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IRONING MACHINE

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Fig. 11.

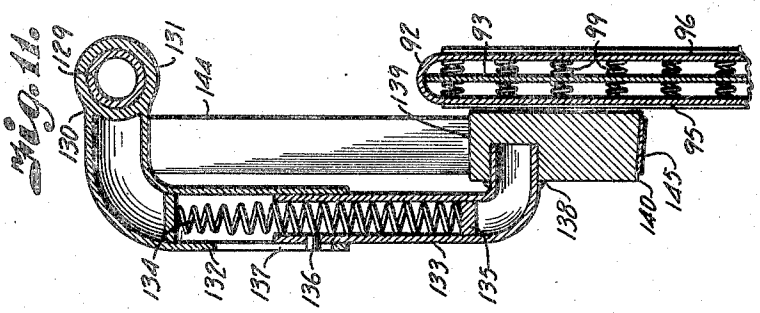
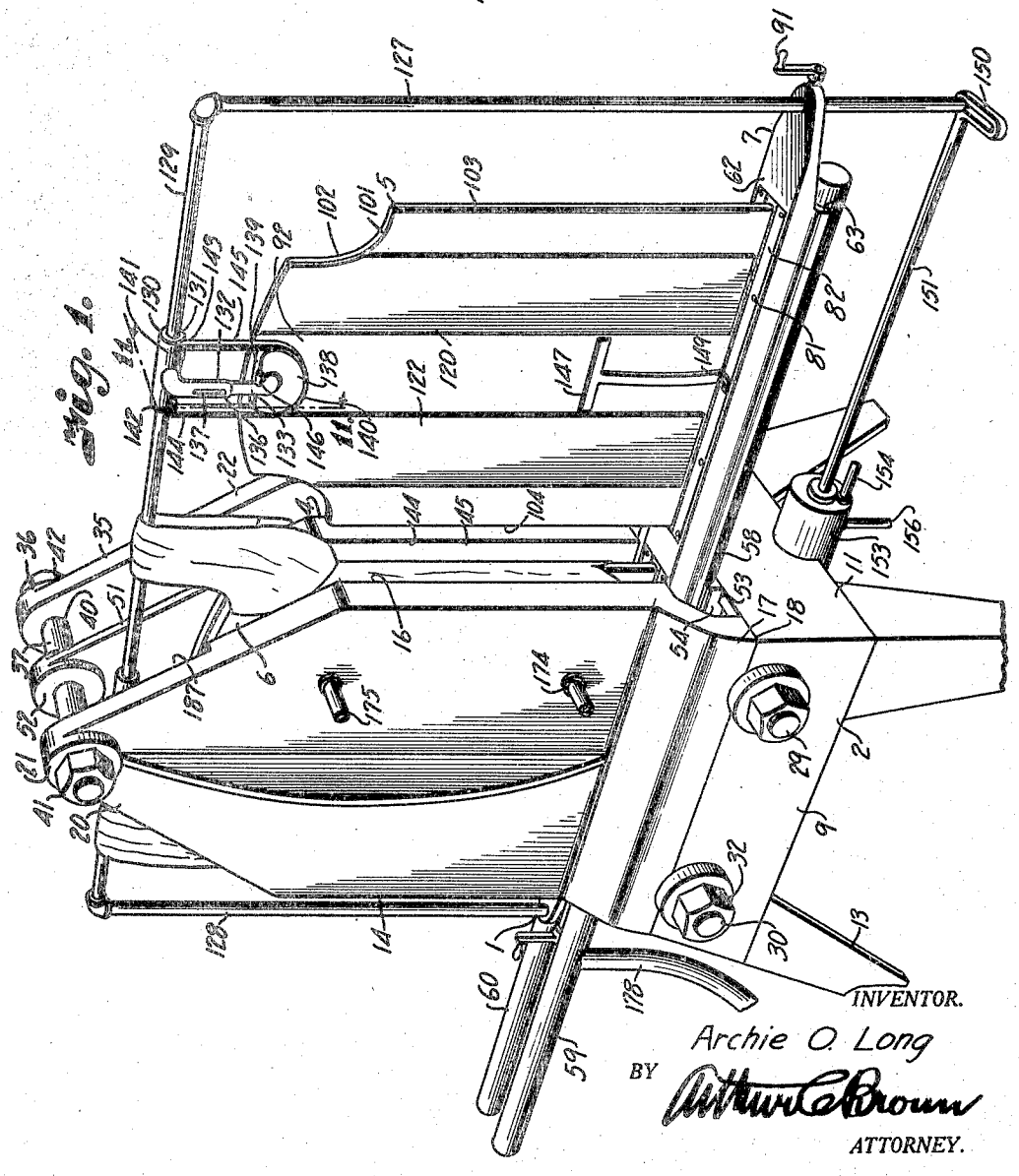


Fig. 1.



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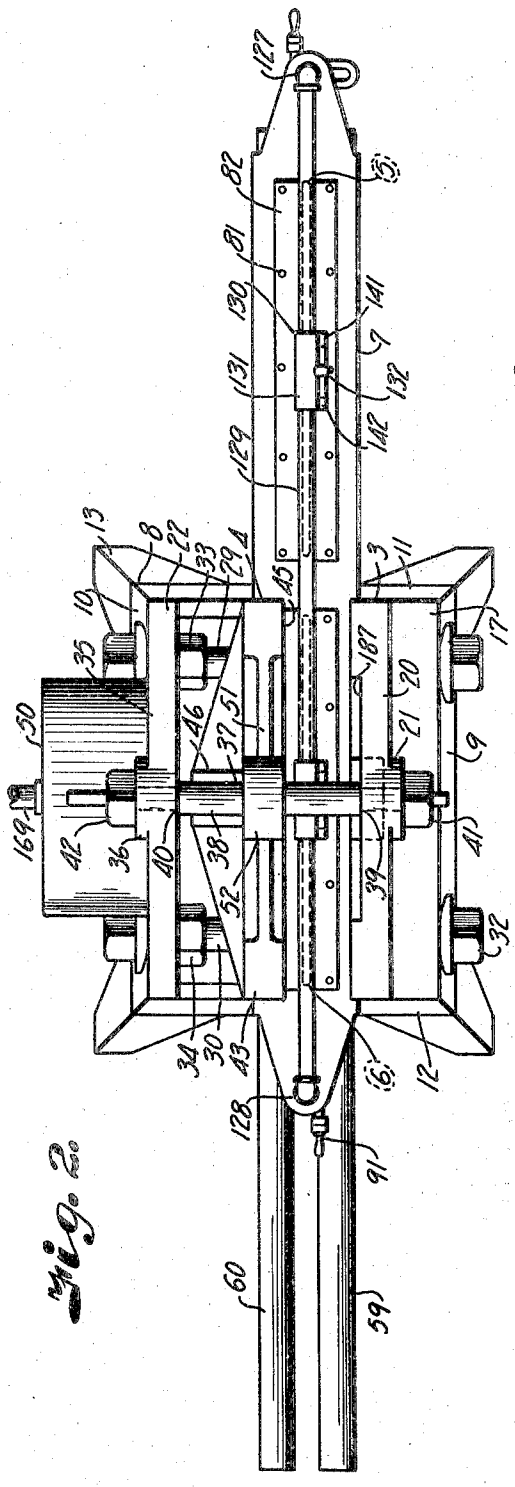


Fig. 2.

