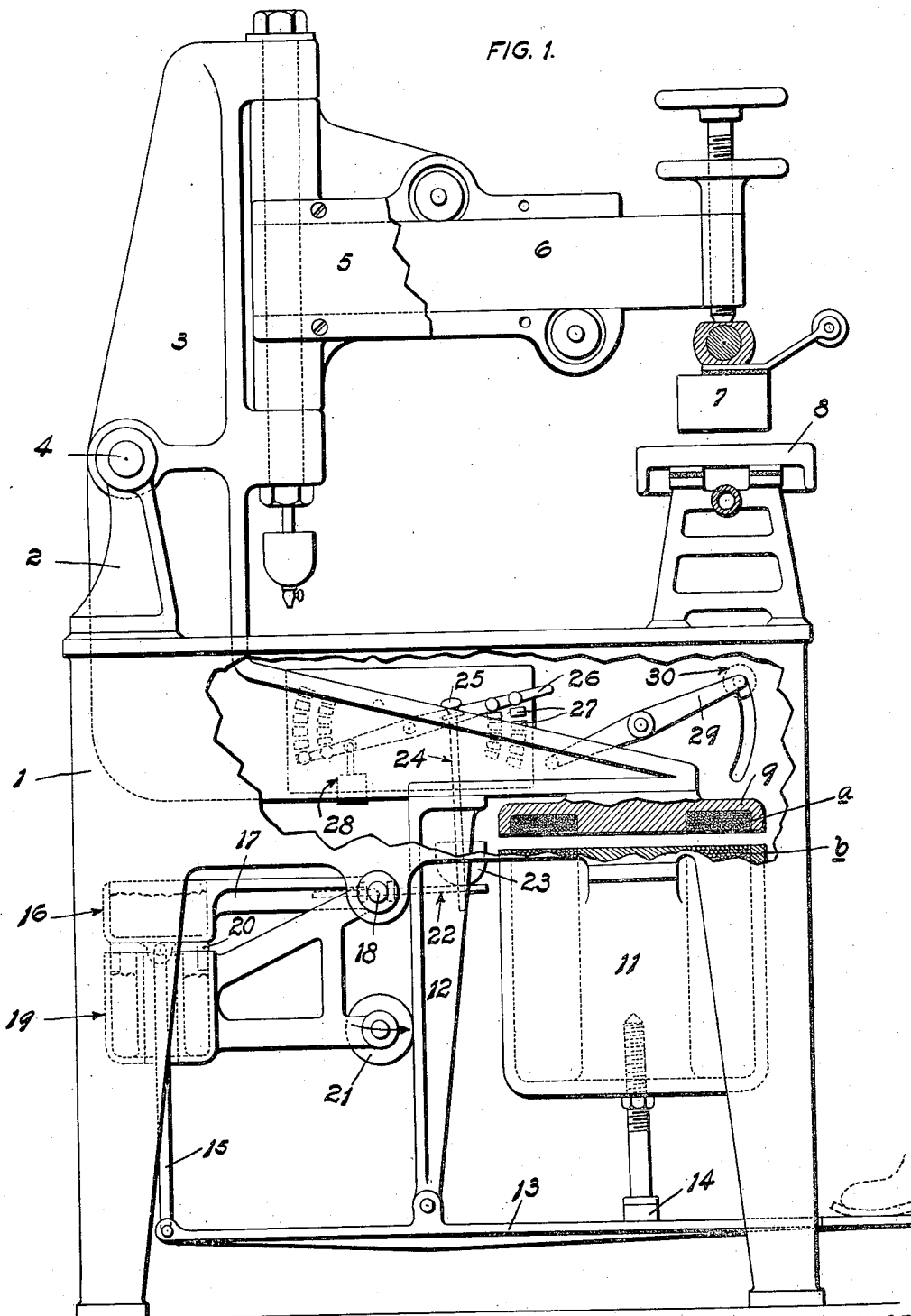


H. K. KOUYOUMJIAN.
PRESS.
APPLICATION FILED JAN. 29, 1910.

1,055,544.

Patented Mar. 11, 1913.

3 SHEETS—SHEET 1.



WITNESSES
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F. W. Harrington.

