July 29, 1958 S. ROSENTHAL 2,845,205

PRESSING MACHINE

Filed July 15, 1957 4 Sheets-Sheet 1

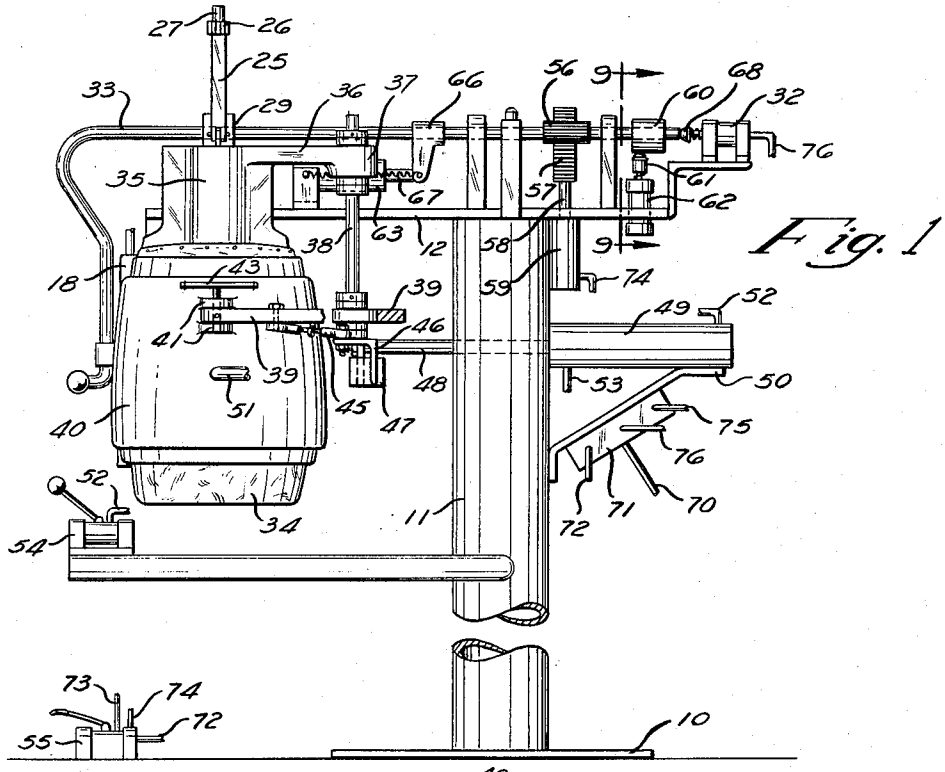


Fig. 1

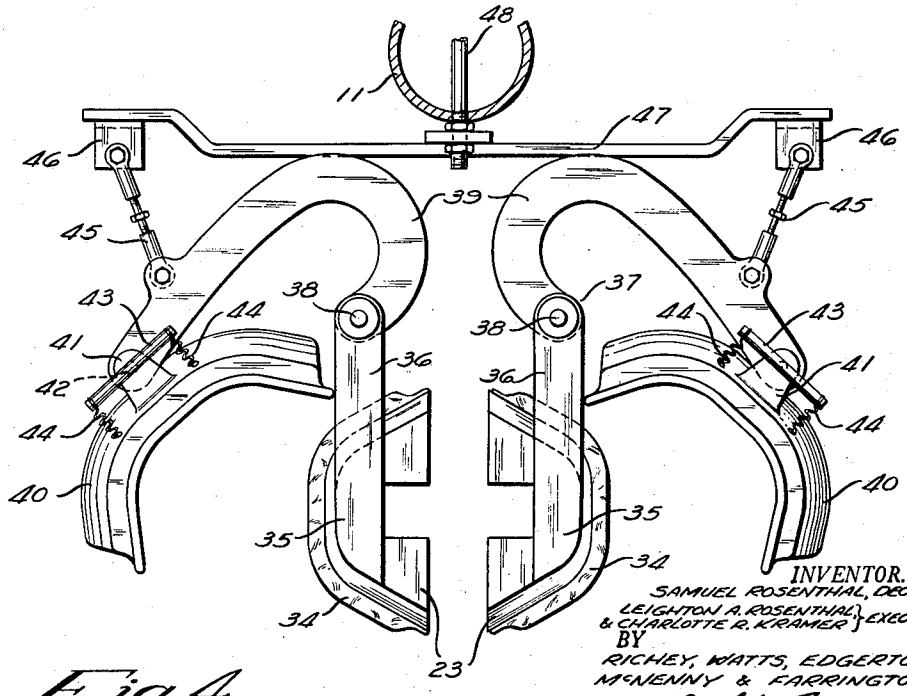