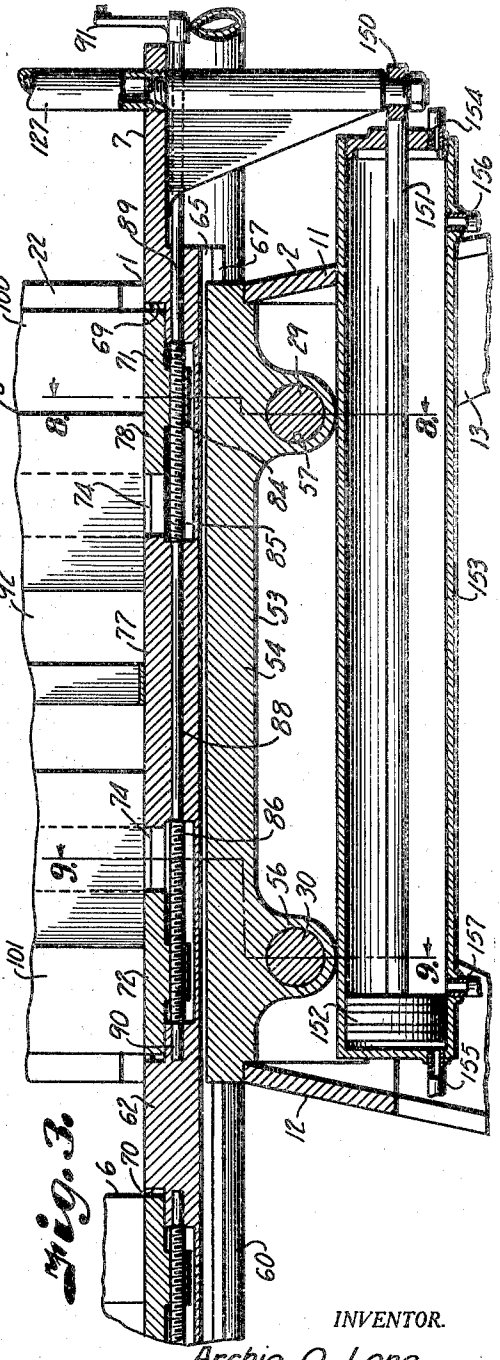


Fig. 3.

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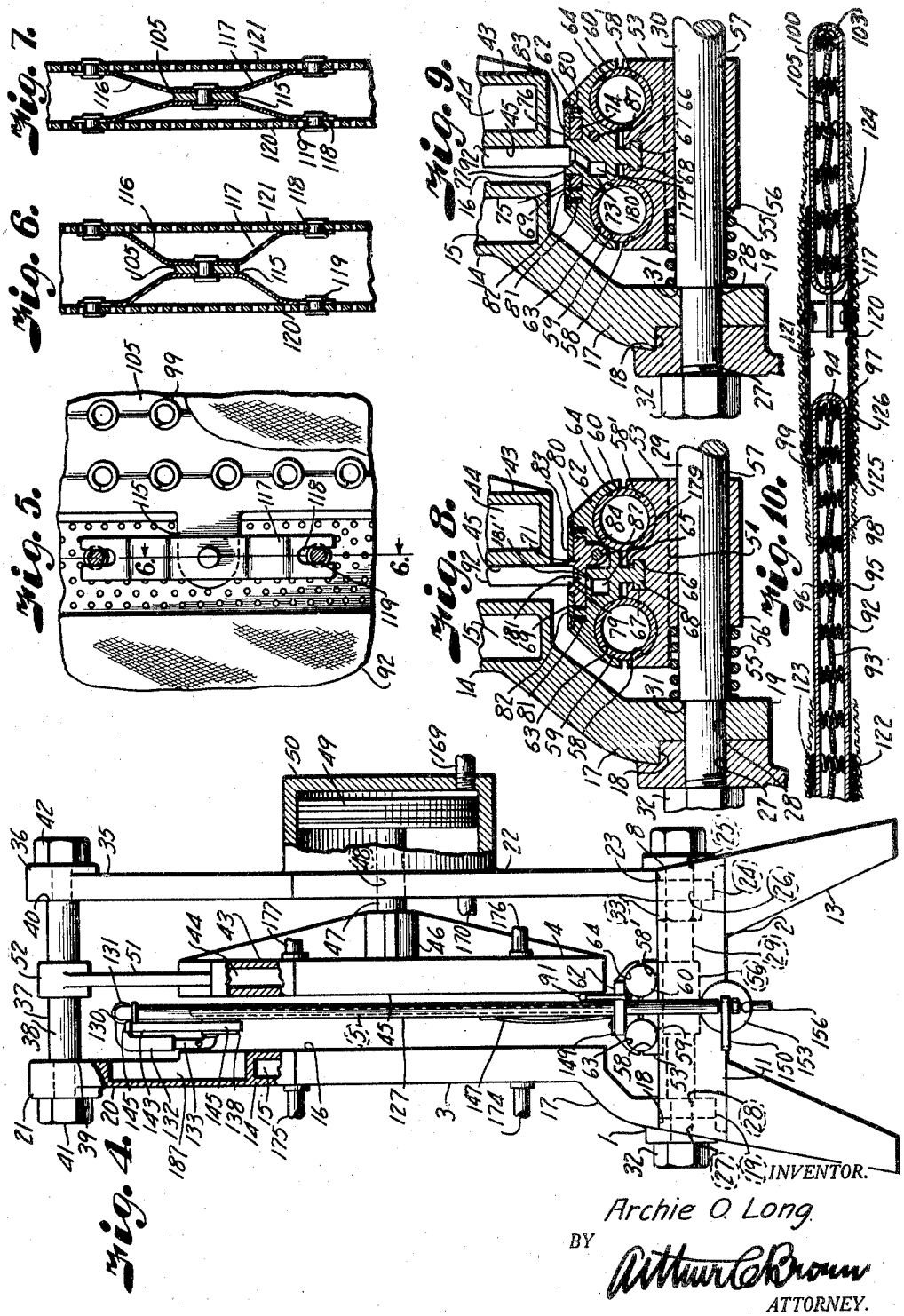


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

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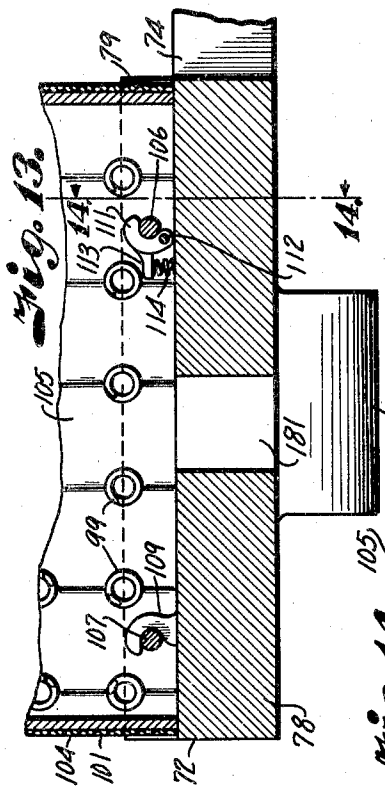


Fig. 13.

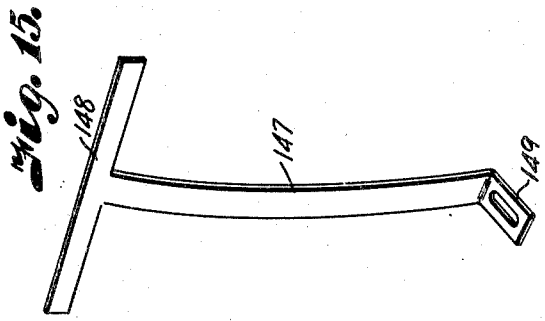


Fig. 15.

