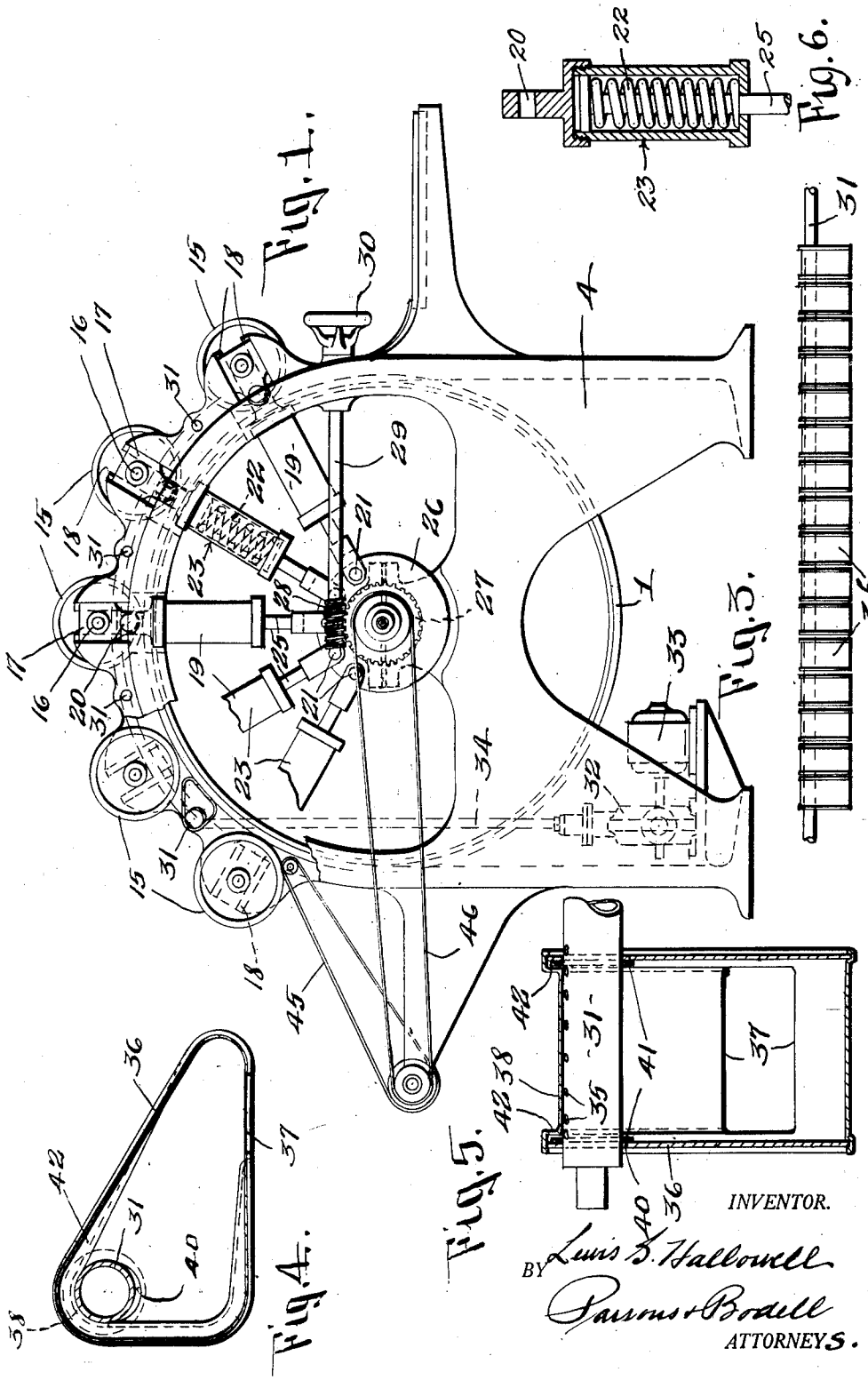
Sept. 11, 1928. 1,683,612

L. S. HALLOWELL

IRONING MACHINE

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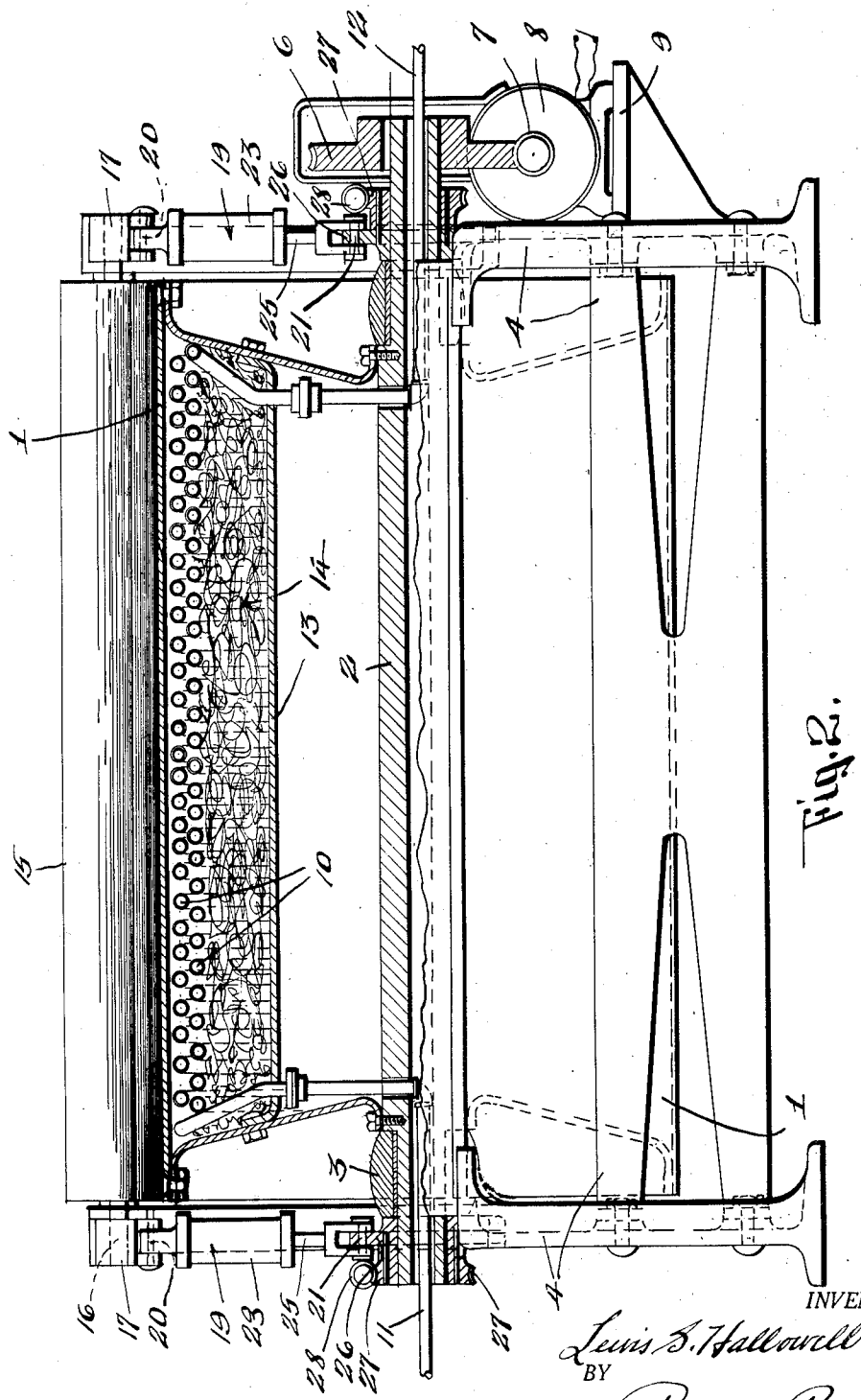


Fig. 2.

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UNITED STATES PATENT OFFICE.

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IRONING MACHINE.

Application filed February 20, 1926. Serial No. 89,784.

This invention relates to ironing machines, particularly that class of ironing machines known as flat work ironers, and has for its object a flat work iron which is particularly simple in construction, economical in manufacture, and highly efficient and durable in use, and also in which adjustments are readily made, lint, moisture, dust, etc., removed from the work while being ironed.

Other objects appear throughout the specification.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawings in which like characters represent corresponding parts in all the views.

Figure 1 is a side elevation of a flat work iron embodying my invention.

Figure 2 is a front elevation, partly in section.

Figure 3 is a detail view of the suction means.

