May 21, 1935. W. M. EMERY 2,002,240

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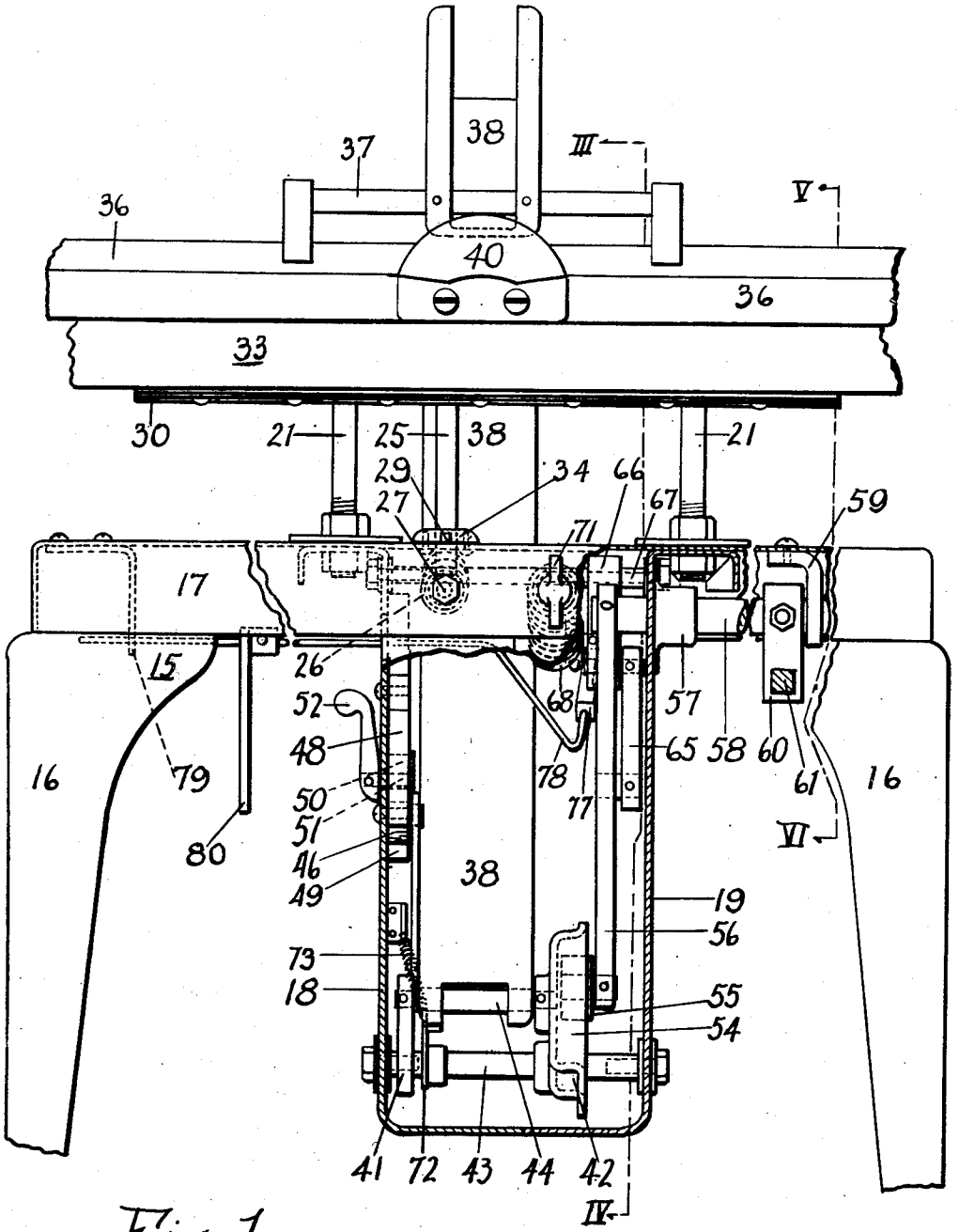

Fig. 1

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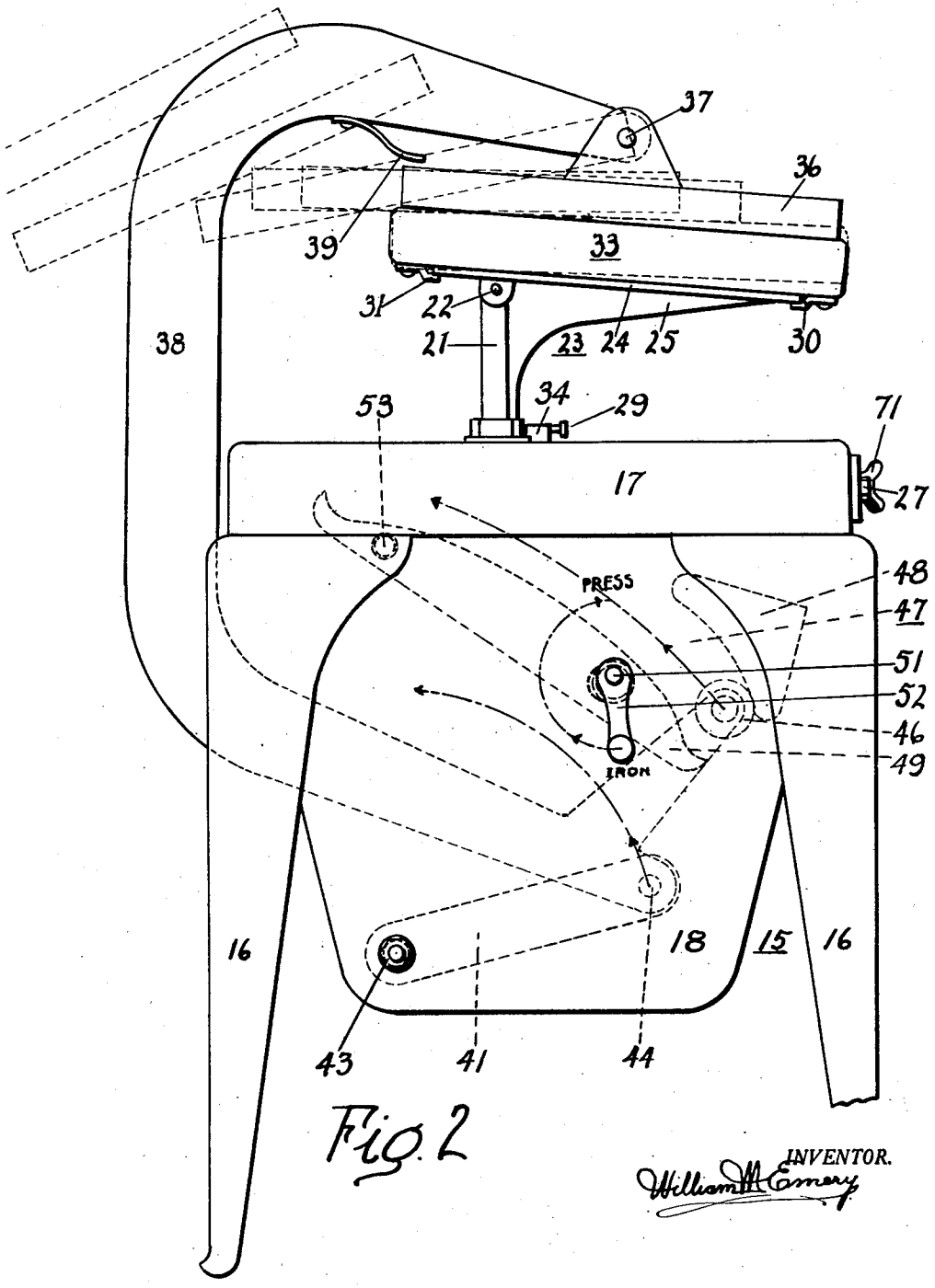