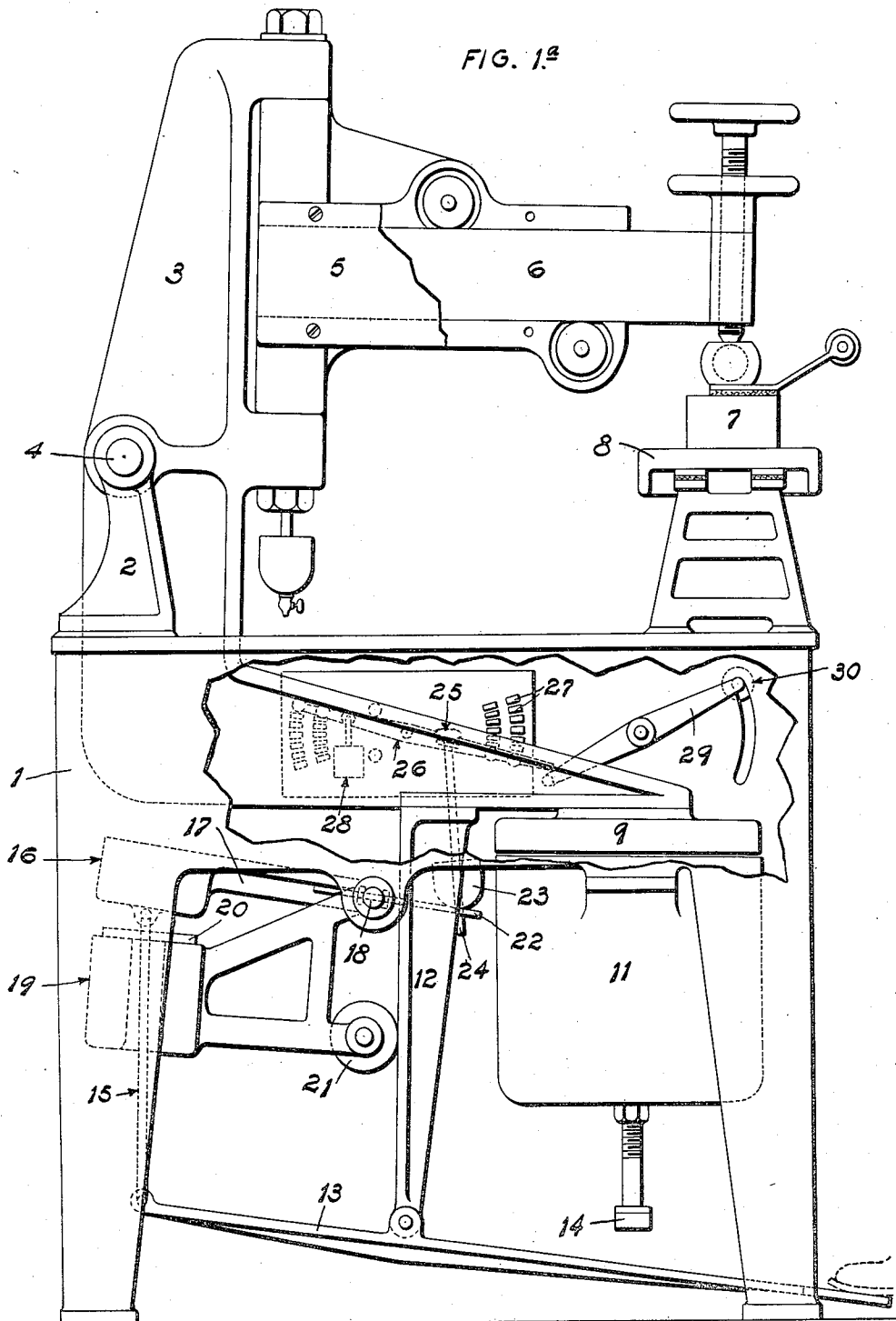
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3 SHEETS—SHEET 2.



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3 SHEETS-SHEET 3.