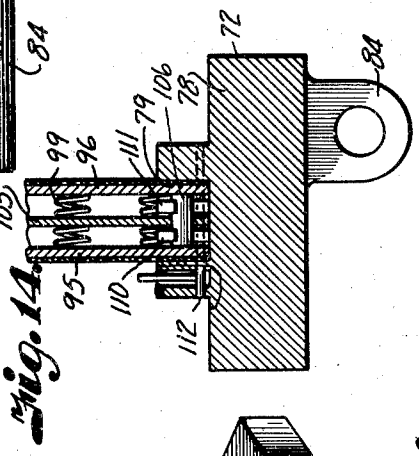


Fig. 14.

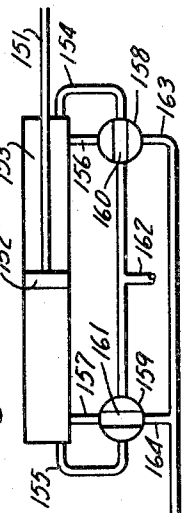


Fig. 16.

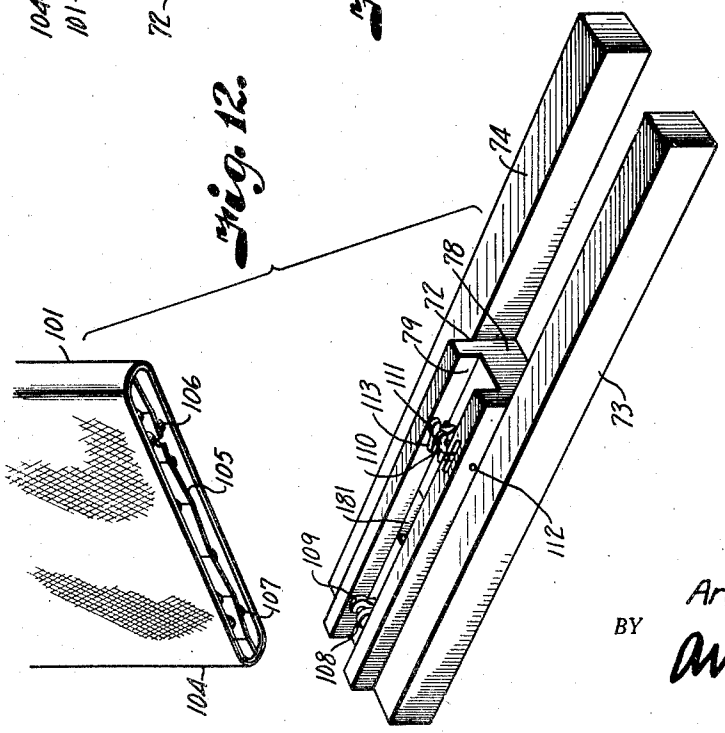
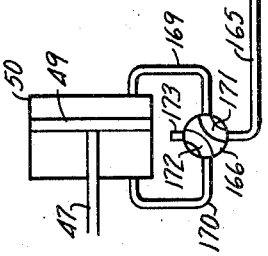


Fig. 12.



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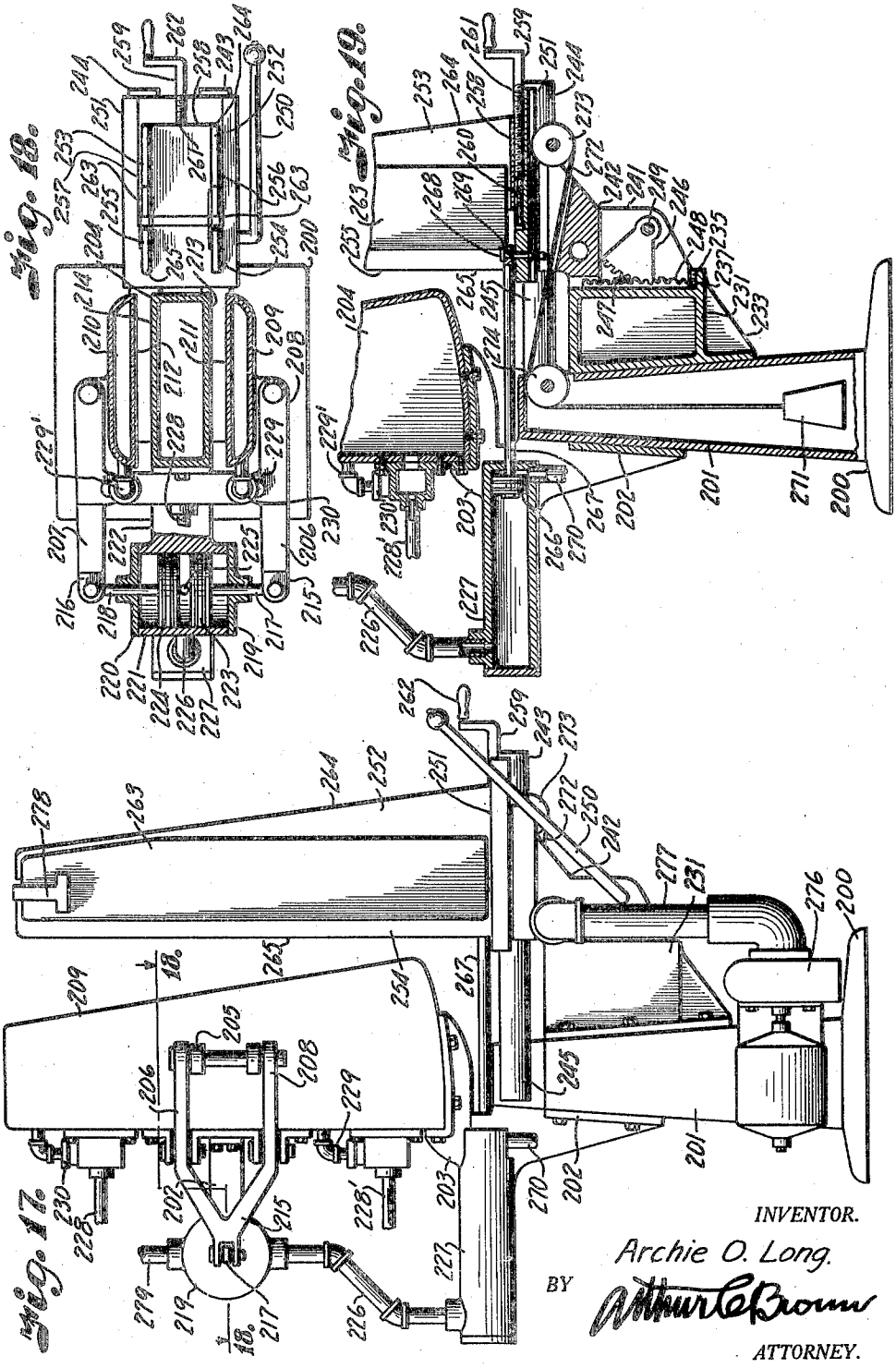
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Fig. 22.

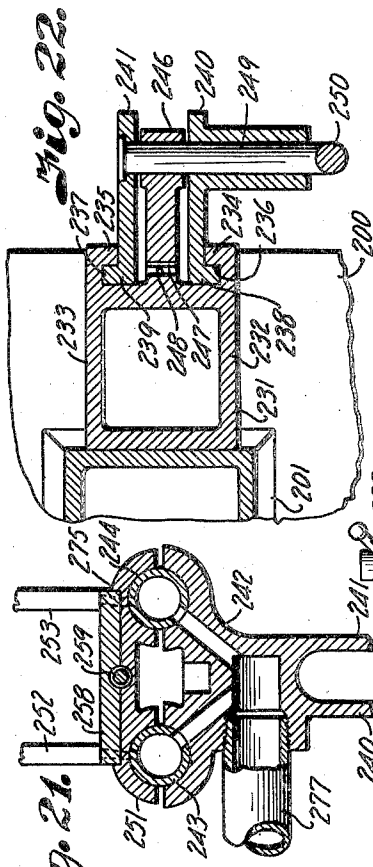


Fig. 23.