Fig. 4

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Fig. 3

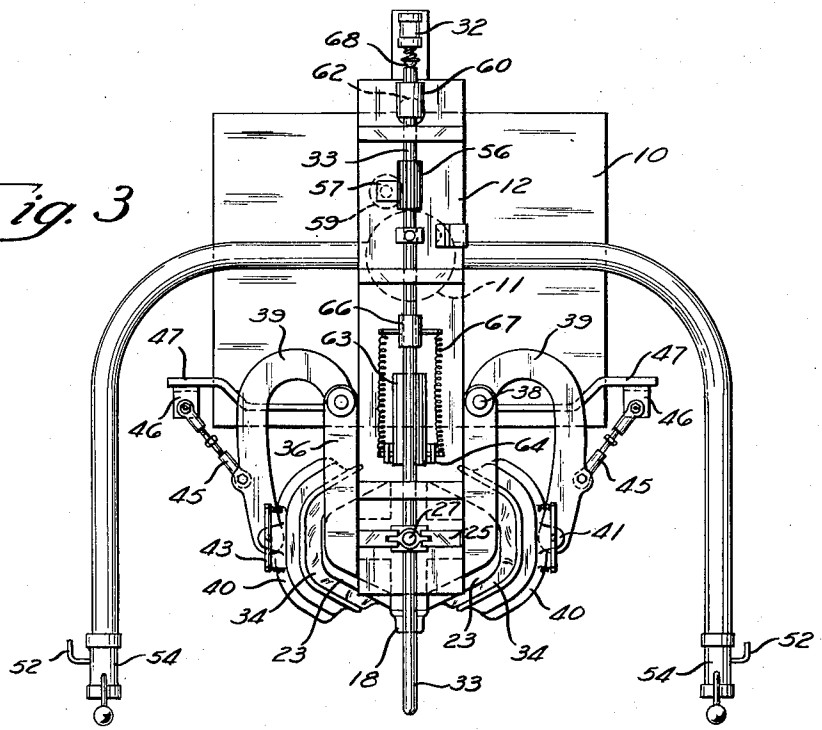
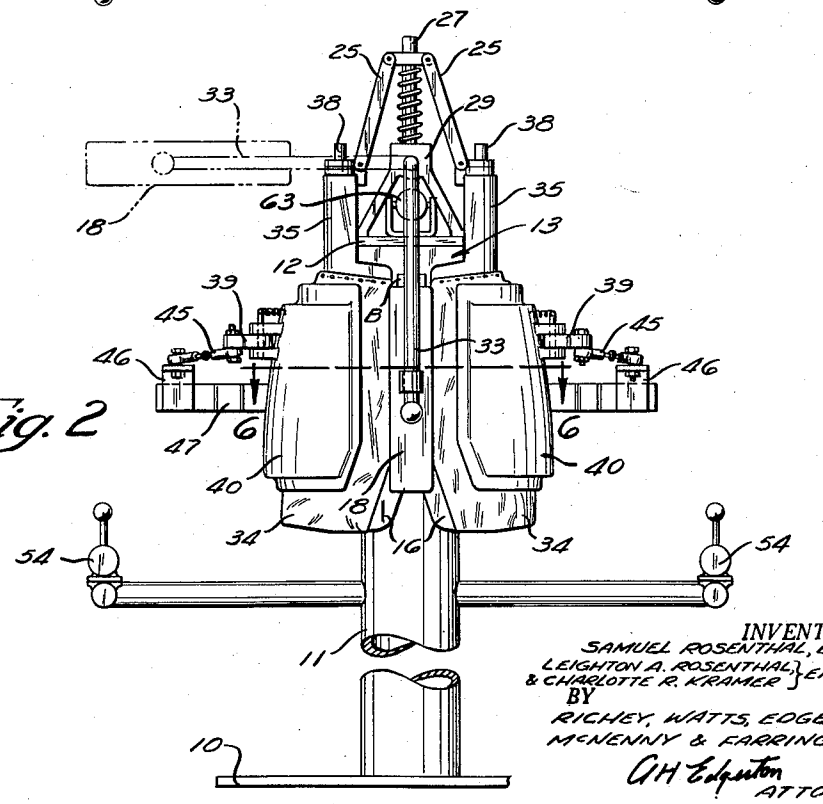