Fig. 2

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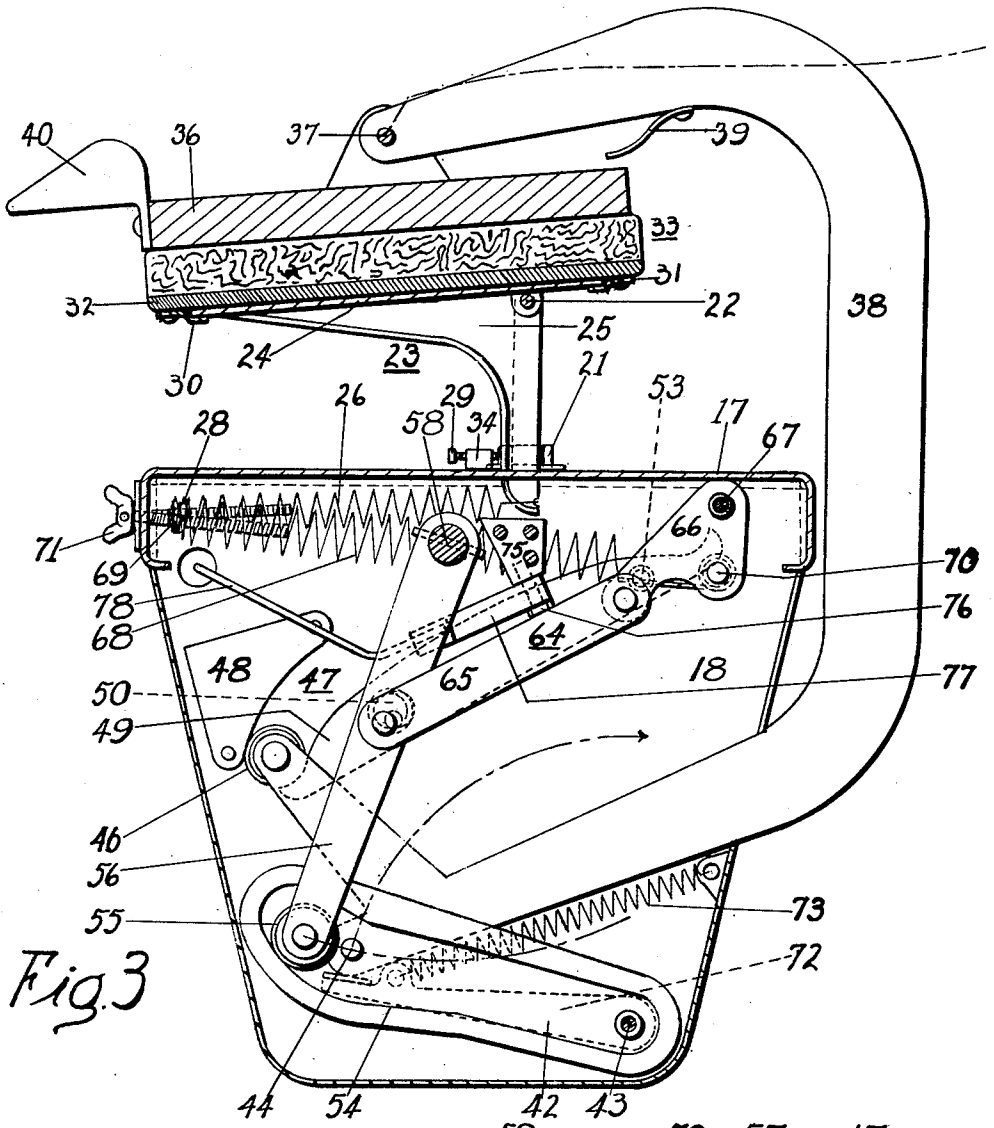

Fig. 3

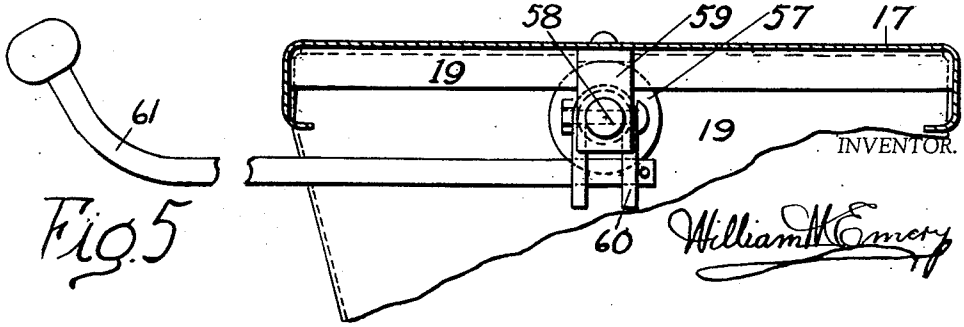

Fig. 5

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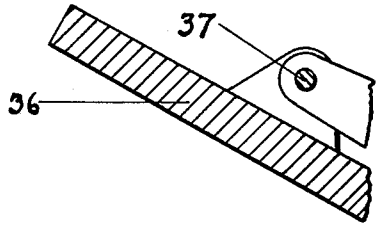

