H. K. KOUYOUMJIAN.

CLOTH PRESSING MACHINE.

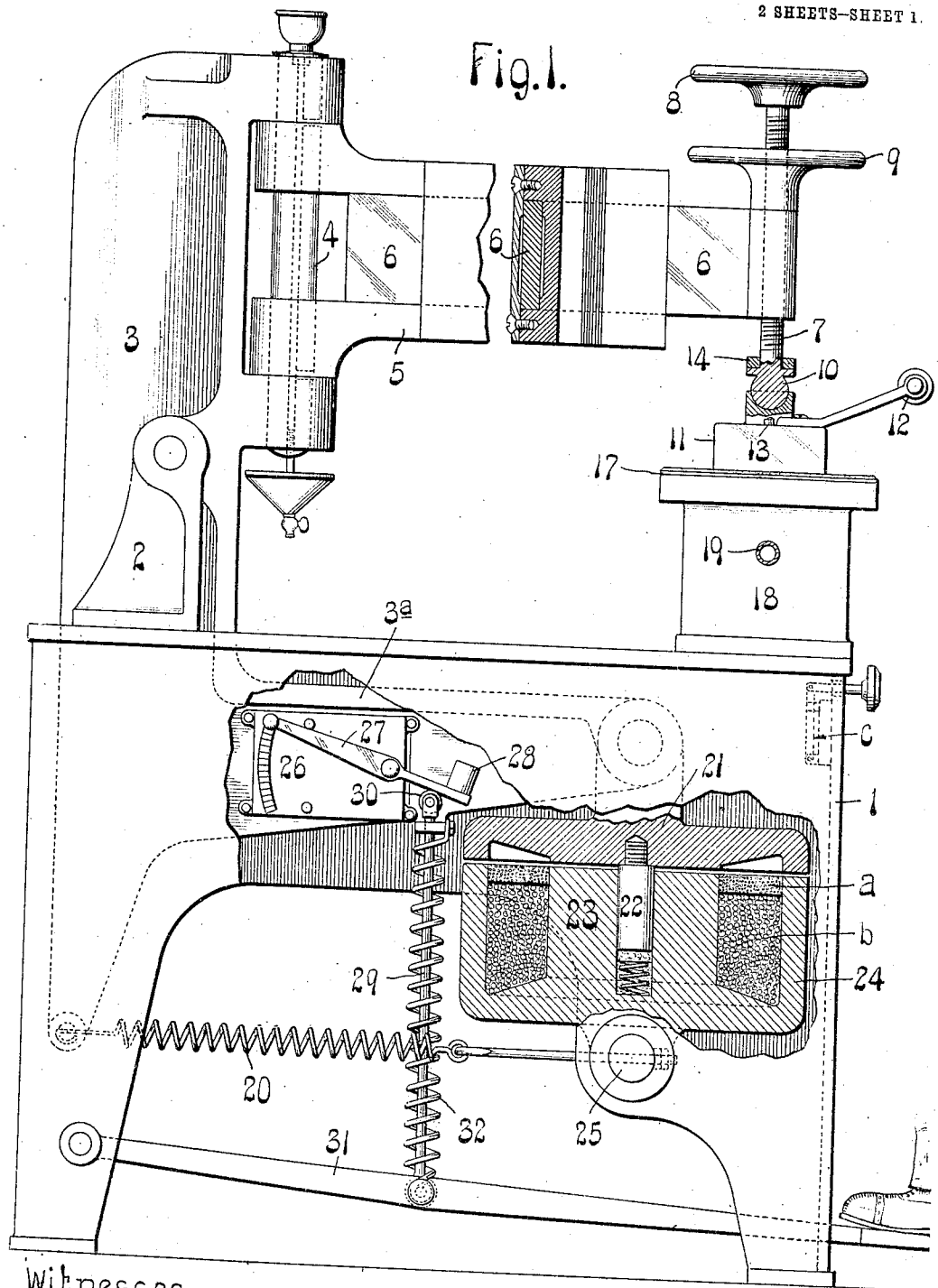
APPLICATION FILED DEC. 26, 1908.