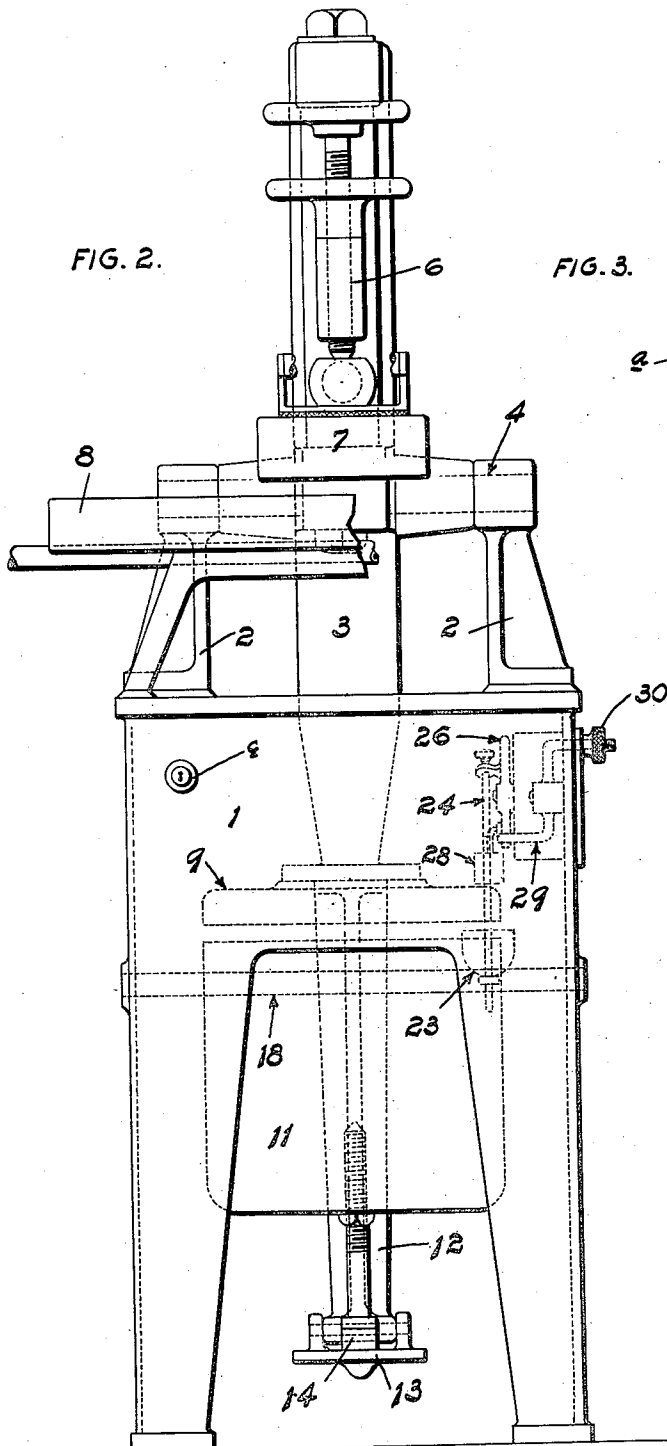
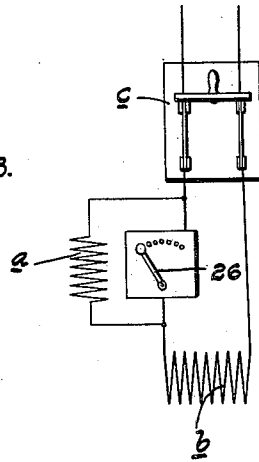


FIG. 3.



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UNITED STATES PATENT OFFICE.

HAROUTIUN K. KOUYOUMJIAN, OF ST. LOUIS, MISSOURI.

PRESS.

1,055,544.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed January 29, 1910. Serial No. 540,820.

To all whom it may concern:

Be it known that I, HAROUTIUN K. KOUYOUMJIAN, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Presses, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view, partly in section, of my improved press. Fig. 1^A is a similar view showing the parts in their changed positions. Fig. 2 is a front elevational view. Fig. 3 is a diagrammatic view of the electric circuit.

This invention relates to a new and useful improvement in presses.

In the drawings I have shown my improvement as applied to a clothes pressing machine, in which there is an iron capable of being subjected to variable pressures, but it is obvious that in lieu of an iron, a cutting die could be employed for cutting out various material, such as leather, for parts of shoes, cloth, cotton goods, linens, and other parts entering into manufactured articles.

The object of my present invention is to construct a press in such manner that the variable pressure is exerted by an electromagnet under control of the operator, the main lever cooperating with overbalancing weights in such manner that it may move to place the iron, die, etc., into and out of operative position, independently of the influence of said magnet.