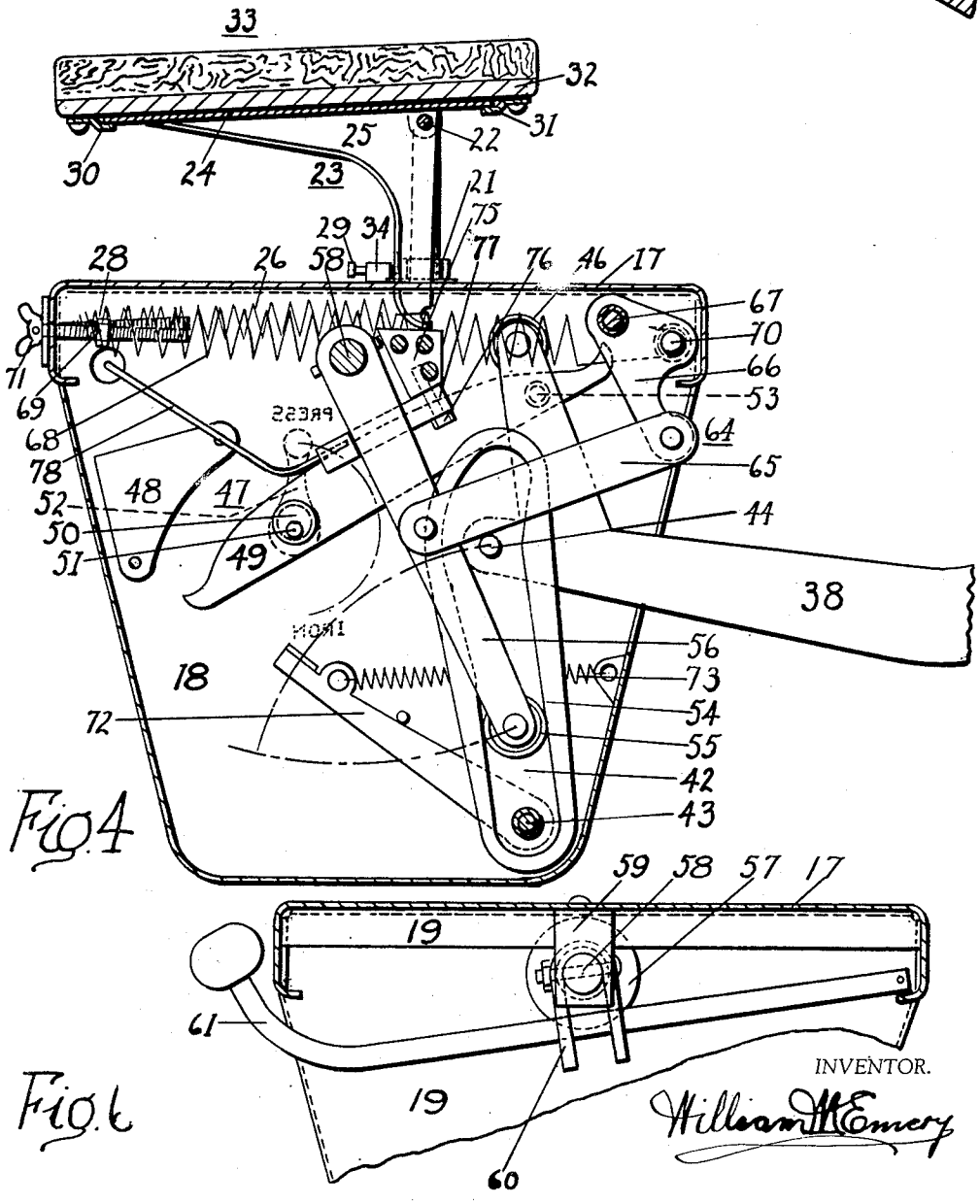

Fig. 4

Fig. 6

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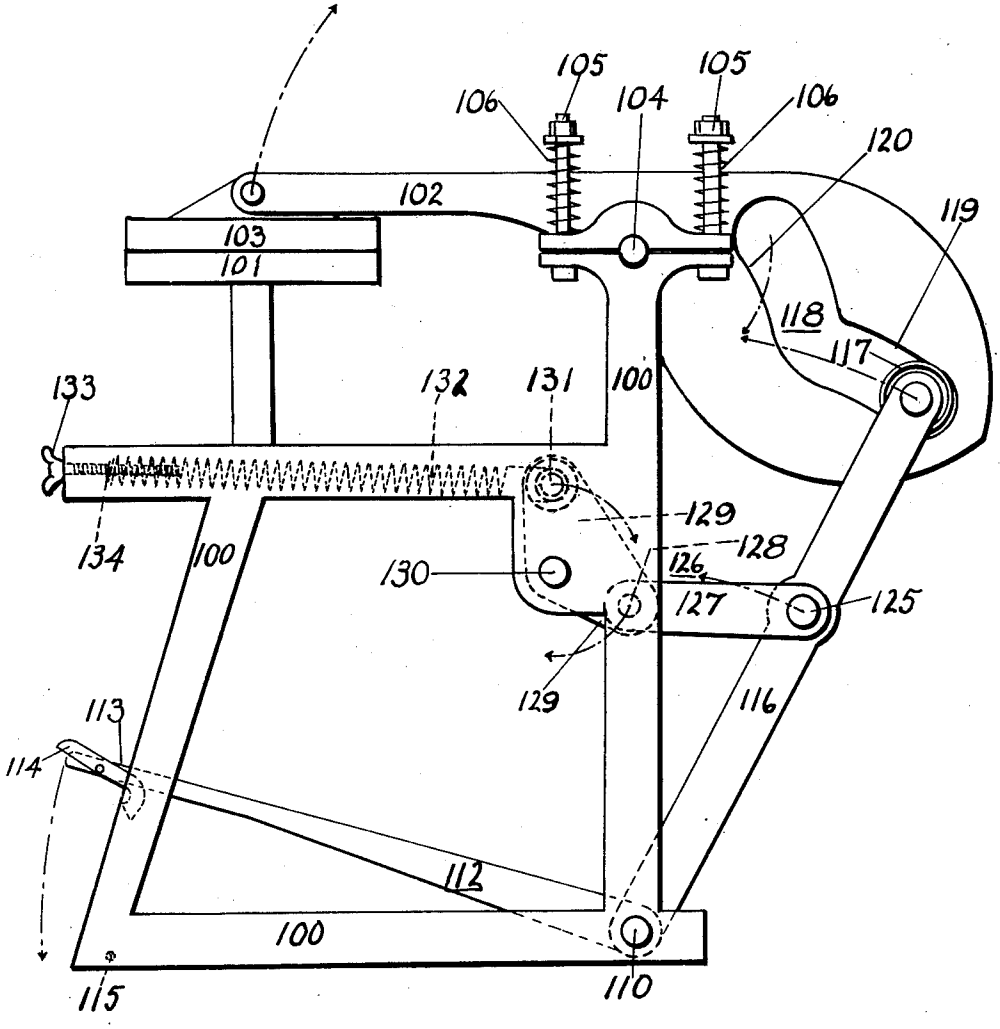

Fig. 7.