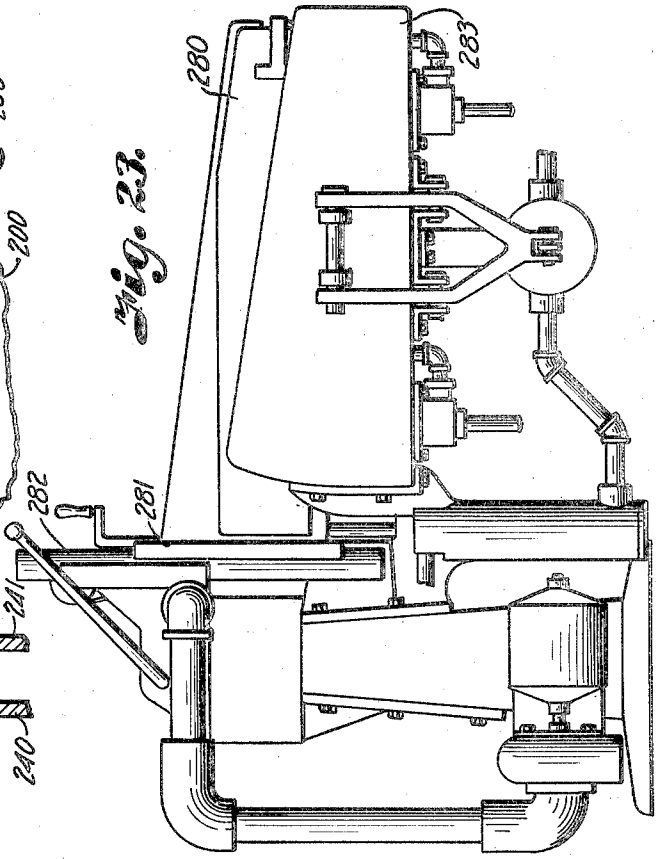


Fig. 21.

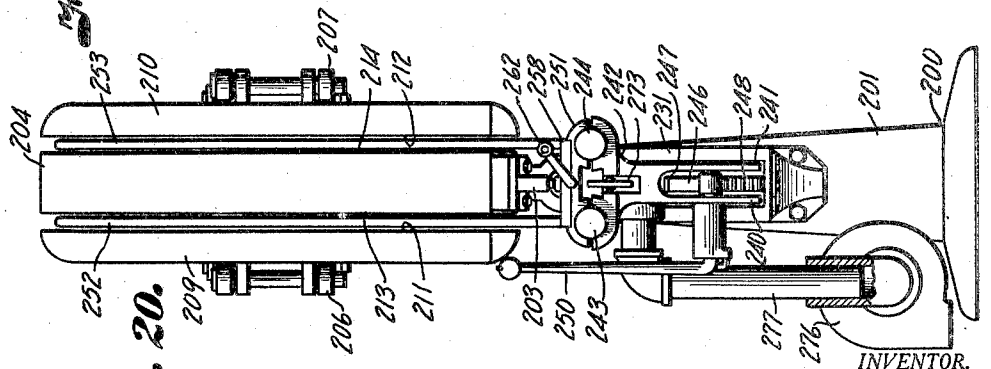


Fig. 20.

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Patented Feb. 14, 1939 2,147,597

UNITED STATES PATENT OFFICE

2,147,597

IRONING MACHINE

Archie O. Long, Kansas City, Mo.

Application September 23, 1935, Serial No. 41,764

13 Claims. (Cl. 223—57)

This invention relates to pressing machines, particularly adapted for pressing shirts, summer coats, smocks, and similar garments, and has for its principal object to provide a machine of this character whereby the entire opposite side portions of a garment are pressed in a single operation of the machine, thereby reducing the time required to complete a single garment, and providing a better quality of work at a lower cost to the customer.

Other important objects of the invention are to provide form construction adjustable to fit a garment applied thereon for pressing, to provide the form with yieldable pressing surfaces on opposite sides thereof, and to provide a machine with a plurality of forms whereby one garment may be pressed while another garment is being adjusted to a form.

In accomplishing these and other objects of the invention, as hereinafter pointed out, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings wherein:

Fig. 1 is a perspective view of a pressing machine constructed in accordance with the present invention.

Fig. 2 is a plan view of the machine.

Fig. 3 is an enlarged longitudinal section through the base portion of the machine, particularly illustrating the mounting of the adjustable forms.

Fig. 4 is an end elevational view of the machine, parts of which are broken away to better illustrate the construction.

Fig. 5 is a detail sectional view through one of the forms, illustrating one of the yieldable supporting brackets for retaining the bridge sections in supported relation with the movable sections of the form.

Fig. 6 is a section on the line 6—6 of Fig. 5 showing the bridging sections in expanded condition.

Fig. 7 is a similar section illustrating the bridging sections contracted as when pressed between the ironing heads.

Fig. 8 is an enlarged detail cross section on the line 8—8 of Fig. 3.

Fig. 9 is a similar section on the line 9—9 of Fig. 3.

Fig. 10 is a detail horizontal section through one of the adjustable forms.

Fig. 11 is a detail vertical section through the collar clamp portion of one of the forms on the line 11—11 of Fig. 1.

Fig. 12 is a detail perspective view of one of the adjustable form slides and the lower end of one of the form sections carried thereby, particularly illustrating the detachable mounting of the form section.

Fig. 13 is a longitudinal section through the parts shown in Fig. 12, illustrating the latching of the form section on the slide.

Fig. 14 is a section on the line 14—14 of Fig. 13.

Fig. 15 is a perspective view of one of the tail clamps.

Fig. 16 is a diagrammatic view of the operating cylinders and piping arrangement whereby an actuating fluid is supplied to the respective cylinders.

Fig. 17 is an elevational view of a modified form of the invention as carried out in a machine for pressing the sleeve or leg portions of a garment,

Fig. 18 is a horizontal section on the line 18—18 of Fig. 17.

Fig. 19 is a longitudinal section through the lower portion of the machine.

Fig. 20 is an end elevational view illustrating the machine in Fig. 17.

Fig. 21 is a detail cross section through the guide tracks, particularly illustrating the suction pipe connection.

Fig. 22 is an enlarged detail section through a portion of the base, particularly illustrating the rack and segment for raising and lowering the track block.

Fig. 23 is a side elevation of a further modified form of the invention wherein the adjustable forms and pressing bucks extend laterally of their support with the pressing surfaces thereof located in vertical planes.

Referring more in detail to the drawings:

1 designates a pressing machine constructed in accordance with the present invention, and which includes a base 2 carrying fixed and movable pressing bucks 3 and 4, a pair of adjustable forms 5 and 6, and a reciprocable carriage 7 for supporting the forms. The base 2 includes a substantially rectangular frame 8 having side and end members 9—10 and 11—12 connected at their ends and supported on legs 13, as best illustrated in Fig. 1.

The fixed buck 3 is supported on the upper edge of the side frame member 9 and includes a hollow body 14 of substantially rectangular shape to form a steam chamber 15, having a pressing face 16 conforming approximately to the body of the articles that are to be pressed on the machine. The hollow body portion of the buck is inset laterally relatively to the side frame member 9 by an offset footing flange 17 having a shoulder

portion 18 that engages the upper edge of the frame member 9 and a depending flange 19 engaging the inner face of the frame member, as shown by the dotted lines in Fig. 4. Extending upwardly from the hollow portion of the buck is a triangular shaped bracket 20 terminating in an apertured ear 21 for a purpose later described.