Fig. 2



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PRESSING MACHINE

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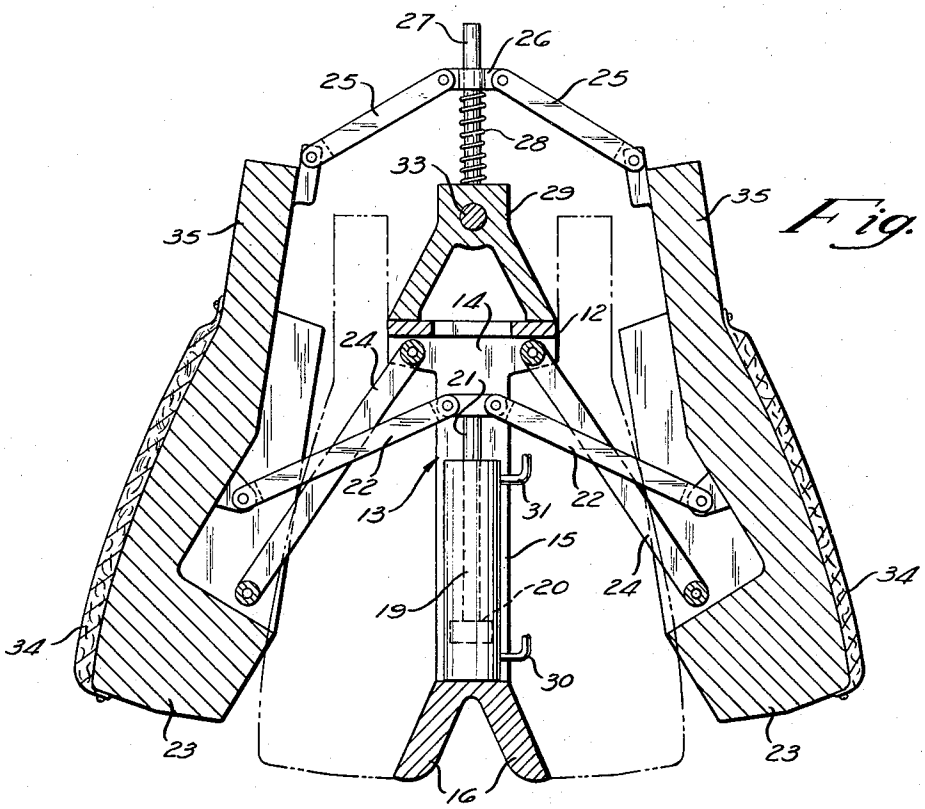