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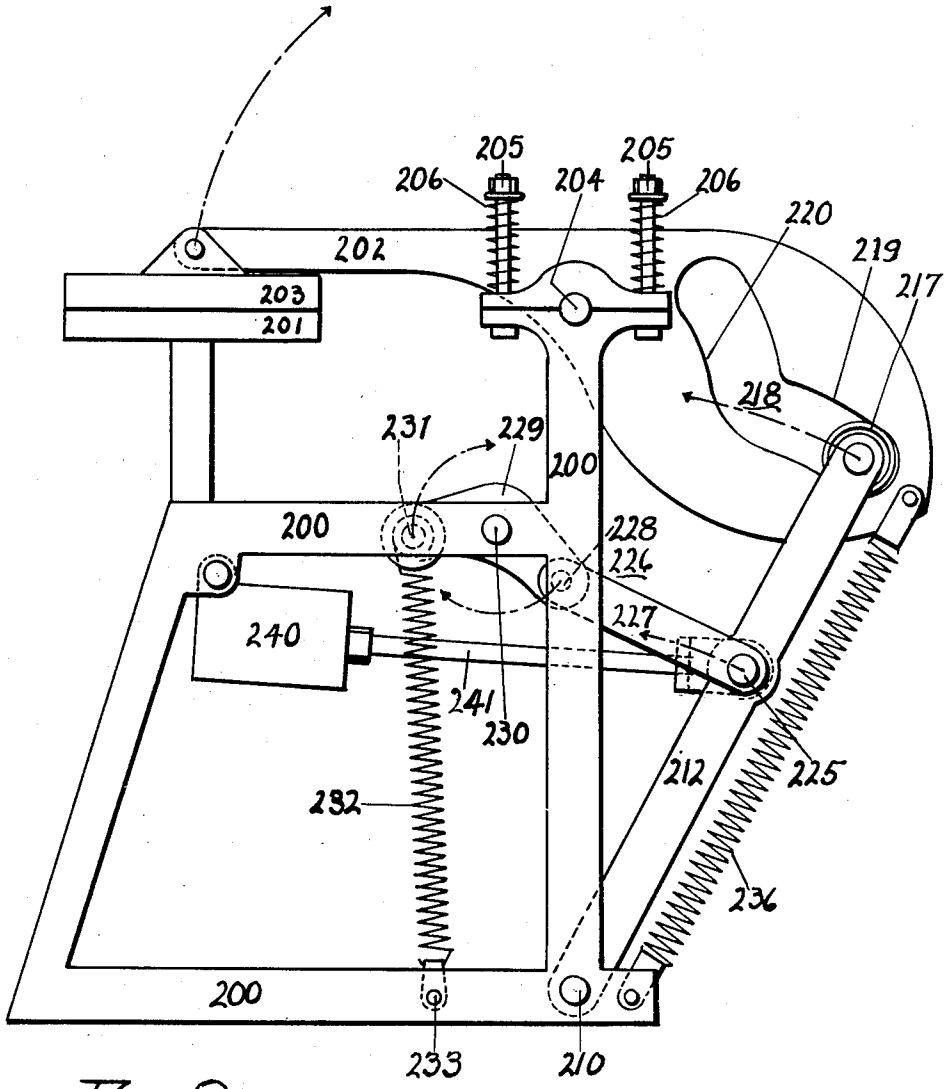

Fig. 8

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Patented May 21, 1935

2,002,240

UNITED STATES PATENT OFFICE

2,002,240

IRONING PRESS

William M. Emery, Lansdowne, Pa.

Application June 21, 1934, Serial No. 731,616

23 Claims. (Cl. 68—9)

My present invention refers to presses and press-ironers, especially to those adapted to press and/or iron fabrics, although certain features of my invention are valuable in the operation of many devices possessing two pressing jaws.

This invention has been preceded by a series of developments described in concurrent applications, issued subsequently to the filing of this application as Patents #1,967,081 to #1,967,086 inclusive, the perusal of which may aid in a more complete understanding of some of the principles and movements herein set forth.

An object of this invention is to attain greater perfection by establishing a movement of the head to the buck, applying pressure therebetween, under configurative potential energy and especially by the transmission of said stored energy by means including a compoundedly curved cam particularly shaped to dispense at each instant a movement no more of the said stored energy than is necessary to effect and assure the movement at a practical speed.

Another object is to provide means to effect pressure between the press elements either with or without slight friction between the elements or to effect said pressure with a considerable frictional sliding of the head against the buck, the movement being selected by means of a single convenient control handle.

An object is to conserve the energy stored in the structural parts of the press while the pressure is being effectuated between the elements and to transfer said stored energy when the pressure is relieved to means designed to apply the pressure between the elements under stored forces during a subsequent cyclic movement of the press and thus reduce the amount of externally applied forces necessary to the operation of the press.

An object is to provide means to effect a convenient adjustability of the tension of the springs which store the previously mentioned forces. Adjustability of the springs is essential to establish and maintain a nice balance between the actuating and resisting forces.

Another object is to provide for the restraint of the stored forces by a latch and to provide for the operation of the latch by the knee of the operator, thus leaving the hands free.

Another object is to provide for the storage of the operating handle under the press and also to provide means for holding the elements out of complete pressure contact while the press is in disuse to allow for a re-expansion of the padding of the padded element.

Another object is to provide for resiliently supporting the buck adapted for easy adjustment of both height and resiliency and particularly adapted for use with a pivotally suspended pressing head.

A further object is to produce a novel and more convenient arrangement of the controls, mechanism, supporting frame and operating levers especially suitable for use by untrained women operators when they are seated comfortably in an ordinary chair.

Other objects will be obvious from the description and claims which follow:

In the drawings,

Figure 1 is a fragmentary front view of a press,

Figure 2 is a view in elevation of the left end of the same press,

Figure 3 is a section cut on line III—IV of Figure 1 showing the elements under pressure,

Figure 4 is a similar section cut on line III—IV of Figure 1 showing the elements separated,

Figures 5 and 6 are sections cut on line V—VI of Figure 1,

Figure 7 shows a press of the alligator jaw type generally used commercially and operated by foot power embodying my invention,

Figure 8 shows a similar type press operated by pneumatic pressure to which the principles herein described are applied to materially decrease the magnitude of the applied forces.

Referring to Figure 1, there is shown a table structure **15**, consisting of four legs **16**; a light sheet metal table top **17** with turned down flanged sides; and two housing pans or frames, left and right, numbered **18** and **19** respectively which are mounted centrally and transversely of the table on the underside thereof. These housings or frames carry the mechanical strains and stiffen the table top **17**. These sheet metal parts are welded together producing as a unit the table structure **15**.

Fixed to the table top are two identical bolts **21** with hinge pivots **22** in their top ends as shown in Figures 2, 3 and 4. Hinged to said pivots **22** is a buck plate **23** having a flat top **24**, and a vertical web portion **25** extending downwardly through a cut in the table top **17**. An extension spring **26** is attached to portion **25** of the buck plate **23** and is adjustable as to tension by a hex-head bolt **27** (Figure 1) threaded in a nut set in the coned end **28** of spring **26**.

To adjustably limit the inclination and the height of the buck plate **23** there is provided a set screw **29** (Figure 3) which is threaded in a block **34** attached to table **17** and which bears against vertical web portion **25** of buck plate **23**.