Supported on the opposite frame member 10 is a vertical plate 22 conforming in shape to the buck 3, and having a shouldered lower end 23 engaging the upper face of the member 10 and a depending flange 24 for engaging against the inner face thereof. Extending through suitable openings 25 and 26 in the side frame member 10 and flange 24, and through aligning openings 27—28 in the frame member 9 and flange 19, are tie rods 29—30. The ends of the tie rods extending through the flange 19 are preferably of reduced diameter to provide a shoulder 31 whereby the flange is drawn tightly against the inner face of the frame member by means of draw nuts 32 threaded on the projecting ends of the rods and engaging against the outer face of the side frame 9. The opposite ends of the tie rods are threaded to mount nuts 33 and 34 for engaging the outer faces of the flange 24, and side frame member 10 respectively, to support the plate 22 in fixed relation on the base.

The plate 22 has an upper portion 35 conforming to that of the pressing buck, and has an apertured ear 36 aligning with the ear 21 for passing a tie rod 37 having an enlarged central portion 38 to form stop shoulders 39—40 engaging the inner sides of the ears to cooperate with draw nuts 41—42 to retain the pressing buck and plate in perpendicular position and provide a rigid frame for mounting the movable pressing buck 4.

The movable pressing buck 4 includes a hollow body portion 43 conforming to that of the fixed buck 3 to provide a steam chamber 44. The buck 4 also has a pressing face 45 positioned in facing relation and conforming in shape to that of the fixed pressing buck. The side of the buck 4 opposite to the pressing face 45 has a socket 46 in which is mounted one end of a piston rod 47 that is slidable through an opening 48 in the plate 22, and carries a piston 49, at its opposite end, that is reciprocably mounted within a cylinder 50 attached to the outer side of the plate 22. The movable pressing buck is suspendingly supported in alignment with the pressing face of the fixed pressing buck by an arm 51 connected with the upper end thereof, and having a sleeve portion 52 that is slidingly mounted upon the rod 37, as best shown in Figs. 1 and 4. It is thus apparent that when pressure medium is supplied to one side of the piston 49 the pressing buck 4 is moved toward the fixed pressing buck, and when pressure medium is supplied to the opposite side of the piston the movable pressing buck is drawn away from the fixed pressing buck 3.

Slidably mounted on the tie rods 29—30 is a track block 53 including a horizontal plate portion 54 of less width than the spacing between the side frame members 9 and 10 of the base to provide room so that it can be shifted laterally thereon in the direction of the buck 3 against action of coil springs 55 which ordinarily keep the block centered between the side frame members. The plate portion of the track block is of sufficient length that the ends thereof are guidingly supported on the end frame members 11 and 12 of the base, as best illustrated in Fig. 3.

Projecting downwardly from the lower side of the plate 54 are ears 56 having bearing openings 57 therein for slidable fit on the tie rods to retain the track block in parallel position relatively to the fixed and movable pressing bucks but to allow lateral movement thereof in the direction of the fixed pressing buck responsive to movement of the movable pressing buck, as later described.

Formed in the top upper surface of the plate portion of the track block are spaced parallel grooves 58 and 58' of substantially semicircular cross section, for seating tubular guide tracks 59 and 60 that are welded therein for supporting the reciprocable carriage 7, previously mentioned. The tubular guide tracks project equal distances from opposite sides of the base 2, so that one of the forms clears the pressing bucks when the other form is positioned therebetween.

The carriage 7 includes a plate-like shoe 62 having spaced parallel semicircular grooves 63 and 64 for accommodating the upper surfaces of the tubular tracks, as best illustrated in Figs. 8 and 9. Projecting downwardly from the lower face of the plate 62 is a T-shaped tongue 65 that is slidable in a longitudinal, inverted T-shaped slot 66, formed in the upper face of the track block 53 at a point between the tubular guide tracks, as shown in Figs. 8 and 9. The head portion 67 of the tongue is engaged in the enlarged portion 68 of the slot, so that the carriage is slidably keyed in guiding relation with the tubular tracks. Formed in the upper surface of the carriage plate, at the respective ends thereof, are elongated recesses 69 and 70 for guidingly supporting pairs of slides 71 and 72, one of which is best illustrated in Fig. 12. Each slide includes spaced bars 73 and 74 of substantially rectangular cross section, that are slidable in ways 75 and 76 formed in opposite sides of the recesses on either side of ribs 77 that extend upwardly from the bottom of the recesses and terminate in a plane with the upper frame of the carriage, as best shown in Figs. 3 and 9.

The bars 73 and 74 of each slide are connected at one of their ends by a web 78 that projects above the upper faces thereof to align with the plane of the ribs 77, and is provided with a longitudinal groove 79 for seating a movable section of the forms, as later described.

The slides are arranged in respective recesses with the web portions thereof at the respective ends thereof, so that the slots formed between the facing ends of the bars straddle the ribs 77. When the slides are positioned in the recesses, the upper faces thereof lie below the upper face of the carriage plate and in the plane of inset shoulders 80 that extend along the opposite sides of the recesses. Fixed to the shoulders 80, by suitable fastening devices 81, are keeper strips 82 having edges 83 overlying the upper faces of the bar parts of the slides to slidingly retain them on their ways 75 and 76. Projecting downwardly from each of the web portions of the slides is an ear 84 having threaded openings engaged with the threaded portions 85 and 86 on adjusting shafts 87. The threads on the respective portions of the shaft are rights and lefts so that when the shafts are rotated in one direction the slides will be moved toward each other, and when they are rotated in the opposite direction the slides will be moved away from each other, as hereinafter described.

The shafts 87 are rotatably mounted in the ends of the carriage and have intermediate bearing portions 88 rotatably mounted in suitable bearing openings in the ribs 77, and end bearing

portions 89 and 90 rotatable in bearing openings at the outer ends of the recesses, as best shown in Fig. 3. The threaded portions of the shafts are of sufficient length so that they extend from the ends of the recesses to the ends of the ribs 77. The shafts are rotated by means of cranks 91 that are fixed to the projecting ends thereof at the respective ends of the carriage.

Fixed to each rib 77 is a fixed form section 92 that includes a corrugated plate 93, arranged vertically with its lower end welded to the upper face of a rib 77. The plates 93 are of substantially the same width as the length of the ribs 77, and extend upwardly in alignment with the ironing faces of the pressing bucks, as best shown in Fig. 1.

Sleeved over each plate 93 is a hollow pad member 94 that is preferably formed of felt, or similar material, and has side walls 95 and 96 extending in parallel spaced relation on opposite sides of the plate 93, and has its vertical and upper edges connected by rounded end and side walls, as indicated at 97 in Fig. 10. In order to retain the side walls 95 and 96 in extended, spaced relation with the plates 93, the plates 93 are provided with a plurality of rows of openings 98, in which are mounted coil springs 99 having their ends bearing against the inner faces of the pads.

Releasably mounted within the groove 79 of each pair of the slides are similarly constructed form sections 100 and 101 shaped to conform to the side portions of a garment being pressed. For example, in the instance illustrated in Fig. 1, the sections 100 and 101 have their upper, outer corners notched, as at 102, to conform to the shoulder portions of a shirt or similar garment, and their outer sides 103 and 104 extend downwardly in conformity to the side seams of a shirt.

The skeleton plates 105 of the adjustable sections extend downwardly within the grooves 79, and carry transverse pins 106 and 107 at the respective lower corners, that are adapted for respectively engaging fixed hooks 108 and 109 at one end of the grooves, and pivotally supported hook-shaped latches 110 and 111 in the opposite end of the grooves.

The hooks 110 and 111 are pivotally mounted on pins 112 extending across grooves and have ears 113 that are engaged by coil springs 114, which are seated against the bottoms of the grooves, as best shown in Fig. 13.