1,024,483.

Patented Apr. 23, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2

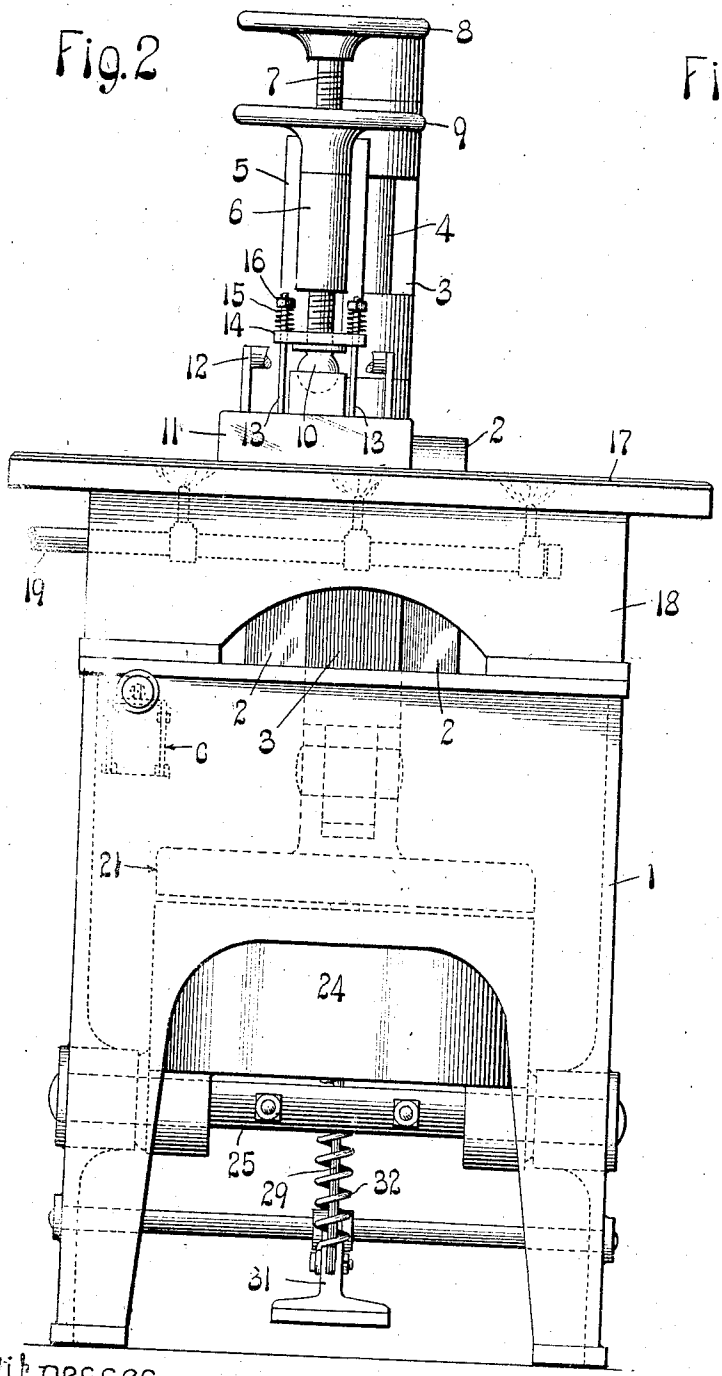
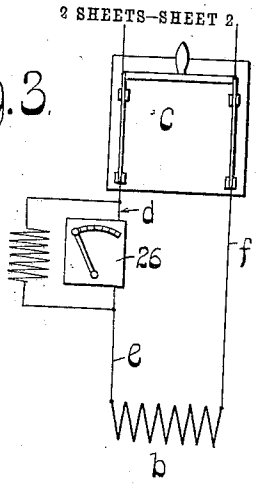


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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

CLOTH-PRESSING MACHINE.

1,024,483. Specification of Letters Patent. Patented Apr. 23, 1912.