It should be noted that the pivots 22 are below and rearward of the center of pressure between the head and buck so that a variation in the angle of the buck plate produces a change in the height of the said center of pressure. As shown in Figures 2, 3 and 4, the buck 33, hereinafter described, is inclined forwardly towards the operator to facilitate the sliding action of the head against the buck later described, and secondly to give to a seated operator a better view of the top surface of the buck thereby facilitating the "lay" and allowing a more restful and better sitting posture for the woman operator. By means of the adjustment set-screw 29, it is possible to adjust the buck for greater inclination.

The front and back edges of the flat top 24 of the buck plate are arranged to slide in guide tracks 30 and 31 respectively (Figure 4) attached to forward and rearward edges of the underside of a metal buck bed 32. Attached to the buck bed 32 are suitable paddings and coverings which together with the bed 32 and tracks 30 and 31 etc. will hereinafter be referred to collectively as the bed or buck 33.

A pressing head 36 is hung from a pivot 37 in the forward end of a C shaped support arm 38, A flexible flat spring 39 is attached to the support arm 38 and contacts with the pressing head 37 when the head and support arm is swung rearwardly. A ruffler 40 is conveniently attached to the center of the forward edge of the head.

As shown in Figures 2, 3 and 4, the support arm 38 is somewhat C shaped and extends downwardly and again forwardly, terminating in pivotal connection rod 44 with a pair of radius arms 41 and 42 left and right respectively. The radius arms operate about a fixed shaft 43 attached to left and right housing sides or frames 18 and 19.

Clearly shown in Figures 3 and 4 is roller 46 mounted in an angularly projecting portion of support arm 38. The roller operates along and in a cam 47 composed of two portions. One portion 48 is fixed to the left side housing wall 18 and another portion 49 is pivotally mounted at 53 to the left side housing wall. To pivotally adjust the cam portion 49 there is rotatably mounted in the cam portion 49 an eccentric 50 mounted on a shaft 51 journalled in the wall 18. A handle 52 is fixed to the shaft to rotate the eccentric 50. With the parts 47 to 52 in the positions shown in Figure 4, the cam 47 is so shaped that the head 36 in its movement follows the dot-dash line shown in Figure 3, that is, the head approaches the buck with a somewhat horizontal movement until it is almost directly over the buck when the head is lowered to the buck applying pressure without frictional movement or with a very small amount of frictional movement.

With the parts 47 to 51 in the position shown in Figure 2, the head in its movement towards the buck follows the course indicated in Figure 2 wherein it will be noted the face of the head contacts the face of the buck 33 considerably back from the forward edge of the buck 33 and that it slides frictionally across the buck 33 until it nears the said forward edge of the buck. At any time while the head is sliding from the place where the head and buck first come into flat contact to the place where the forward edges of the head and buck coincide, the buck 33 and the buck plate 23 tilt slightly forward expediting the said sliding motion. The timing of the tilting depends, among other things, upon the tension of spring 26 which is adjustable. The reciprocating course of the roller 46 is shown by arrows in Fig. 2. Starting at the highest point and supposing the roller to be traveling to the direction indicated by arrows, it should be noted that the roller is supported by cam 49 until the head 36 contacts with the buck 33. Thereafter the buck supports the weight of the head as it frictionally slides over the buck and accordingly the roller 46 leaves the track 49 and moves forwardly until it strikes cam 48. With the parts 47 to 51 in the position shown in Fig. 3, the roller 46 also tends to follow cam 48 instead of 49 on the forward movement if the effect of the momentum is greater than the effect of gravity.

To effect the actuation of the radius arms 41 and 42, and incidentally the pressing head, the right radius arm 42 is made to include a cam portion 54, which is compoundedly curved and is shaped with extreme care. Operating in the cam is a ball bearing roller 55, mounted in a radius arm 56 which is mounted on a shaft 58 which turns in another ball bearing 57 mounted in the right housing wall 19. As shown in Figures 1, 5 and 6 an external bearing bracket 59 also supports shaft 58. A connector 60 connects shaft 58 with an operating handle 61. The operating handle is made of square stock and passes through square holes in the connector 60 in such a manner that the handle may be slid longitudinally under the table out of the way, as shown in Figure 6. When in this position it should be noted that the rear end of the handle 61 engages with the flange of the table top 17. This is designed to lock the head 36 in a slightly elevated position preventing the resting of its weight upon the buck 33. If pressure is relieved from the padding of the buck when the press is not in use, the padding is given an opportunity to re-expand itself and thus retain its life and resiliency longer. The head may be caught back to a point sufficiently separated from the buck so that the press may be set away while the head is warm without danger of it scorching the buck, according to the indexing of the connector 60 on shaft 58.

When the operating handle is withdrawn for use, as shown in Figure 5, it extends from the table far enough so that if the operator sits close up to the table 15 with one knee on each side of the housing walls 18 and 19, then the ball portion of the handle 61, which is made of soft resilient rubber, is positioned below the shoulder of the operator and is operated by a downward movement direct from the shoulder. A downward movement of the handle 61 will cause the head 36 to separate from buck 33 as shown in Figure 4. An upward movement of the handle to the position shown in Figure 5 is incidental to the application of pressure between the head 36 and the buck 33.

Pressure between the head 36 and the buck 33 may be, but is not normally brought about by lifting the operating handle 61. Such pressure is effected by radius arm 56 which is turned by a spring and toggle mechanism including spring 68 and toggle 64. Toggle 64 consists of a connecting member 65 pivoted to the radius arm 56 and a bell crank member 66 pivoted to the connecting member 65 and pivoted on a fixed shaft 67 mounted in and between the housing walls 18 and 19. Operably connected with the bell crank member 66 by a stub shaft and roller 70 is the extension spring 68 which is adjustably pre-stressed by a wing head bolt 71 which passes

through the table top 17 and engages a nut 69 set in the coned end of spring 68.

To slightly counterbalance or resist the weight of the moving parts and the head when the head is near the end of its forward stroke, and more particularly when the head is descending into contact with the buck, is an arm 72, Figure 4, pivotally mounted at one end on fixed shaft 43 and so positioned that the other end engages the forward portion of support arm 38 when the head nears the buck. A horizontal extension spring 73 extends from an eye in arm 72 to an eye in the left housing wall 18.

When the head 36 is moved backwards to fully separate it from the buck 33 by the depression of the operating handle 61, the natural tendency would be for the head 36 to return to a co-operating position with the buck 33 under the forces stored in spring 68. However, this is normally prevented by a latching mechanism consisting of a block 75, (Figures 3 and 4), fastened by three bolts to the right housing wall 19. A headed stud 76 driven into block 75 pivotally attaches a latching arm 77 which engages the radius arm 56. Threaded into the latching arm 77 is spring rod 78 which extends to the left through a clearance hole in the left housing pan 18 and thence along the forward edge of the table top 17 to a mounting bearing bracket 79, see Figure 1.