In the accompanying drawings, 1 indicates a supporting frame having standards 2, between which standards is pivoted a main lever 3 upon a shaft 4.

5 is an arm swingingly mounted upon a vertical pivot in the upper end of arm 3, said arm carrying a telescoping member 6, upon the outer end of which is the iron, die, or the like, 7.

8 is the work table on which the cloth is placed to be ironed, cut, etc.

The lower end of lever 3 extends forwardly and carries an armature disk 9, in which is arranged a magnetizing high resistance coil *a*.

11 is an electromagnet secured in position

within the frame 1, and which, when energized, attracts the armature 9 and operates the main lever.

12 is a bracket extension on the forwardly extending foot of the main lever 3, said bracket extension having a foot lever 13 mounted in its lower end, the forward end of which foot lever is provided with a treadle on which the operator may place his foot. An adjustable rubber buffer 14 limits the upward movement of the foot lever. A link 15 is connected to the rear end of the foot lever and to a box 16 constituting a weight, said box being upon the end of a lever 17 which is mounted upon a fulcrum rod or shaft 18.

Box 16 is preferably filled with shot, so that its weight may be varied. Primarily, weight 16 serves as an overbalance for the lever 13, lifting the forward end of said lever, as shown in Fig. 1. Secondly, weight 16 cooperates with a weight 19 in the form of a box containing shot and both together overbalance the main lever 3.

Weight 19 is preferably immediately under weight 16 and provided with a rubber buffer ring 20. Weight 19 is pivotally supported upon the shaft 18, and is provided with a frame extension in which is mounted a roller 21, said roller bearing upon the rear face of the bracket 12. Weight 19 tends to move the roller 21 in the direction of the arrow against the bracket 12, and this movement lifts the foot of the main lever and tends to raise the tool 7.

When the parts are in the position shown in Fig. 1, the tool 7 is elevated, and when the operator depresses the forward end of lever 13, the first action is to swing the main lever 3, and the bracket 12 rearwardly, thus raising the weights 19 and 16. Further pressure of the foot lever 13 causes the weight 16 to leave the weight 19, which movement actuates the rheostat and cuts in the current. The tool end of the main lever, with weight 16 removed, overbalances weight 19. When the operator removes his foot from the lever 13 and permits weight 16 to descend, it will engage weight 19 and the combined weights 16 and 19 will overbalance the tool end of the main lever and raise said tool end.

When the operator raises weight 16 to permit the tool end of the main lever to descend, lever 17 causes the shaft 18, to which

it is fixed, to rock, and a rod 22 on said shaft has its forward end depressed beneath a weight 23 on the lower end of a rod 24. Rod 24 preferably passes through an opening in the forward end of rod 22, so that it is guided in its movement. Rod 24 has a head 25 on its upper end, and after tool 7 rests upon the material to be operated upon, the head 25 engages a rheostat arm 26, causing it to move over the contact points 27. This movement cuts resistance out of the circuit in which the main magnet is included, and said magnet is incrementally energized. There is slight lost motion between the rod 24 and the rheostat arm 26.

The extent of movement of the rheostat arm is directly under control of the operator through the foot lever 13, hence the operator can apply as little or as much pressure on the tool 7 as desired. I have found that four thousand pounds is sufficient pressure to apply to the tool 7 for ordinary purposes, but it is obvious that this pressure can be increased by making the magnet 11 more powerful. The rheostat arm 26 is provided with a weight 28, which will return said rheostat arm so as to cut in resistance when the forward end of the foot lever is raised. Weight 28 is, of course, overbalanced by weight 23 when the foot lever is depressed.

29 is a stop lever, having its inner end in the path of movement of the rheostat arm 26 and its other end extending through a slot in the frame 1, where it is provided with a milled nut 30 by which it may be locked in adjusted positions. By adjusting this lever 29, the rheostat arm may be arrested at any desired point so that the maximum limit of pressure may be predetermined. For instance, if magnet 11 is sufficiently powerful to exert four thousand pounds pressure on the tool 7, and it is desired to exert not more than two thousand pounds pressure on said tool, then the lever 29 would be adjusted in the proper position to arrest the rheostat arm when sufficient resistance is cut out of the circuit to energize the magnet 11 the proper amount. Thus, it is not necessary for the operator to hold the foot lever 13 stationary to maintain two thousand pounds pressure on the tool 7. The operator can depress the forward end of the foot lever to the full limit, but the arrest of the rheostat arm will not permit the magnet 11 to be energized by more than the necessary amount of current to give the desired pressure.