Application filed December 26, 1908. Serial No. 469,344.

To all whom it may concern:

Be it known that I, HAROUTIUN K. KOUYOUMJIAN, a subject of the Sultan of Turkey, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Cloth-Pressing Machines, 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 of my improved cloth-pressing machine, partly in vertical section; Fig. 2 is a front elevational view; and Fig. 3 is a diagrammatic view of the magnet circuit.

This invention relates to a new and useful improvement in cloth-pressing machines, the object being to utilize an electro-magnet whose energy is exerted to press the sad iron upon the smoothing board.

Means are provided for regulating the flow of current to the electro-magnet, whereby its energy may be increased or decreased at the will of the operator. Means are also provided to neutralize the residual magnetism of the core of the magnet, whereby its action will be quickly responsive.

With these objects in view, the invention consists in the construction, arrangement and combination of the several parts of my device, all as will be hereinafter described and afterward pointed out in the claims.

In the drawings, 1 indicates a base casting or support substantially in the form of a table on which are arranged brackets 2 constituting bearings for a vertically arranged lever 3. The upper end of lever 3 is provided with perforated lugs or ears for receiving a vertically disposed pintle 4 on which is pivotally mounted, so as to swing horizontally, an arm 5 telescopically connected with a bar 6 slidingly housed therein, and in whose outer end is arranged a screw 7. A hand wheel 8 is provided whereby screw 7 may be turned and adjusted vertically with respect to the arm 6.

9 is a jam nut having a hand wheel extension for locking the screw 7 in its adjusted position.

10 is a ball-head on the lower end of screw 7 which fits in a semi-spherical socket in a boss extending up from the sad iron 11.

12 is a handle extending from the sad iron by which the same may be manipulated. To hold the sad iron up against the ball 10, two or more vertically disposed rods 13 extend up from the sad iron (see Fig. 2), and pass through a yoke plate 14 which embraces the screw 7. Springs 15 are interposed between the yoke plate and the nuts 16 on the upper ends of the rods 13. By this construction the sad iron may be yieldingly held in engagement with the ball 10, and the pressure of the sustaining springs regulated at will. This yielding ball and socket connection permits the sad iron to accommodate itself to seams and other irregularities which may be present in the cloth being pressed.

The smoothing board preferably consists of a copper sheet 17 secured on top of a cast iron heating box 18.

19 is a supply pipe for the gas, where gas is employed as a heating medium, said pipe 19 being connected to burners shown in dotted lines in Fig. 2. It is of course obvious that electricity may be used as a heating medium if desired.

The use of a copper smoothing board is preferred by me on account of its heat-conducting property. I have found that a more uniform heat can be maintained over the surface of a copper smoothing board than any other available metal.

The lower end of lever 3 is connected to two or more springs 20 whose tension is made adjustable by the nuts on the eye bolts to which they are connected, said eye bolts being connected to a cross shaft 25 as shown in Fig. 1, said springs being of such strength that they tend at all times to hold the sad iron 11 above and away from the smoothing board 17.

3ª indicates an arm extending forwardly from the lower end of lever 3, to whose extremity is pivotally suspended an armature disk 21, said armature disk having preferably a brass post 22 depending therefrom and engaging an opening in the core 23 of the electro-magnet which post acts to guide

the armature in its movement toward and from the magnet. This magnet core 23 is surrounded by a cup-shaped flange 24, between which and the core are arranged the coils of the magnet. The magnet, constituting the core and its coils, is pivotally mounted on a cross shaft 25. The arm 3^a carries a rheostat 26 whose arm 27, which coöperates with the resistance terminals, is over-balanced by a weight 28 (see Fig. 1), which weight tends at all times to move the arm 27 so as to cut out all resistance from the magnet windings.