A knee control 80 is mounted on spring rod 78. It will be seen that a lateral movement of the knee control will shift the spring rod 78 and pivot the latching arm sufficiently to disengage the radius arm 56, permitting its free movement under the stored forces of the spring 68 and the weight of the head, etc., tending to close the press.

To operate the press shown in Figures 1 to 6, the operator seats herself comfortably on an armless chair of customary height in front of the press with her knees under the table, one knee being on each side of the housing walls 18 and 19. The operating handle 61 which was telescoped under the table 15, as shown in Figure 6, is then withdrawn, as shown in Figure 5. In this position the ball of the handle 61 is almost directly below the shoulder of the operator so that it may be operated by a substantially downward movement. The applicant has discovered after considerable experimental research that the manual movement just described is the easiest possible manual movement for a woman while seated, especially if the movement is not too long. The operator normally simply leans her shoulder weight on the handle to separate the pressing elements and move the head back from the buck.

The operator's position is such that her left knee is conveniently located for the use of the knee control 80. With this novel arrangement of my press it will be obvious from the description preceding and which follows that: (1) the hands of the operator are free when the pressure is being applied to arrange and support the garments; (2) the controls are away from the heated head; (3) the buck is entirely uncovered and exposed to facilitate the laying of the garments on the buck and the heated head is moved away from the operator and does not radiate its heat directly toward the operator; (4) one control is operated by the left knee and the other by the right hand of the operator, and (5) the downward pressure on the operating handle steadies the table at the time when the head is thrown backwards. Obviously this effects a most comfortable, convenient and efficacious arrangement and one believed by the applicant to be novel in the art.

Suppose the parts of the press to be in the position shown in Figure 4. The operator, by sidewise movement of the left knee against the knee control 80 moves the latch 77 releasing the radius arm 56. The head 36 is now free to move forward toward the buck 33 under the forces stored in spring 68 with or without or against the force of gravity according to the direction of movement of the center of gravity of the head and its attendant moving parts. The cams 47 and 54, especially the former, are very carefully shaped so that despite the forces which may be acting on the head, the head will move forward without unnecessary speed or momentum.

As the curve of cam 47 effectuates the final or downward movement of the head, the lower end of support arm 38 contacts with arm 72 and the momentum of the head is absorbed by spring 73, potential energy being stored in spring 73 as it resists the lowering of the head under gravity and the forces of spring 68.

Cam 54 is very carefully generated by experimentation so that at each point in the movement, the forces of spring 68 will be applied in only sufficient quantity to just slightly overbalance the resisting forces, such as friction, inertia, and those incident to spring 73 and spring 26 and the flexure of the other parts of the structure, and to assure a smooth movement of the head at a practical speed and the application of a final pressure between the head 36 and the buck 33. By the careful shaping of the cams and the adjustment of the spring tension, movement of the head may be effectuated smoothly and without a bang when the elements contact.

As the full pressure movement is completed the buck 33 is tipped forward by the pressure and the extension spring 26 is further stressed. The adjustment of the tension of the spring 26 by hex bolt 27, as well the adjustment of the instant of contact by set screw 29 are important.

The applicant wishes to point out to anyone attempting to construct his press from this description that these cams can only be generated after much patience and painstaking experimentation and analyzation and that the shape of the cams will vary with the springs, the center distances and the weight of the parts, so that no specific shape may be given for them except to say they are compoundedly curved and experimentally generated.

As the pressure is applied, obviously certain parts will flex, possibly imperceptibly to the eye, such as table 15, support arm 38, spring 73, spring 26, and the padding of the buck 33. Forces are accordingly stored in these flexed parts equal to the energy exhausted from spring 68 in producing the movement, less, of course, frictional losses.

Now, if the frictional losses are reduced to a minimum by the judicious use of ball bearings and the cams are shaped to effect a slow smooth motion, evidencing a substantial balance of forces, only very slight effort will be required to depress the operating handle 61 to separate the elements. When the operating handle 61 is depressed, and before the actual separation of the elements begins, the forces stored in the flexed parts mentioned are restored to the spring 68 less frictional losses.

While the tension of spring 68 is the greatest when the elements are separated, due to the toggle 64 and the cam 54, the greatest resultant of its force is effectuated when the elements are

under pressure and the spring 68 is most relaxed.

It should be particularly noted that when the head is moved back from the buck, it is swung to a point beyond the rear legs of the table. See Fig. 4. If the operating handle 61 were raised by the operator, instead of being depressed, as I provide to produce this movement of separation, it would be necessary to make the table so heavy that it would not be portable or to fasten it to the floor in order to prevent it from tipping backwards. However, since in the applicant's invention the movement of the operating handle and the swing of the pressing head are in opposite clockwise directions and on opposing sides of the table, the pressure necessary to depress the lever 61 counteracts the momentum and the weight of the head, thus making even a press of light and portable construction quite stable and free from the danger of being overbalanced by the head.

Figure 7 shows another embodiment of my invention in a press the operation of which is so simple that it scarcely requires explanation.

100 represents a frame work which fixedly supports a buck 101 and pivotally supports, at 104, a support arm 102 which in turn pivotally mounts a pressing head 103. The bearing at 104 is split and held together by adjustable bolts 105 and springs 106. This allows for an automatic adjustment of the "jaws" including parts 103 to 104 for various thicknesses of materials and limits the maximum pressure obtainable. The frame 100, at 110, pivotally mounts a bell crank 112, one arm of which 113 acts as a pedal. It has a simple gravity hook catch 114 attached to it which engages a stud 115 projecting from the frame 100. The other arm 116 of bell crank 112 has mounted in its end a ball bearing roller 117 which acts in a cam 118 with a compound curve, that is, the cam is neither entirely rectilinear nor is it a simple arc thrown from a single center with a uniform radius. One portion 119 of the arc governs substantially the application of pressure and another portion 120 governs the movement of the head while it is out of contact with the buck. Cam 118 is generated with the same care as cam 54 of the previous embodiment and acts similarly to it.

Midway of the bell crank arm 116 is pivotally attached, at 125, a toggle mechanism 126 with a connecting link member 127 which is pivoted at 128 to a bell crank member 129 of the toggle 126 which is pivoted to the frame 100 at 130. A stud pin and roller 131 is attached to the bell crank toggle member 129 to anchor an extension spring 132, the tension of which is adjustable by a wing bolt 133 which passes through a small hole in frame 100 and which is threaded in a nut (not shown) held in the coned end 134 of spring 133.

The operation of this press is indicated by arrows. When the pedal 113 is depressed, the catch 114 engages with stud 115 the bell crank 112 turns counter-clockwise, the bell crank toggle member 129 turns clockwise, the already stressed spring 132 is extended further, the roller 117 travels the path indicated, thereby rotating the support arm 102 clockwise as indicated on each side of pivot 104 and the head is raised from the buck. If catch 114 is now relieved by touching the unengaged end with the foot, the parts reverse the described movements and the head 103 is moved to the buck 101 and forced into pressing contact with the buck entirely under the forces stored in spring 132.

