for moving each of said sections toward said bed member, means for moving said head member into position adjacent said bed member, and means controlled by the operator for energizing said section moving means.

11. In a pressing machine, a pair of coacting relatively movable head and bed pressing members, said head member including a frame, the pressing surface of said head member comprising a plurality of sections movable relative to said frame toward said bed member, fluid actuated means for moving each of said sections toward said bed member, means for moving said head member into position adjacent said bed member, and operator controlled means for selectively energizing said section moving means.

12. In a pressing machine, coacting head and bed pressing members, said head member having a frame and a pressing surface comprising a plurality of sections movable relative to said frame toward said bed member, fluid motors on said frame, one for each of said head pressing sections, each fluid motor being operatively connected with its respective section, means for moving said frame to position said sections adjacent the coacting portions of the bed member, and means for actuating said fluid motors.

13. A pressing machine as in claim 12, in which said last named means includes a fluid supply common to a plurality of said motors.

14. In a pressing machine, coacting head and bed pressing members, said head member having a frame and a pressing surface comprising a plurality of sections movable relative to said frame toward said bed member, fluid motors on said

frame, one for each of said head pressing sections, each fluid motor being operatively connected with its respective section, means for moving said frame to position said sections adjacent the coacting portions of the bed member, and means operable by said frame moving means for actuating said fluid motors.

15. In a pressing machine, coacting head and bed pressing members, said head member having a frame and a pressing surface comprising a plurality of sections movable relative to said frame toward said bed member, fluid motors on said frame, one for each of said head pressing sections, each fluid motor being operatively connected with its respective section, means for moving said frame to position said sections adjacent the coacting portions of the bed member, means operable by said frame moving means for actuating said fluid motors, and means controlled by the operator for disabling a part of said motor actuating means.

16. In a pressing machine, a pair of coacting relatively movable head and bed pressing members, said head member comprising a plurality of sections movable toward the bed member, means individual to each section for moving the same, and equalizing means between said section moving means, for equalizing the pressure exerted by said sections.

17. In a pressing machine, a pressing bed having a central pressing portion and depending side pressing portions, a head member having a frame and a pressing surface comprising a plurality of sections movable relative to said frame for coaction with the central and side pressing portions respectively of said bed, fluid motors on said frame, one for each of said head pressing sections, each fluid motor being operatively connected with its respective section, means for moving said frame to position said sections adjacent the coacting portions of the bed member, and means for actuating said fluid motors.

18. A pressing machine as in claim 17, and having a flexible metallic member extending across said sections and secured to said head sections which are adapted to coact with the side pressing portions of said bed.

19. In a pressing machine, a pair of coacting relatively movable pressing members, means for causing relative pressing approach between said members, a fluid actuated locking member on one of said pressing members adapted to lockingly engage a portion of the coacting pressing member, and fluid means for actuating said locking member into locking position.

20. In a pressing machine, a pair of coacting relatively movable pressing members, means for causing relative pressing approach between said members, a fluid actuated locking member on one of said pressing members adapted to lockingly engage a portion of the coacting pressing member, and means for actuating said locking member into locking position simultaneously with the pressing engagement of the coacting pressing members.

CLIFTON S. MALOTT, JR.