Fig. 5

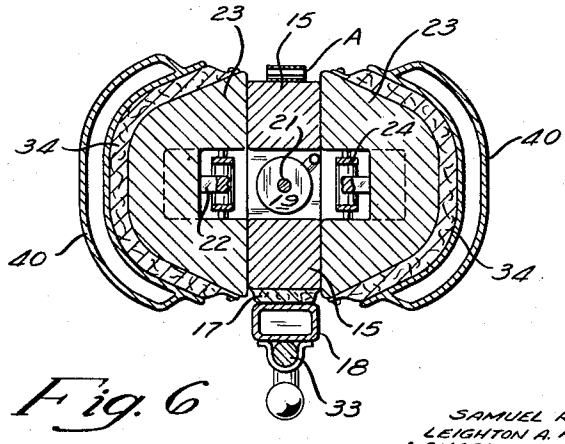


Fig. 6

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PRESSING MACHINE

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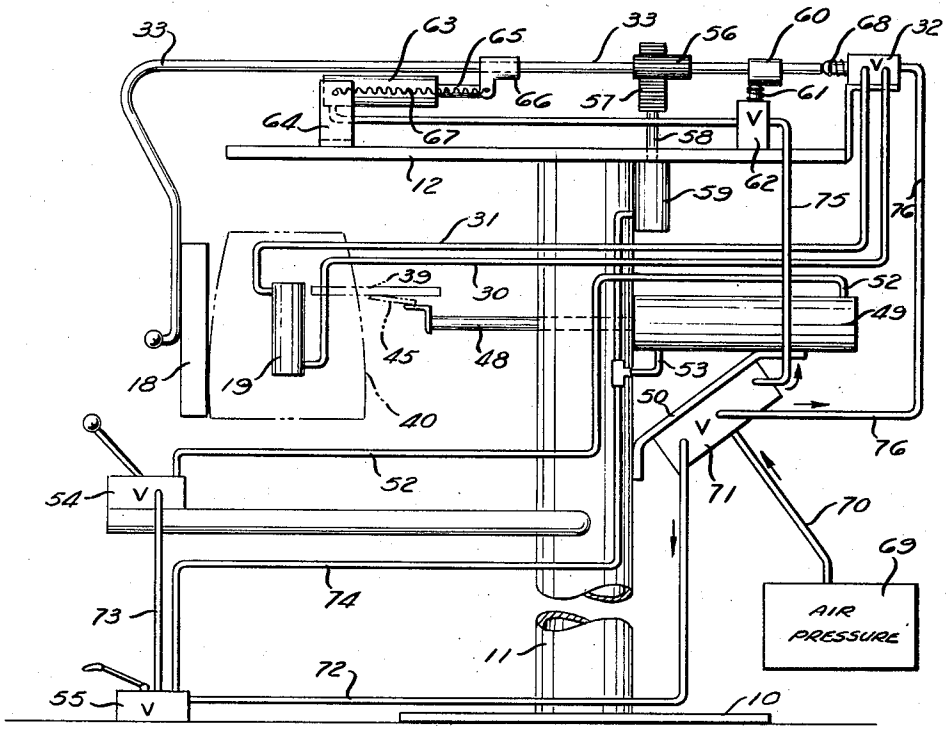


Fig. 7

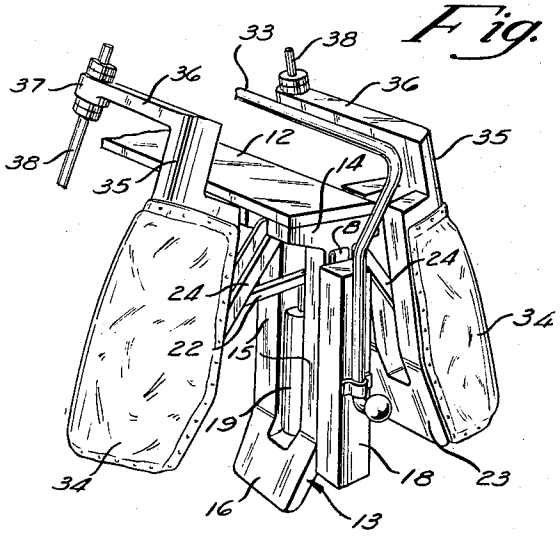


Fig. 8

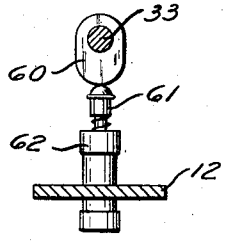


Fig. 9

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United States Patent Office 2,845,205 Patented July 29, 1958

2,845,205

PRESSING MACHINE

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Application July 15, 1957, Serial No. 671,948

7 Claims. (Cl. 223—73)

This invention relates broadly to pressing machines for laundries engaged in industrial and commercial service, and more specifically to improvements in machines for pressing washable work clothes.

One of the objects of the invention is to provide a pressing machine embodying expandible wings and center mandrel configured to support the top and/or hip portions of a pair of pants, and an organization of heated contractile outer shoes engageable with the portion of the pants supported on the mandrel.

Another object of the invention is to provide a unitary control mechanism for the simultaneous operation of the expandible mandrel and fly clamping shoe.

Another object of the invention is to provide pneumatic piston cylinder assemblies for actuating the side wings and contractile pressing shoes.

A further object of the invention resides in the provision of a control mechanism for the return movement of the expansive mandrel, the fly clamp and the contractile side wings.

Other objects and advantages more or less ancillary to the foregoing, and the manner in which all the various objects are realized, will appear in the following description, which considered in connection with the accompanying drawings, sets forth the preferred embodiment of the invention.

The invention relates to improvements in former Patents Nos. 2,629,524; 2,723,062; and 2,658,649.