The successful operation of my invention depends upon the careful shaping of the cam. If portion 119 is generated experimentally and the correct compound curve found which will apply just enough of the forces stored in spring 132 to apply the desired pressure between the head 103 and the buck 104, the frame 100, support arm 102, springs 106 and other parts will be imperceptibly distorted. It should be remembered that when these parts are distorted, configurative potential energy is stored in them in an amount theoretically equal to the forces expended in doing so by spring 132 less frictional losses. This is especially likely to be true if the tension of springs 132 and 106 is adjusted to accomplish a nice and final balance of these forces causing the parts to come to rest before the roller 117 comes to the end of the cam 119 without any positive stop. If the press has been so adjusted and the cam portion 119 so adjusted, then it will take scarcely no effort to slowly depress the pedal 113 to open the press.

Portion 120 of the compound cam 118 should also be carefully generated to give it the proper curve to utilize only just enough of the forces stored in spring 132 to initiate and effect a slow movement of the head to the buck when the catch 114 is released.

The convenient location of the wing bolt 133 permits a simple manual adjustment of the spring tension for varying conditions of operation such as the different thicknesses of materials to be pressed and whether the operator prefers to leave his or her foot on the pedal 113 when the pedal is rising and the pressure is being applied.

Figure 8 shows a third embodiment of my invention. It is distinguished from the others by the utilization of forces stored in a spring to assist and reduce the applied forces necessary to the application of pressure, the applied forces being applied at the time of the application of said pressure.

The press shown in Figure 8 includes a frame 200, a buck 201 fixedly mounted to the frame, a support arm 202 pivoted to the frame at 204 by means of a split bearing held under adjustable tension by spring 206 and bolts 205, a pressing head 203 pivotally mounted to arm 202, a radius arm 212 pivoted to the frame 200 at 210, and a ball bearing roller 217 mounted in the other end of the radius arm 212. The support arm 202 includes a cam track 218 having a compound curve which cooperates with the roller 217. One portion 219 of the cam track functions during the application of pressure between the head and the buck and another portion 220 of the compound cam track 218 functions while the head and the buck are separated.

A spring 236 extends from a portion of the support arm 202 to the frame and functions in place of a counter weight to assist the separation of the head and the buck.

A spring actuated toggle mechanism 226 functions to assist the application of pressure and, with a minimum of loss, to restore the energy stored incident to the distortion of the frame portions under the stress of the applied pressure, when said pressure is relieved. Said mechanism includes the toggle mechanism 226, consisting of a connecting link member 227 pivotally connected to the radius arm 212 at 225, a bell crank toggle member 229 pivotally connected to the connecting link member at 228 and to the frame 200 at 230, and to an extension spring 232 at 231. The

spring 232 is anchored to the frame 200 at 233. This anchorage could obviously be adjustable, as shown in Figure 7.

For the initiation and actuation of the press, forces in addition to the forces stored in spring 232 are externally applied by suitable and well known means, such as a hand lever shown in Figures 5 and 6 or by a piston cylinder 240 pivotally anchored to the frame 200 and having a piston rod 241 pivotally attached to the radius arm 212 at 225.

The applicant believes that the movements of this press are obvious from the drawings, especially as the movements of the parts are indicated by dot-dash arrows. The spring 232 is prestressed but on account of the toggle and the careful generation of the compound cam 218 and the careful designing and tension of the resisting springs 206 and 236 the forces stored in spring 232 are preferably, though not necessarily, never quite enough to initiate or to actuate the head at any point of the cycle of its movement. External forces are applied by means already mentioned in just sufficient quantities to initiate and actuate the movement of the head and to apply the pressure. When these forces cease to be applied and the piston is exhausted, the spring 236 functions to open the press. Since the spring acting through the cam is preferably never enough to close the press of itself the press will open itself when external forces are no longer applied.

The applicant finds that this invention and novel arrangement of the parts will reduce the amount of applied forces necessary for the actuation of a press as much as 90%.

The description of operation of the press of Figure 8 should be read in connection with that of Figure 7.

Various presses and embodiments of my invention are described in this application and it is the purpose of the inventor to include and claim herein any obvious combination of the embodiments herein shown, such as the use of a knee or manually controlled latch 77 to 80, as shown in Figure 1, in place of the foot controlled catch 114 shown in Figure 7, or the use of a hand operating handle 61 as in Figures 1, 5 and 6 to actuate the embodiments shown in Figure 7 or 8 or the rearrangement of the simple pivotal movement shown in Figures 7 and 8 and the attendant mechanism and structure so that it might be mounted on a more table-like frame, as shown in Figures 1 and 2, with the mechanism located in part in a central housing with possibly a knee control and/or an operating handle such as 61 and/or a buck support, as shown in Figure 1, etc. In other words, the applicant does not intend to limit his invention to the embodiments shown or even to presses for fabrics but only by the broadest possible interpretation of his claims.

Inasmuch as the compound cams should be generated to suit specific actuating springs and moving parts of certain weight, etc., it is understood that the cams shown, although certain of them are taken from cams successfully proven in practice, may not be entirely accurate in the drawings. The inventor has set forth the principles effecting their generation and the drawings should be considered only suggestive of their design.

The subject matter referring to the manner of, and means for supporting the buck has been divided out into my application #14,160, filed April 1, 1935.

I claim:

1. In a press, the combination of a stationary pressing element and a pressing element mounted for movement from a separated position to a position pressing against the face of the other, a guide track to determine the path through which said movable element moves and means to shift said track to effect said movement with varying extent of frictional sliding movement of one element on the other.

2. In a press, the combination of a substantially stationary pressing element and a pressing element mounted for movement from a position separated from the other to a position contacting with the other under pressure, mounting means for both elements slightly resilient under said pressure, means to store forces to effectuate substantially the entire movement of the movable element and to effect pressure therebetween, means to conserve the potential energy stored incidental to the flexure of the resilient parts under pressure by restoring it in said means to store forces to effectuate the movement, a control to release the forces stored to effectuate the movement and means to apply forces to separate the elements and also to store forces later to effectuate the described movement of the movable element.

3. In a press, the combination of a table, pressing elements mounted thereon at least one of which is movable towards and away from the other, a mechanism to move the movable element away from the other to a point beyond the rear supports of the table, and a lever positioned in front of the table and associated with said mechanism to actuate it to separate said elements when the lever is manually depressed by the operator, thereby steadying the table against being tipped by and during the movement of the movable element away from the other.

4. In a press, the combination of pressing elements, means to move one of said elements towards the other applying pressure thereto, spring means to store a substantial portion of the forces necessary to effect said movement, means to apply said forces throughout said movement substantially in proportion to the amount of force necessary to effect said movement and supplemental means to supply additional applied forces necessary to effectuate said movement.