In mounting the adjustable sections, the pins 107 are first engaged with the fixed hooks 108 and 109, after which the opposite edges of the forms are moved downwardly so that the pins 106 cause retractive movement of the hooks 110 and 111 against tension of their springs 114 to permit passage thereof. As soon as the lower edges of the plates are seated against the bottoms of the grooves, the springs return the hooks 110 and 111 into latching position with the ends of the pins, as best shown in Fig. 13.

It is thus obvious that the side sections of the forms are readily removable so that they may be replaced with similar sections of a shape to conform to the type of garment being pressed. For example, in pressing form fitting shirts, the form sections used will have their outer side edges shaped to the side cut of the garment.

It is apparent that when the shafts 87 are rotated by the cranks 91, the movable sections are caused to move to and from the fixed section of the form, to vary the spacing between the outer side edges thereof for adjustment to any sized shirt that may be placed thereon. In order to bridge the spaces between the fixed and movable sections of the forms, the supporting or skeleton plates of the movable forms carry ears 115 extending from the inner side edges thereof, to which are riveted pairs of yieldable brackets 116, having ends extending outwardly as at 117, and provided with notches 118 for engaging headed studs 119 on pairs of bridge plates 120—121 and 122—123 for each form. The bridge plates are preferably formed of thin material, of sufficient width so that when the movable forms are adjusted to maximum width the side edges thereof will overlap the adjacent edges of the respective forms, as shown in Fig. 10.

Since the bridge sections of the form are fixed to the movable sections thereof, they will move therewith to telescope over the side edges of the fixed form. The side edges 124 and 125 of the bridge plates are skived so that they lie substantially flat against the side faces of the respective form sections to prevent creases being formed in the garment during the pressing operation. In order to further prevent possibility of creases, each bridge plate carries a layer of cloth 126, having the side edges projecting over the faces of the form sections a greater distance than the edges of the bridge plates, as shown in Fig. 10.

The outer ends of the carriage project beyond the track portions thereof to mount vertical posts 127 and 128, which extend upwardly therefrom in parallel relation with the forms to mount a cross bar 129, the posts being of sufficient length that the cross bar is carried above the upper ends of the forms, as best shown in Fig. 1, to provide a support for the sleeves of a garment.

Pivotally mounted on the cross bar 129, directly above the vertical center line of each form, is a collar clamp 130 including a sleeve portion 131 engaging over the cross bar, and a depending L-shaped arm 132 having a reversely arranged arm 133 sleeved therein and normally retained in extended position by means of a coil spring 134 having one end bearing against a plate 134 in the arm 132, and its opposite end bearing against a similar plate 135 in the arm 133, as best shown in Fig. 11. The arm 133 is kept from rotation within the arm 132 by means of a pin 136, carried by the arm 133, and slidable within a slot 137 in the arm 132. The arm 133 carries a collar block 138 having a substantially flat upper edge 139, and a rounded lower face 140 conforming in shape to the neck band of the shirt collar.

Projecting from the opposite end of the sleeve portion of each arm 132 are lugs 141 and 142, to which the ends 143 and 144 of a flexible strap 145 are secured, the strap extending about the curved portion of the collar block to retain the neck band portion of a collar thereagainst.

The collar block 138 is raised from engagement with the strap by means of an arm 146 projecting from the side of the arm 133, thus by gripping the lever arm the collar block may be raised against tension of the spring 132 to provide clearance between the block and strap when mounting a shirt on the form, as later described.

Fixed to the upper face portion of the carriage in alignment with the fixed section of each form is a T-shaped tail clamp 147 having a cross head 148 adapted to engage against the tail portion of a shirt applied to the form, the head 148 being supported in yielding position against the form by the stem of the clamp, which is preferably constructed of spring-like material, and has its lower end flanged outwardly to provide a foot 149 as

fixed to the carriage by means of one of the screws attaching the adjacent guide strip 80, which retains the pairs of slides 71 and 72.

In order to reciprocate the form carriage, I provide a power mechanism now to be described.

The post 127 projects downwardly through the carriage and connects with a slotted head 150 on the end of a piston rod 151. The opposite end of the piston rod carries a piston 152 that is slidable in a horizontally disposed cylinder 153 carried in the base 2, as best illustrated in Fig. 3.

The cylinder 153 has closed ends provided with inlet pipes 154 and 155, wherethrough a pressure medium is supplied to the respective sides of the piston to cause movement thereof from one end of the cylinder to the other for effecting reciprocation of the form carriage 7, to bring the forms into alternate registry between the pressing bucks 3 and 4.

Spaced from each end of the cylinder, a distance slightly greater than the thickness of the piston, are outlet pipes 156 and 157 to allow discharge of the pressure medium from the cylinder to the buck actuating cylinder 50 (previously described) through suitable control valves 158 and 159. The control valves 158 and 159 are of a two-way type, and include plugs having through ports 160 and 161 adapted to connect the pipes 154 and 155 with a pressure medium supply line 162, or the ports 160 and 161 are adapted to connect the pipes 156 and 157 with the branches 163 and 164 of a delivery pipe 165 leading to a four-way valve 166. The valve 166 is provided with lateral connections that are respectively connected through pipes 169 and 170 with the respective ends of the buck actuating cylinder 50, so that the pressure medium, after being discharged from the cylinder 153, is adapted to be selectively delivered to one or the other sides of the piston 49 and exhausted from the other side depending upon setting of the valve 166. The valve 166 includes oppositely arranged arcuate shaped passages 171 and 172, having their ports so arranged that they may selectively connect the pipe 165 with the pipe 169 and the pipe 170 with an exhaust pipe 173, or the pipe 165 with the pipe 170, and the pipe 169 with the exhaust 173.

Steam is supplied to the fixed pressing buck through an inlet pipe 174 and discharged through an outlet pipe 175. Steam is also supplied to the movable pressing buck through a flexible connection 176, and discharged through a similar flexible connection 177, to heat the bucks to the desired temperature necessary in pressing a garment on the forms.

Moisture is withdrawn from the forms by means of a vacuum that is drawn through a pipe 178 (Fig. 1) that is connected with the tubular track 59, which in turn communicates with a duct 179 extending longitudinally of the carriage 62 by means of a port 180. The duct 179 is connected with each of the form sections through lateral ports 181', as best shown in Figs. 8 and 9. The lateral ports for the movable sections register with elongated slots 181 formed in the slides, which in turn open into the interior of the felt covering, previously described.

In operating a pressing machine constructed and assembled as described, one of the form sections is normally positioned between the pressing bucks and the other form section is positioned to permit the application of a garment thereto. For example, in Fig. 1, the form 5 is in position for applying a shirt thereto, while the other form is located between the pressing bucks. To apply a shirt on the form 5, the collar clamp is swung outwardly away from the form and a shirt is applied over the form so that the yoke portion thereof extends over the rounded upper end of the form, with the sleeve portions thereof registering with the cutouts 102.

The collar clamp block 138 is then moved away from engagement with the strap 154 by pushing up on the arm 146 to provide sufficient space between the block and straps to pass the collar of the shirt therebetween. The clamp is then swung downwardly so that the collar block engages the inner side of the collar, and the strap the outer side, whereupon the arm is released to bring the block in clamping engagement with the strap. The front portions of the shirt are then drawn in taut condition so that the front lies snugly against the side face of the form. The tail portion is then engaged under the T-shaped portion of the clamp, after which the crank 91 is rotated to adjust the movable form sections outwardly against the side seams of the shirt, thereby effecting fit of the front and back of the shirt tautly against the outer faces of the form. The port 160 is then turned to register the supply pipe 162 with the inlet pipe 154. When the valve is in this position steam is admitted into the cylinder to cause movement of the piston toward the left, Fig. 16, until the rear end of the piston passes the outlet pipe 157. Until the piston passes the pipe 157, the pressure medium is trapped in the cylinder since the port 160 is positioned to close the outlet pipe 156 at the opposite end of the cylinder.