Referring to the drawings:

Fig. 1 is a side elevational view of the improved pressing machine, portions thereof being broken away and shown in section in the interest of clarity;

Fig. 2 is a front elevational view of the machine of Fig. 1;

Fig. 3 is a plan view thereof;

Fig. 4 is a plan view of a fragmentary portion of the machine illustrating the side arms in their actuated position;

Fig. 5 is a vertical sectional view through a fragmentary portion of the central mandrel and side wings, the wings being shown in their distended positions;

Fig. 6 is a transverse sectional view through the side wings and mandrel, the section being taken on a plane indicated by the line 6—6 in Fig. 2;

Fig. 7 is a diagrammatic view of the piping connections in the machine;

Fig. 8 is a view in perspective of the side wings and mandrel embodied in the machine; and

Fig. 9 is a side elevational view partially in section of a cam detail, the section being taken on a plane indicated by the line 9—9 in Fig. 1.

Referring first to Fig. 1, the machine comprises a base 10 having a vertical tubular column 11 thereon which is provided with a rectangular plate 12 on the top thereof. The outer free end of the plate is bolted to the head of a mandrel 13 embodying a flanged head section 14, spaced depending arms 15 and an integral divergent base section 16 (Fig. 8). The forward face of the outer

leg 15 is provided with a resilient pad 17 to abut a shoe 18 that overlies and clamps the material of the fly of the pants during the pressing operation. A cylinder 19 is mounted in the cored oenings between the arms 15 having a piston 20 therein and a protruding piston rod 21 which is pivotally connected to a pair of links 22 fulcrumed at their outer ends to the side wings 23 that engage the hip portions of the garment during the operation of the machine. The wings 23 are further supported by links 24 (Fig. 5) which are pivoted at the ends thereof to the flanged head section 14 of the mandrel 13 and by links 25 hinged to the upper ends of the wings and to a collar 26 slidable on a rod 27 urged upwardly by a spring 28 mounted in a bracket 29 on the head of the mandrel 13. The cylinder is connected to an inlet pipe 30 and a return line pipe 31 communicating respectively with a source of air under pressure. The flow of the air is controlled by a valve 32 (Fig. 7) operated by the rod 33 that supports the shoe 18. In a pressing operation, the upper portion of the garment is slipped over the mandrel 13, the retracted side wings 23, and under a pair of flat strap springs *a* and *b*. The rear spring *a* is fixed at its upper end and the front spring *b* is mounted for clamping engagement with the garment when it is rotated downwardly. The shoe 18 is then manually adjusted to overlie the fly, which operation necessitates rotation of the rod 33 and effects the consequent actuation of the valve 32. As the compressed air advances the piston 20, the outer ends of the links are moved outwardly and upwardly, thus expanding the wings 23 of the mandrel into intimate engagement with the garment. The outer faces of the wings are covered with resilient fabric pads 34.

The upper ends of the wings 23 are formed with vertical stanchions 35 thereon having horizontal arms 36 on the top thereof which terminate in bored bosses 37 constituting journal bearings for rods 38. The lower ends of the rods 38 are pivotally connected to arcuate levers 39 which in turn, are pivotally connected to hollow pressing shoes 40. The outer face of the shoes 40 are formed with spaced fabricated ears 41 pivotally connected to the outer ends of the levers 39. The fulcrum pins 42 for the levers 39 and the ears 41 have a cross head 43 thereon with contractile springs 44 attached to the ends thereof and to the outer face of the shoe to delimit the oscillation thereof. The levers 39 are drilled adjacent their outer ends for the pivotal support of turn buckles 45, the inner ends of which are pivoted on angle iron brackets 46 mounted on a transverse rail 47 rigidly connected at the center thereof to a piston rod 48 mounted in a cylinder 49 secured by a bracket 50 to the rearward face of the column 11. Steam is admitted to the cavity in the shoes by a flexible conduit 51 (Fig. 1). The cylinder 49 is provided with air lines 52 and 53, which in turn, lead to a control valve 54 for admission of air into the rearward end of the cylinder and a piston return or treadle valve 55 connected with the opposed end of the cylinder.