5. In a press, the combination of pressing elements one of which is mounted for movement, a fixed pivot about which said element moves a sufficient arcuate distance to uncover the other element, a spring having sufficient stored energy to effect the entire arcuate movement of the movable pressing element and to apply pressure thereto to press the elements together, and means to store energy in said spring.

6. In a press, the combination of pressing elements one of which is mounted for movement, a fixed pivot about which said movable element is moved a sufficient angular distance to uncover the other element, a spring having sufficient stored energy to effect the entire angular movement of one element in one direction to move one of the elements to the other and to apply pressure between the elements, a foot actuated lever effective to separate the elements and to store said energy in said spring and a means to maintain the elements in a separated relationship.

7. In a press, the combination of a bed and a head constituting pressing elements, one of said elements being mounted for movement from a position separated from the other to a position applying pressure against the other, an actuating

mechanism therefore arranged to effect said movement of said element at least in a substantial part under stored forces, said mechanism including a resilient body for storing forces applied thereto, a radius arm mounted for a turning movement under said forces, a roller mounted on the free end of said radius arm, a pivotally mounted and compoundedly curved cam for engaging the roller, and means operatively connecting said cam to the movable element for operating the same.

8. In a press, the combination of a pressing head and a buck constituting pressing elements, means for mounting the head for movement from a position separated from the buck to a contactual position with the buck, a spring stressed in response to a separation of the elements to actuate said mounting means to effect said movement of the movable element and to force the elements together under substantial pressure and means to adjust the tension of said spring.

9. In a press, the combination of a table supporting the weight of the press, an enclosing housing suspended from the table and spaced above the floor and arranged to take the stresses incident to the operation of the press, a pressing head element, a support arm for the pressing head element arranged to extend backwardly and downwardly around the back edge of said table, means associated with said housing to mount said support arm below said table, a buck element, means to connect said buck element directly with said housing to support it to take the stresses incident to the operation of the press, means located in said housing and engaging the support arm for mounting the head for movement from a position behind the buck element transversely across the buck element to a position over the buck and means in the housing to move one element towards the other applying pressure between the elements.

10. A press as claimed in claim 9, embodying a manual control on one side of said housing effective to control the moving means to apply pressure.

11. In a press, the combination of a light, sheet-metal table, a rigid frame suspended substantially centrally from under said table, a buck element substantially centrally mounted on said table and over said rigid frame, a presser head element positioned directly above the buck element when co-acting to press, a support arm for the head, means movably connecting said support arm and said centrally suspended frame and means within said housing to force the elements together.

12. In a press, the combination of a table top, supports spaced longitudinally from each other for supporting the table top at a height above the floor convenient for an operator in a conventional sitting posture, a buck supported on the table, a movable pressing head for engaging the buck, an enclosing housing suspended beneath the table top intermediate of the supports and spaced therefrom, said housing being spaced from the floor to afford foot room for the operator, and mechanism located within said housing for actuating the head, said actuating mechanism being arranged in a general transverse direction and said housing being relatively narrow, longitudinally of the press so as to permit the flexed knees of the operator to extend under the table and to straddle the housing with ease.

13. A press as claimed in claim 12, embodying manual lever means for moving the head located, longitudinally, a sufficient distance from the housing to accommodate one knee of the operator.

14. A press as claimed in claim 12, embodying a knee control located to one side of the housing to control the operation of the mechanism in the housing.

15. In a press for fabrics, the combination of a buck and a head constituting pressing elements, means for moving one of said elements away from and towards the other, and for applying pressure between the elements, comprising a spring stressed in response to movement of the movable element to release said pressure, and a compoundly curved cam for transmitting forces from said spring to said moving means more substantially in accordance with the forces required to effect the movement of one element towards the other applying pressure between the elements.

16. In a press, the combination of a table, pressing elements mounted thereon, one of which is mounted for movement towards and away from the other, a housing encasing a reversing mechanism to effect said movement, said housing being located substantially centrally longitudinally of the press, means to energize said mechanism, a knee control to one side of said housing to control the movement of said mechanism in one direction, and a manual lever to the other side of said housing to actuate said mechanism in the reverse direction.

17. In a press, the combination of a table, pressing elements mounted thereon, an operating lever pivotally mounted near the underside of said table and normally, when ready for operation, extending forward of the table, said lever being operatively associated with one of said elements to move it against and away from the other, and means to hold said lever in a position to effect an intermediate position of the movable element out of full pressure engagement with the other element.

18. In a press, the combination of pressing elements, means to move one of said elements towards the other applying pressure thereto, spring means to supply a substantial portion of the force necessary to actuate said first mentioned means, and supplemental motor means to supply the remainder of the forces necessary to effect said movement.

19. In a press, the combination of a table top, supporting legs therefor, a housing frame attached to said table top intermediate and independent of the supporting legs and spaced from the floor, a buck element, supporting means for the buck element attached to the housing frame, a pressing head element, a supporting arm therefor extending backward and downward therefrom to a point materially below the pressing elements, means to pivotally connect the lower portion of said support arm to the housing frame, and means located within the housing frame to force one element against the other to effect pressure therebetween.

20. A press, as claimed in claim 19, wherein the head is pivotally mounted to the housing frame for movement transversely of the buck element from a position over the buck element, to a position wherein the center of mass thereof is substantially rearward of the table top.

21. In a domestic ironing press, the combination of a table top having vertically extending floor-supporting means attached to the longitudinal ends thereof, leaving at least the front longitudinal side sufficiently open to accommo-

date the knees of a conventionally seated operator, for supporting the dead weight of the press, a relatively rigid frame structure attached to the underside of the table top and spaced from the floor sufficiently to furnish foot room for a seated operator, a pressing head element, a supprt arm therefor extending backward from the head element and downwardly to a point materially below the head, a buck element connected with the frame structure to transmit forces thereto, means supported from the frame structure for moving one of said elements towards the other to apply pressure therebetween, and means for securing the pressing head element to the frame structure whereby pressing forces exerted between the elements are mainly received by said frame structure independently of the table top supporting means.

22. In a domestic ironing press, the combination of a table top having vertically extending floor-supporting means attached to the longitudinal ends thereof for supporting the dead weight of the press, a relatively rigid housing and frame structure attached to the underside of the table top, a pressing head element, a support arm therefor extending backward from the head element and downwardly below the table top, a buck element connected with the frame structure to transmit forces thereto, means supported from the housing and frame structure for moving one of said elements towards the other, and means for securing the pressing head element to the housing and frame structure whereby pressing forces exerted between the elements are mainly transmitted by said housing frame structure.

23. In a press, the combination of a substantially stationary pressing element and another pressing element mounted for a closing movement from a position separated from the other to a position contacting with the other under pressure, mounting means for at least one of said elements slightly resilient under said pressure, means to store forces to facilitate substantially the entire closing movement of the movable element and to apply substantial pressure between the elements, and means to transfer potential energy stored in the mounting means incidental to its flexure to said means to store forces when the pressure is being relieved and the mounting means is returning to its normal condition.

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