The valves are preferably interconnected so that they are operated simultaneously, and when pressure medium is supplied to one end of the cylinder, the opposite end of the cylinder is open to the cylinder 50, that is, the port 161 is in communication with pipe 157 and with the branch 163 of the pipe 165.

When the piston has passed the inlet of the pipe 157, the pressure medium is discharged through the pipe 157, port 161, branch 164 and pipe 165 to the port 171, which is positioned so that it connects with the pipe 169 leading to the cylinder 50. By the time the piston 49 is past the port 157, the form 5 has been carried into registry with the pressing bucks, and the form 6 moved out of registry therewith at the opposite side of the machine. The pressure medium, upon being admitted to the cylinder 50, acts against the piston 49 therein to move the movable pressing buck into pressing contact with the form 5, and continued movement of the piston causes the form to move into pressing engagement with the fixed pressing buck to bring the front and back of the shirt into pressing contact with the ironing surfaces.

The fixed pressing buck is hollowed out, as at 187, to accommodate the collar clamp of the form. The cross bar 129 also forms a support for the sleeves, as shown in Fig. 1, so that they are retained out of engagement with the pressing bucks.

A shirt is then applied to the form 6, in the same manner as the shirt applied to the form 5, whereupon the valve 166 is turned to connect the pipe 170 with the pipe 165 and the pipe 169 with the exhaust pipe 173. Pressure medium is then applied to the opposite side of the piston through the pipe 170, and pressure that has accumulated on the opposite side of the piston is exhausted through the pipe 169 to cause the movable

pressing buck to move away from the fixed pressing buck.

The valve port 161 is then adjusted so that steam is delivered from the pipe 162 through the port 161 to the pipe 155, and the port 160 is adjusted so that it closes off passage of pressure medium to the pipe 154, and connects the pipe 156 with the branch pipe 163 of pipe 165. The valve 166 is then adjusted to again connect the pipe 165 with the pipe 169, so that when the piston passes the inlet of the pipe 156 the movable pressing buck is moved against the shirt that has been applied to the form 6.

It is thus apparent that with a machine of the type illustrated in Figs. 1 to 11 inclusive, the entire body portion of a shirt may be pressed in one operation of the machine, and that while one shirt is being applied to one form, another shirt is being pressed on the other form.

The form of the invention shown in Figs. 17 to 22 inclusive is particularly adapted for pressing the opposite sides of the sleeve or leg portions of a garment. In this form of the invention, the base 200 includes a hollow post 201 upon which is mounted brackets 202 having a lateral arm 203 extending over the top of the post to mount a fixed pressing buck 204, which is supported in vertical position and conforms in shape to the sleeve or leg portions of a garment. Fixed to the rear edges of the buck are hinge brackets 205 for mounting lever arms 206 and 207, having ends 208 to which movable pressing bucks 209 and 210 are respectively connected.

The pressing bucks 209 and 210 have pressing faces 211 and 212 conforming to the pressing faces 213 and 214 of the fixed pressing buck. The arms 206 and 207 have converging tail portions 215 and 216 that are attached to piston rods 217 and 218 reciprocably mounted in the heads 219 and 220 of a cylinder 221. The cylinder 221 is fixed to the pressing buck 204 by a bracket 222, as best shown in Figs. 17 and 18. Mounted within the cylinder and connected to the respective rods 219 and 220 are pistons 223 and 224. Pressure medium is supplied between the pistons through a port 225 that connects by means of a pipe 226 with a cylinder 227, later described.

Steam is circulated through the fixed pressing buck by means of supply and return pipes 228 and 228' respectively, and through the movable pressing bucks through pipes 229 and 229', that are connected therewith by swivel connections 230 aligning with the axis of the levers 206 and 207.

Fixed to the front side of the post 201 is a spaced guide bracket 231, having forwardly extending wings 232 and 233 terminating in inwardly extending lips 234 and 235 to form locking grooves 236 and 237, in which are slidably mounted the flanges 238 and 239 of bracket arms 240 and 241 that carry a track block 242. Track block 242 supports spaced tubular guide tracks 243 and 244, having rear ends 245 projecting under the movable pressing bucks 209 and 210, as shown in Fig. 17.

The track blocks and tracks are adjustably supported on the bracket 231 by means of a gear segment 246 having teeth 247 meshing with a rack bar 248, that is formed on the bracket 231 midway between the wings 232 and 233, as best shown in Fig. 22, the gear segment being fixed to a rock shaft 249 that is rotatably mounted in the bracket arms 240 and 241, and carries an operating lever 250 whereby the shaft may be rocked to raise and lower the track block relatively to the pressing bucks, as later described.

Mounted on the tubular tracks is a carriage 251 which carries a pair of spaced form members 252 and 253 that are adapted to be moved between the fixed and movable pressing bucks, as shown in Fig. 18. Each of the forms 252 and 253 include fixed sections 254 and 255, and adjustable sections 256 and 257. The adjustable sections are mounted on a plate 258 that is slidably mounted on the carriage to and from the fixed sections upon rotation of a shaft 259. The shaft 259 has bearing portions 260 rotatably mounted in a carriage, and a threaded portion 261 that is threadedly engaged with the plate 258, as shown in Fig. 19. Mounted on the outer end of the shaft is an actuating crank 262.

The fixed and movable sections of the form correspond in construction to the forms previously described, and the space therebetween is bridged by plates 263 having side edges thereof overlapping and lying flatly against the adjacent side faces of the form sections, as best shown in Figs. 17 and 18. The outer edges 264 and 265 conform to the side seams of the sleeves or legs of a garment pressed thereon, as shown in Fig. 17.

In order to move the carriage to and from engagement between the pressing bucks, the cylinder 227 is provided with a piston 266 that is mounted on a rod 267 slidable through the end wall of the cylinder, and having its outer end provided with a pin 268 that is slidably mounted in an opening 269 of the carriage, when the carriage is adjusted vertically upon operation of the lever 250.

The pipe 226 communicates with the rear end of the cylinder at a point spaced therefrom a distance slightly greater than the thickness of the piston, so that when the piston has moved to the far end of the cylinder, pressure medium admitted through the pipe 270 flows through the pipe 226 and port 225, into the space between the pistons 223 and 224, to cause movement of the movable pressing bucks into pressing engagement with the form members that have been moved between the pressing bucks. The pressure medium is then exhausted from between the pistons through a pipe 226, and pressure medium is admitted to the outer ends of the cylinder 221 to move the bucks 209 and 210 away from engagement with the forms. Upon release of the steam between the pistons, and shutting off the supply to the pipe 270, a weight 271 drops within the post 201 to draw the piston 266 to the opposite end of the cylinder thereby effecting return movement of the carriage to its original position, the weight 271 being attached to the end of a cable 272 having its opposite end connected with the carriage and operable over pulleys 273 and 274, as best shown in Fig. 19.

Moisture within the forms drains into the tubular guide tracks through channels as shown by the dotted lines designated 275, in response to the suction of a pump 276 that is connected with the guide channels through a pipe 277, having its inlet end connected to the track block, as shown in Fig. 21.