The machine is at rest when the rod 33 is in its horizontal extended position (see Fig. 2 dot-dash lines). The operative cycle of the machine is initiated when the attendant grasps the rod 33 and rotates it to a vertical position forward the fly of the pants. The rotative movement of the rod actuates a gear 56 (Fig. 7) which moves a rack 57 downwardly and depresses a piston and the rod 58 therefor into a cylinder 59. Since there is no pressure fluid in the cylinder during this operation, little resistance is offered to such manipulation. The rotary movement of the rod 33 also revolves a cam 60 (Figs. 7 and 9) on the rod which depresses in a valve 62 stem 61 and admits compressed air into a cylinder 63. The cylinder is supported by a bracket 64 affixed to the

plate 12 and the outer end of the piston rod 65 is connected to a collar 66 affixed to the rod 33. The collar 66 is connected to a contractile spring 67 which normally urges the piston towards the base of the cylinder 63. When the cam 60, which is eccentric, actuates the valve 62, compressed air is admitted into the cylinder 63 and overcomes the spring 67, thus moving the rod inwardly into clamping engagement of the shoe 18 with the fly of the garment. The lineal rearward movement of the rod 33 effects abutting engagement of the end thereof with a plunger 68 in the valve 32 and opens a port therein communicating through a pipe 30 with the base of the cylinder 19, thereby moving the piston, links 22 and wings 23 into their distended position. The valve 54 is connected by a pipe 52 connected to the rearward end of the cylinder 49 which in turn, is connected to an air reservoir 69 through a pipe 70 and a shuttle valve 71. The shuttle valve controls the flow of compressed air through a line 72, thence through the valve 55, through a pipe 73 leading to the valve 54. As the operator actuates the valve 54, compressed air is directed through the line 52 and to the cylinder 49 thus distending the piston rod 48 which effects the closure of the wings 40.

After pressing the garment, the operator steps on the treadle valve 55 which cuts off the flow of air pressure in the pipe 73 and directing it into a line 74 which leads to the branch line 53 and actuates the piston in the cylinder 49 which effects the retraction of the heated shoes 40. The air pressure in the line 74 is further directed to the cylinder 59 which extends the piston therein and effects the movement of the rack 57, thus rotating the gear 56 and returning the rod 33 to its horizontal position. As this occurs, the cam 60 is likewise rotated to close the valve 62 and cut off the air supply to the cylinder 63. The spring 67 then pulling the rod 33 outwardly from the valve stem for the valve 32 and arresting air pressure from the line 30 and directing it to the line 31 which closes the wings 23. The valve 71 is connected by lines 75 and 76 to the valves 62 and 32 respectively.

Although the foregoing description is necessarily of a detailed character, in order that the invention may be completely set forth, it is to be understood that the specific terminology is not intended to be restrictive or confining, and that various rearrangements of parts and modifications of detail may be resorted to without departing from the scope or spirit of the invention as herein claimed.

What is claimed is:

1. A machine for pressing the top portion of trousers and the like comprising a vertical mandrel, opposed side wings fulcrumed thereto, a piston cylinder assembly mounted on said mandrel, linkage connected thereto for swinging said wings outwardly, a pair of heated shoes engageable with the outer side walls of said wings fulcrumed on said wings, a second piston cylinder assembly, linkage connected thereto for swinging said shoes against and away from the side walls of said wings, a third piston cylinder assembly, a rod embodying a horizontal and a depending section reciprocated thereby, a third shoe mounted on the outer depending end thereof for clamping engagement with the overlapped material of the fly of the trousers, means on the horizontal section of said rod operable upon rotation thereof to actuate the last named cylinder into retracted position, a valve engageable with the end of the horizontal end of said rod controlling the movement of the first named piston cylinder assembly, and a second valve for manual operation and independent the first named valve to control the actuation of the second named piston cylinder assembly.

2. A machine for pressing the top portion of trousers and the like comprising a vertical mandrel, opposed side wings fulcrumed thereto, a piston cylinder assembly mounted on said mandrel, linkage connected thereto for swinging said wings outwardly, a pair of heated shoes engageable with the outer side walls of said wings fulcrumed on said wings, a second piston cylinder assembly, linkage connected thereto for swinging said shoes against and away from the side walls of said wings, a third piston cylinder assembly, a rod embodying a horizontal and a vertical section reciprocated thereby, a third shoe mounted on the vertical section of said rod for clamping engagement with the overlapped material of the fly of the trousers, means on said rod operable upon rotation thereof to actuate the last named piston cylinder assembly into retracted position of said rod, a valve engageable with the horizontal end of said rod controlling the movement of the first named piston cylinder assembly, a second valve for the operation of the third named piston cylinder assembly independent the first named valve, and a third valve connected to the first, second and third named piston cylinder assemblies to reverse the movement of the pistons therein upon actuation thereof.