29 is a rod having a roller 30 at its upper end, which roller is arranged under the weighted end of the rheostat arm. This rod is pivotally connected at its lower end to a foot lever 31. A tension spring 32 is connected to the arm 3^a and to the foot lever and tends to hold said foot lever and roller 30 elevated at all times, in which elevated position all the resistance of the rheostat is cut into the magnet circuit. The upper end of rod 29 passes through a perforated lug on the arm 3^a, which guides the said rod in its movement. The rod slides freely through this perforated lug, and when pressure is released from the foot lever, the spring 32 will cause said foot lever to rise and lift the rod so that the weighted end of the rheostat arm will be elevated. When the foot lever is depressed the rod 29 is drawn down and coincidentally therewith the spring 32 is placed under tension so as to move the main lever 3, causing the said iron 13 to be lowered against the goods. The armature 21 will be caused to approach the magnet so as to reduce the air gap between the armature and said magnet, and consequently the armature is subjected, by virtue of its proximity to the magnet, to a strong magnetic influence.

In operation, the cloth to be pressed is arranged in position on the pressing "board", and the "iron" adjusted over the starting point. The operator then depresses the foot lever, and the upper end of lever 3 is rocked forward. The tension of the spring 32 normally holds the rod 29 elevated and consequently the weighted end of the lever 27 is elevated and when the foot lever is depressed, the spring 32 is expanded and the rod 29 is lowered, thus permitting the weighted end of the lever 27 to move downward while the opposite end of said lever is elevated thereby cutting out the resistance offered by the rheostat, and directing the current through the main coil of the magnet. In this manner the initial depression of the foot lever 31, by virtue of the strength of spring 32, will unbalance the main lever, and cause the iron to be gently brought into contact with the cloth to be pressed without disturbing the position of the rheostat arm which, during this unbalancing movement of the main lever, resulting from the initial depression of the foot lever, will remain in position to cut in all of the resistance. When the movement of the main lever is arrested by bringing the iron into contact with the cloth, then a continued depression of the foot lever will expand the spring 32, and draw the rod 29 downwardly with respect to the main lever, which downward movement of rod 29 will lower the supporting roller 30 with respect to the pivotal point of the rheostat arm, and permit the weighted end of said arm to move downward gradually, cutting out the resistance. The operator may, by the position of the foot lever, thus control the amount of current admitted to the magnet, after the iron is on the cloth, and when the foot lever is released the resistance is first cut in so as to reduce the magnetism, after which the main lever, being over balanced, moves to its normal position, and lifts the iron from the cloth, and raises the foot lever. The lower the foot lever is depressed, the more resistance is cut out, and consequently the magnet becomes stronger until it reaches its maximum value. The armature disk on the forward end of the arm 3^a is located in the magnetic field and is consequently influenced by being attracted to the magnet, and considerable pressure may be exerted on the "iron" 11. The operator has the amount of pressure exerted on the iron directly under his control, and this pressure may be regulated according to the position of the foot lever. To cut out the magnetic pressure it is only necessary to release the foot lever and permit it to rise under tension of spring 32 so as to effect the elevation of the weighted end of the rheostat lever. In this manner, resistance is cut into the magnet circuit and the further upward movement of the foot lever permits the springs 20 to exert their energies in lifting the "iron" from the "board."

In order to neutralize the residual magnetism of the core of the magnet and to avoid a tardy release of the armature disk from the zone of influence of the magnet resulting from such retained saturation, after the resistance is cut into said circuit, I arrange a high resistance coil *a* on the core 23, which high resistance coil is wound in a direction opposite that of the main coil *b* of the magnet, which latter coil is composed of heavier wire.

c is a switch in the main line circuit for cutting in and cutting out current to the magnet circuit. The current enters the magnet circuit through wire *d* which is connected to one post of the rheostat 26. A wire *e* leads from the other post of the rheostat through the main coil *b* of the magnet, and thence by wire *f* of the magnet to the return wire of the main line circuit. The