In using the pressing apparatus shown in Figs. 17 to 22 inclusive, the sleeves of a shirt are drawn over the forms and the forms are adjusted to the size of the sleeve by actuating the crank 262 to stretch the sleeve snugly over the form. The upper end of the sleeve may be secured to the form by a suitable clamp 278 similar to the tail

clamp previously described. The piston 266 is then actuated to operate the carriage for bringing the forms between the pressing bucks. After the piston 266 has passed the inlet to the pipe 226 steam is admitted between the pistons 223 and 224 to cause their outward movement in the cylinder 221, whereupon the movable pressing bucks are brought into pressing engagement with the outer faces of the forms, and the forms, being of yieldable material, are moved into pressing contact with the surfaces 213 and 214 of the fixed pressing bucks.

After pressing the sides of the sleeves, steam is shut off to the pipe 270 and supplied to the pipes 279 to cause the pistons to move toward each other, thereby drawing the movable pressing bucks away from the fixed pressing buck. After the steam has been shut off in the pipe 270, and the cylinder exhausted to atmosphere, the weight 271 drops within the post 272 to effect withdrawal of the forms to their original position. The sleeves of the garment are then removed, completing the ironing operation.

In the form of the invention shown in Fig. 23, the forms 280 extend laterally from a carriage 281 that operates on a vertical track 282 to move to and from the pressing bucks 283, which are mounted to swing on their lower edges into and out of contact with the forms, otherwise the construction and operation is substantially the same as that shown in the form of the invention illustrated in Figs. 17 to 22 inclusive.

From the foregoing, it is obvious that I have provided a pressing machine equipped with adjustable forms whereby the forms may be expanded to fit the portions of the garments pressed thereon, and which may be moved between the ironing surfaces of the fixed and movable pressing bucks to press both sides of the garment in a single operation, thereby eliminating overlaps in the ironing steps, and providing a better quality of work at a lower cost to the customer.

What I claim and desire to secure by Letters Patent is:

1. A pressing machine including a support, a pair of pressing bucks on the support, a carriage on the support, an expandible form for carrying a garment to be pressed, means for mounting the form for lateral and expansive movement on the carriage, means on the carriage for expanding the form, means for actuating the carriage to move the form into and out of registry between the pressing bucks, and means for effecting movement of one of the pressing bucks against the form and for effecting lateral movement of the form into pressing contact with the other pressing buck.

2. A pressing machine including a support, a pair of pressing bucks on the support, a carriage reciprocably mounted on the support, garment supporting forms on opposite ends of the carriage, a sleeve supporting bar on the carriage and extending over the forms, collar supporting clamps on the bar and engaging the forms, and means for reciprocating the carriage to bring the forms into alternate registry with the pressing bucks.

3. In a machine of the character described, a base, a pair of pressing bucks on the base, a track on the base, a carriage reciprocably mounted on the track, garment supporting forms on opposite ends of the carriage, means for reciprocating the carriage to bring the forms into alternate registry with the pressing bucks, means for effecting lateral movement of the track, and means for moving one of the pressing bucks in the direction of the other to effect engagement thereof with one of said forms and for effecting said lateral movement of the track to bring said form in contact with said other pressing buck.

4. In a shirt pressing apparatus including a flat form having side and shoulder portions, a collar engaging member supported on the median line between the shoulder portions of the form, means for expanding the form in both lateral directions from the collar engaging member and in the plane of the form to locate the collar and shoulder portions of the form according to the size of the shirt, a pair of pressing bucks, means for moving the form between the pressing bucks, and means for effecting engagement of the pressing bucks with opposite sides of the form.

5. In a shirt pressing apparatus including a flat form comprising a plurality of sections having yielding pressing surfaces, a shirt clamping member supported in registry with one of said sections, means for moving the other sections relatively to the section associated with the shirt clamping member to adjust the size of the form to the size of the shirt, a pair of pressing bucks, means for moving the form between the pressing bucks, and means for effecting pressing engagement of the pressing bucks with the pressing surfaces of the form.

6. In a pressing apparatus, a form supporting carriage, a form including a flat-like body section fixed on the carriage and having an edge shaped to conform to the shoulder portion of a garment, a pair of similar flat sections having outer side edges shaped to conform to the side seams of the garment and upper ends shaped to conform to the sleeves of the garment at the shoulder portions thereof, slides for supporting the flat sections on the carriage for movement to and from the body section to fit the garment, and means for detachably mounting the flat sections on said slides.

7. In a pressing apparatus, a form member including a frame having a plurality of openings, springs mounted in said openings, and a facing material enveloping opposite sides of said frame and supported by said springs.

8. A pressing machine including a support, a pair of pressing bucks on the support, a carriage on the support, a form on the carriage having substantially flat pressing surfaces on opposite sides to respectively register with the pressing bucks and having side edges shaped to correspond to the edges of a shirt-like garment when placed on the form, a clamp carrying means on the support and spaced from the form, a clamp member on the carrying means and movable to and from the form in registry with a median line of the form to engagingly retain the garment, means for expanding the form in lateral directions from said clamp member to fit the garment, means for actuating the carriage for moving the form into and out of registry between the pressing bucks, and means for effecting engagement of the pressing bucks with the form.

9. In an apparatus of the character described, a form support, and a form on the support including a main section comprising a relatively flat plane-like body, a collar clamp carrying means on the support and spaced from the form, a collar clamp movable on the clamp carrying means to and from the form in registry with the median line of the main section, substantially flat side sections cooperating with the main section to form front and back pressing surfaces for the

front and back portions of a garment placed on the form, means adjustably supporting the side sections on the support in alignment and in plane with the main section for movement to and from the collar clamp to locate the sides of the garment relatively to the collar clamp for fixing said garment to the form, and means bridging space between said side sections and the main section.

10. In an apparatus of the character described, a form support, and a form on the support including a main section comprising a relatively flat plane-like body, a collar clamp carried by the support in registry with the median line of the main section, side sections cooperating with the main section to form front and back pressing surfaces for the front and back portions of a garment placed on the form, means adjustably supporting the side sections on the support in alignment and in plane with the main section for movement to and from the collar clamp to locate the sides of the garment relatively to the collar clamp for fitting said garment to the form, means bridging space between the side sections and the main section including plates, means supporting the plates from one of the sections, and a layer of cloth on the plates and having edges overlapping the sections.

11. In a pressing apparatus, a form including a flat-like body section having an edge shaped to conform to the shoulder portions of a garment, a collar engaging member, means spaced from the form to support said collar engaging member for movement to and from the form at a point midway between said shoulder portions, a pair of similar flat side sections having outer side edges shaped to conform to the side seams of the garment and upper ends shaped to conform to the sleeves of the garment at the shoulder portions thereof, means for supporting the side sections in cooperative relation with the body section, and means for moving the side sections to and from the body section to extend the sides of the garment relatively to its collar portion when the garment is engaged by said collar engaging member.

12. A pressing machine including a support, a pair of pressing bucks on the support, a carriage reciprocably mounted on the support, garment supporting forms on opposite ends of the carriage, means for reciprocating the carriage to bring the forms into alternate registry with the pressing bucks, means mounting the carriage for lateral sliding movement, means for moving one of the pressing bucks in the direction of the other to effect engagement thereof with one of the forms and lateral sliding movement of the carriage to effect engagement of the form with said other pressing buck, and sleeve supporting means on the carriage to support the sleeves of garments placed on the form from contact with the pressing bucks when a form is moved into registry therewith.

13. In a garment pressing apparatus, a substantially flat, expandible form having side and shoulder portions, collar engaging means located between the shoulder portions of the form, means for expanding the form in the direction of the plane of said form to locate the collar and shoulder portions of a garment on the corresponding portions of the form, a pair of vertically arranged pressing bucks, means supporting the form in vertical position for movement between the pressing bucks and whereby moisture contained in the garment gravitates to the bottom of the form, means for moving the form, means for moving the pressing bucks into engagement with the opposite sides of the form to press the garment, and means connected with the bottom of the form for removing said moisture.

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