Figures 4 and 5 are enlarged detail views taken at an angle to each other of one of the suction nozzles and the contiguous part of the suction pipe.

Figure 6 is a detail view of the sectional link connected to each of the pressure rolls.

This machine comprises, generally a base for conveying the work, rolls cooperating with the face of the base, means for adjusting the pressure of the rolls and suction means for removing dirt, lint, moisture, etc., arranged to be controlled in its operation by the work passing under the nozzles of the suction means so that the suction only takes place through the particular nozzles engaged with the work. Some of the foregoing features may, however, obviously be omitted.

The base for carrying the work is here shown as a drum movable about an axis, this drum being internally heated.

1 designates the drum having a hollow axle 2 journaled in bearings 3, in a suitable frame 4, the drum being rotated in any suitable manner as by a driver mounted on one end of the axle 2, the driver being here shown as a worm wheel 6 which meshes with a worm 7 on the shaft of an electric motor 8 mounted on a bracket 9 at one end of the machine.

The drum is heated by coils 10 located within the drum near the peripheral wall thereof, one end of the coil being connected to an inlet pipe 11 extending through one end of the hollow axle 2, and the other end of the coil to an outlet pipe 12 extending out through the other end of the hollow axle. As here shown a double coil is used for producing the maximum heating of the surface of the drum. The coil is located within an annular heat insulated chamber formed by an inner drum 13, heat insulating material 14 as some asbestoes composition, being placed in the inner drum to confine the heat of the coils to the periphery of the drum.

15 are the rolls coacting with the periphery of the drum, these rolls being adjustable toward and from the periphery of the drum and each being here shown as having axles 16 at its ends journaled in a bearing box 17 slidable in suitable ways or guides 18 formed in the frame 4 of the machine, these ways extending toward the axis of the drum, and preferably radially relatively to the axis of the drum.

The pressure of the rolls are varied by means common to all of the rolls or means acting on all the bearing boxes at each end of the drum for moving them radially as seen in Figure 1. A link 19 is pivoted at 20 to the bearing box 17 at each end of the roll, this link extending inwardly on the outside of the frame toward the axis of the drum 1 and being pivoted at 21 at its inner end to an adjusting member mounted on the axle 2. Each link includes a spring 22. Each link is composed of sections, the sections including an intermediate cylinder 23 in which the spring is located, the cylinder having a head at its outer end pivoted at 20 to the bearing box 17, a head or spring abutment slidable in the cylinder and the stem 25 connected to the head and extending through the inner head of the cylinder 23 and pivoted at 21 to the adjusting member 26, the spring being located between the spring abutment and the head at the inner end of the cylinder.

All the links connected to like ends of the rolls are operated simultaneously by means for turning adjusting members about the axis of the drum. Each adjusting member is here shown as a disk 26 mounted on the axis of the drum, and a worm 27 rotatable with the disk. The operating means comprises a worm 28 which meshes with the worm gear 27, the worm 28 is

mounted upon a shaft 29 suitably journaled in the frame and having a handle wheel 30 at the front end of the frame. There is operating means 30 including the hand wheel shaft 29, worm 28, worm wheel 27, etc., at each end of the frame so that the opposite ends of the roll are adjustable independently of each other toward and from the periphery of the drum.

The suction means includes a suction pipe extending transversely of the periphery of the drum, and a nozzle mounted on the pipe and arranged to establish communication with the pipe when the nozzle is shifted by the work passing on the drum under the nozzle. Preferably a series of nozzles are arranged side by side on the pipe so that the suction can occur only in the nozzles coacting with the work and hence a more effective suction obtained, or rather some of the nozzles do not work idly. Preferably there is a plurality of suction pipes located between or alternately with the rolls.

31 designates the suction pipes extending transversely of the periphery of the drum and suitably supported in the frame 4, these pipes being connected to a suitable suction creating device as an exhauster 32 actuated by the motor 33, the exhauster being connected by the pipe 34 to a header pipe communicating with the suction pipes 31. The suction pipes are provided with inlet openings 35 along the length thereof and the nozzles 36 are shown as hollow boxes mounted on each pipe 31 to move relatively thereto and to normally close the inlets 35, the boxes having slots 37 in their bottoms through which the lint, moisture and dust is drawn.