Magnet 11 becomes magnetically saturated, and its action in releasing the armature is tardy. To overcome this saturation so that magnet 11 will let go instantly, I arrange a high resistance coil *a* in the armature 9, which, when energized, repels the core of magnet 11; and not only neutralizes

the magnetic saturation referred to, but by such repulsion assists to separate the armature and the magnetic core. To accelerate this release of the armature the jar or impact of the weight 16 on the weight 19 is utilized, and when such jar or impact takes place the armature 9 will be suddenly moved or "kicked" off the magnet 11.

In Fig. 3, I have shown the electric circuit, in which it will be seen that the high resistance coil *a* is in circuit when the rheostat resistance cuts out the coil *b* of the main magnet. When, however, the rheostat arm 26 cuts down the resistance, the current will flow into coil *b*, because there is less resistance in said coil *b* than in coil *a*. Thus, as the arm cuts down the resistance to the current flowing in coil *b*, the current by the high resistance in coil *a* is automatically cut out of said coil *a*. There is an ordinary hand-switch *c* in the circuit whose purpose is well understood.

As shown in Fig. 1^A the weight 16 is raised above the weight 19. Weight 19 is partially arrested in its upward movement when the tool 7 contacts with the material to be operated upon, and the continued movement of the weight 16 in an upward direction causes the rheostat arm to operate, thus the operator has control of the rheostat arm independently of any movement of the main lever. When the operator raises his foot to release the foot lever, the first action is to cause the weight 16 to strike the weight 19, and a jar is imparted to the armature 9 which causes the magnet 11 to lose its magnetic saturation, and provides for a quick separation of the armature and magnet.

I do not in this application claim the electrical features disclosed, as the same form the subject-matter of a separate application.

I claim:

1. In a machine of the character described, the combination of a main lever having a tool at one end, a plurality of weights for moving said lever in one direction, and means for moving one of said weights whereby said lever moves in the other direction.

2. In a machine of the character described, the combination of a main lever, a plurality of weights for overbalancing the same, means for operating one of said weights to unbalance said main lever, and a controlling device operated by said means for exerting pressure upon said main lever when it is unbalanced.

3. In a machine of the character described, the combination of a main lever, a plurality of independently controlled weights for overbalancing the same, and means for exerting a variable pressure in opposition to said overbalancing weights.

4. In a machine of the character described, the combination of a main lever, overbalancing weights for the same, means for exerting variable pressure on said lever
5 for moving the same in opposition to said overbalancing weights, and manually operable means connected to one of said overbalancing weights for varying the pressure in said pressure-exerting means.

10 5. In a machine of the character described, the combination of a main lever, weights for overbalancing the same, means for exerting variable pressure on said main lever in opposition to said weights, and
15 manually operable means for relieving the main lever of one of said overbalancing weights and at the same time increasing the opposing pressure.

20 6. In a machine of the character described, the combination of a main lever, a plurality of weights for overbalancing the same, said weights being variable, and means for moving one of said weights whereby the main lever is actuated.

25 7. In a machine of the character described, the combination of a main lever having a tool at one end, a plurality of weights for moving said lever in one direction, said weights being in the form of cups
30 whereby variable quantities of material may be introduced therein, and means for moving

one of said weights whereby the main lever moves in the opposite direction.

8. In a machine of the character described, the combination of a main lever, 35 a plurality of weights for overbalancing the same, means for operating one of said weights to actuate said main lever, and a controlling device operated by said means for exercising a variable pressure upon said 40 main lever when it is actuated.

9. In a machine of the character described, the combination of a main lever, a weight for exerting pressure thereon, means for exerting a variable pressure upon 45 said main lever, a supplemental weight, which, in certain positions, assists in overbalancing said main lever, manually operable means connected to said supplemental weight for initially actuating the main lever, 50 and means operable by said manually operable means for controlling the variation of pressure upon the main lever by said pressure exerting means.

In testimony whereof I hereunto affix my 55 signature in the presence of two witnesses, this 27th day of January, 1910.

HAROUTIUN K. KOUYOUMJIAN.

Witnesses:

M. P. SMITH,
E. M. HARRINGTON.