high resistance coil *a* is in parallel with the rheostat. This high resistance coil being in circuit at all times, prevents any sparking at the terminals with which the resistance arm coöperates, and being in parallel with said rheostat will offer the path for a small portion of the current, the amount of which, passing through the high resistance coil, is determined by the amount of rheostatic resistance cut in the magnet circuit. For instance, normally all of the rheostatic resistance is cut into the magnet circuit and the high resistance coil is energized to its maximum. The armature disk, however, being elevated away from the core of the magnet will, on account of the wide air gap, not be influenced by any magnetic lines of force which might be generated on account of this high resistance coil. In starting the machine, however, the rheostatic resistance is cut out of the magnet circuit and as the main winding *b* of the magnet is wound in the opposite direction it will take comparatively few counter-magnetic lines of force to neutralize the high resistance coil *a*. Then, as more rheostatic resistance is cut out, the main coil *b* becomes more powerfully energized, and the magnet becomes stronger. In cutting in rheostatic resistance in the main magnet winding *b*, the reverse is true. The coil *b* becomes gradually weaker until its value is encountered by the high resistance coil, and when the greatest amount of rheostatic resistance is cut in, the resistance coil attains its maximum value, which is utilized to neutralize the tendency of the core 23 to retain the magnetic saturation resulting from the energization of the main coil *b*. In this way, there is no lag or tardy release of the armature disk, and consequently the machine is thus made sensitive and instantly responsive to the will of the operator.

Appropriate means for lubricating the joints of the moving parts is provided, such, for instance, as arranging an oil cup above and a drip cup under the pintle 4, and a spring-pressed, oil-saturated disk under the non-magnetic post 22 which fits loosely in the opening, constituting an oil well, in the core so as to sustain the magnet in its upright position.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a machine of the character described, the combination of a pivotally supported main lever, a horizontally swinging extensile arm mounted thereon, a vertically adjustable member mounted on the end of said arm, means for locking said vertically adjustable member in adjusted position, a sad iron connected to the lower end of said vertically adjustable member by means of a ball and socket joint, and a resilient connection between said member and said sad iron on each side of said joint.

2. In a cloth pressing machine, the combination with a pivotally supported main lever, of a horizontally swinging arm carried thereby, a vertically adjustable member mounted on said horizontally swinging arm, a sad iron, the lower end of said member and said iron being connected through a ball and socket joint, and a resilient connection between said member and said iron, comprising a plate on the member, studs attached to the said iron passed through holes in the plate, and springs interposed between nuts on the studs, and the plate.

3. In a cloth pressing machine, the combination of a main lever and its carried sad iron, pivotally mounted means for exerting variable pressure upon said main lever, manually operable means for controlling the variation of said pressure, said manually operable means being yieldingly connected to said main lever whereby when it is operated it exerts an overbalancing pressure upon the main lever before said manually operable lever reaches a position to control the variable pressure upon said main lever.

4. In a machine of the character described, the combination with a main lever, of means for exerting a variable pressure upon said main lever, and manually operable means yieldingly connected to said main lever for controlling the variation of said pressure whereby, when said manually operable means is operated to increase the presure on the main lever through said first mentioned means, its initial movement will exert an independent pressure on the said main lever.

5. In a machine of the character described, the combination with a main lever, of means for exerting a variable pressure upon said main lever and manually operable means for controlling the variation of said pressure, said manually operable means, when operated to increase said pressure, exerting an auxiliating pressure upon said main lever.

6. In a machine of the character described, the combination with a main lever, of means for exerting a variable pressure upon said main lever and manually operable means for controlling the variation of said pressure, said manually operable means being yieldingly connected to said main lever for controlling the variation of said pressure whereby, when said manually operable means is operated to reduce pressure on the main lever through said first-mentioned means, its individual pressure on said main lever will likewise be decreased.

7. In a machine of the character described, the combination with a main lever, means for exerting variable pressure on said main lever, other means opposed to said variable pressure for moving said main lever in an

opposite direction, means for controlling the variation of pressure on said main lever, and manually operable means connected to said main lever for moving the same and operating said variable pressure controlling means after the main lever has been moved.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this twenty third day of December 1908.

HAROUTIUN K. KOUYOUMJIAN.

Witnesses:
F. R. CORNWALL,
GEORGE BAKEWELL.