The inlets 35 are arranged in the upper side of the pipe 31 and each nozzle 36 has a wall 38 normally covering or closing said inlets 35 when the nozzle is resting upon the working surface of the drum. However, each nozzle 36 is mounted to shift relatively to the pipe 31 so as to lift the wall 38 off the inlet pipes 35 to establish communication between the nozzle and the suction pipe 31, such lifting being effected by the work on the drum passing under the nozzle. As here shown each nozzle 36 which, as before stated, is in the form of a box is formed with openings through which the suction pipe 31 extends, the openings being elongated in a radial direction relatively to the drum so that when the nozzle 36 is pushed upwardly it can lift its wall 38 off from the inlets 35.

40 designates the elongated opening in each end wall of the nozzle 36, through which opening the pipe 31 extends. In order to seal the joint between the nozzle and the pipe where the pipe passes through the end walls of the nozzle, a suitable washer or packing disk 41 is located, this disk fitting the pipe and closing the opening 40 so that the suction inside of the nozzle does not draw through the openings 40 along the pipe 31. The nozzles 36 are capable of a slight axial shifting movement, that is they are floatingly mounted on the pipe 31, and the discs 41 slide along the pipe 31 with the nozzles. They are located between the end walls of each nozzle and the wall of an annular channel 42 provided along the margin of each nozzle 35. The construction of the nozzle box itself forms no part of this invention. Obviously, although the exhauster 32 is running continuously the suction will not be active, except when the work is passing under the nozzles and then the suction is effective only through the nozzles actively engaged with the work.

The machine is provided with suitable feeding or conveyor belts 45 actuated from the driving axle of the drum in any suitable manner as by a belt 46.

In operation the tension of the rolls can be readily adjusted by turning the hand wheels 30 and thus moving the rolls radially relatively to the drum and the drum is economically heated through the double coils 10 located in a heat insulating chamber and during the passage of the work over the drum moisture and dirt, etc., are removed therefrom by the nozzles.

What I claim is:

1. In an ironing machine the combination of a movable base member for carrying the work, a suction nozzle extending transversely of the working face of the base member, a suction pipe on which the nozzle is mounted having an inlet into the nozzle, said nozzle having a closure normally closing the inlet, and arranged to be moved to open the inlet by the shifting movement of the nozzle effected by the work passing under the nozzle.

2. In an ironing machine the combination of a movable base member for supporting the work, a suction nozzle normally arranged to rest on the base member and being moved off the same by the work on the base member, a suction pipe on which the nozzle is mounted, the suction pipe having inlet into the nozzle and the nozzle being movable relatively to the suction pipe and being normally arranged so that it closes the inlet and opens the inlet when shifted by the work passing under the nozzle.

3. An ironing machine comprising a base for carrying the work, a suction pipe extending transversely of the base and having an outlet through its periphery, a nozzle mounted on the suction pipe to rock about the same and normally resting on the base, the nozzle having a cover portion for closing the inlet into the suction pipe, and said nozzle being mounted on the suction pipe to be moved relatively thereto by the work carried by

the base under the nozzle and to shift said cover portion to remove said inlet.

4. In an ironing machine the combination of a base for carrying the work, a suction pipe extending transversely of the working face of the base and having a plurality of inlets spaced apart throughout its length, a plurality of nozzles mounted on the pipe and normally closing said inlets, the nozzles being mounted on the pipe to move transversely of the axis of said pipe and the nozzles also having closure means for normally closing the inlets and arranged to uncover and open the inlets when the nozzles are moved relatively to the pipe by the work passing under the nozzles.

5. In an ironing machine the combination of a base for carrying the work, a suction pipe extending transversely of the working face of the base and having a plurality of inlets spaced apart throughout its length, a plurality of nozzles mounted on the pipe and normally closing said inlets, the nozzles being mounted on the pipe to move transversely of the axis of said pipe and the nozzles also having closure means normally closing the inlets and arranged to uncover and open the inlets when the nozzles are moved relatively to the pipe by the work passing under the nozzles, each nozzle being in the form of a box having an opening through which the pipe extends and a wall of the box covering the pipe to close the inlets, the opening in the side walls of the nozzle through which the pipe extends being of a greater length than the diameter of the pipe whereby movement of the nozzle by the work passing under them lifts said wall off the inlets.

In testimony whereof I have hereunto signed my name at Davenport, in the county of Scott and State of Iowa, this 5th day of February, 1926.

LOUIS S. HALLOWELL.