3. A machine for pressing the top portion of a pair of trousers and the like comprising a vertical post, a vertical mandrel thereon, opposed side wings fulcrumed thereon, a ram mounted in said mandrel, linkage connected thereto for distending and contracting said wings, a pair of shoes configured for intimate engagement with the side walls of said wings, a second ram mounted on said post, linkage thereon connected to said shoes for outward swinging movement and clamping engagement thereof with said wings, a third ram carried by said post, a rod embodying a horizontal and a vertical section coupled thereto, a third shoe on the end of the vertical section of said rod for clamping the overlapped material of the fly of the trousers, a cam on the horizontal section of said rod, a valve on the horizontal section of said rod operable upon rotation thereof to extend the third named ram and retract said rod, a second valve disposed for abutting engagement with the end of the horizontal section of said rod to extend the third named ram and retract said rod, and a second valve connected to the first named ram and abutting the horizontal end of said rod for controlling the operation of the first named ram.

4. A machine for pressing the top portion of trousers and the like comprising a vertical mandrel, opposed side wings fulcrumed thereto, a piston cylinder assembly mounted on said mandrel, linkage connected thereto for swinging said wings outwardly, a pair of heated shoes engageable with the outer side walls of said wings fulcrumed on said wings, a second piston cylinder assembly, linkage connected thereto for swinging said shoes against and away from the side walls of said wings, a third piston cylinder assembly, a rode embodying a horizontal and a vertical portion reciprocated thereby, a third shoe mounted on the end of the vertical portion of said rod for clamping engagement with the overlapped material of the fly of the trousers, means on the horizontal portion of said rod operable upon rotation thereof to actuate the last named piston cylinder assembly into rod retracted position, a valve engageable with the horizontal end portion of said rod controlling the movement of the first named piston cylinder assembly, a second valve for the operation of the third named piston cylinder assembly independent the first named valve, an automatic shuttle valve connected to the first, second and third named piston cylinder assemblies, and a foot operated valve connected to the second named valve and said shuttle valve to restore the actuation of the pistons in said first, second and third piston cylinder assemblies.

5. A machine for pressing the top portion of a pair of trousers or the like comprising a mandrel having a vertical recess in the center thereof, a ram in said recess in the mandrel, a pair of diametrically opposed wings pivotally connected to said mandrel, linkage connected to said wings and said ram for the distention and retraction thereof, a pair of shoes confronting said wings, linkage for swinging said shoes against and away from the

outer faces of said wings, a second ram for the actuation thereof, a third shoe engageable with a fly in the trousers, a third ram for reciprocating said third shoe, a rod including a horizontal portion and a depending vertical portion, a spring on the horizontal portion of said rod for the retraction thereof, a cam on the horizontal portion of said rod, a valve actuated by said cam upon rotation of said rod, and fluid connections between said valve, the second named ram, and the third named ram, for retracting the second named ram and closing the fluid pressure to the third named ram, whereby said spring will effect the retraction of said rod.

6. A machine for pressing the top portion of a pair of trousers or the like comprising a mandrel having a vertical recess in the center thereof, a ram in said recess in the mandrel, a pair of diametrically opposed wings pivotally connected to said mandrel, linkage connected to said wings and said ram for the distention and retraction thereof, a pair of shoes confronting said wings, linkage for swinging said shoes against and away from the outer faces of said wings, a second ram for the actuation thereof, a third shoe engageable with a fly in the trousers, a third ram for reciprocating said third shoe, a rod including a horizontal portion and a depending vertical portion, a pinion on the horizontal portion of said rod for the rotation thereof, a fourth ram, a rack thereon engaged with said pinion, a valve, fluid connections therefrom to the second named ram and fourth named ram for the simultaneous actuation of said first shoes and said third shoe.

7. A machine for pressing the top portion of a pair of trousers or the like comprising a mandrel having a vertical recess in the center thereof, a ram in said recess in the mandrel, a pair of diametrically opposed wings pivotally connected to said mandrel, linkage connected to said wings and said ram for the distention and retraction thereof, a pair of shoes confronting said wings, a bar interlinked therewith, turn buckles pivotally connected to said bar and said shoes, a second ram connected to said bar for swinging said shoes against and away from the outer faces of said wings, a third shoe engageable with a fly in the trousers, a third ram for reciprocating said third shoe, a rod including a straight horizontal portion and a depending vertical portion, a spring on said rod for the retraction thereof, a valve for the second named ram for the retraction thereof, and a second valve for closing the fluid pressure to the third named ram so said spring will effect the retraction thereof.

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