Oct. 7, 1930. J. O. V. STETTEN 1,777,705

HOSIERY DRYING AND PRESSING APPARATUS

Filed May 1, 1924 3 Sheets-Sheet 1

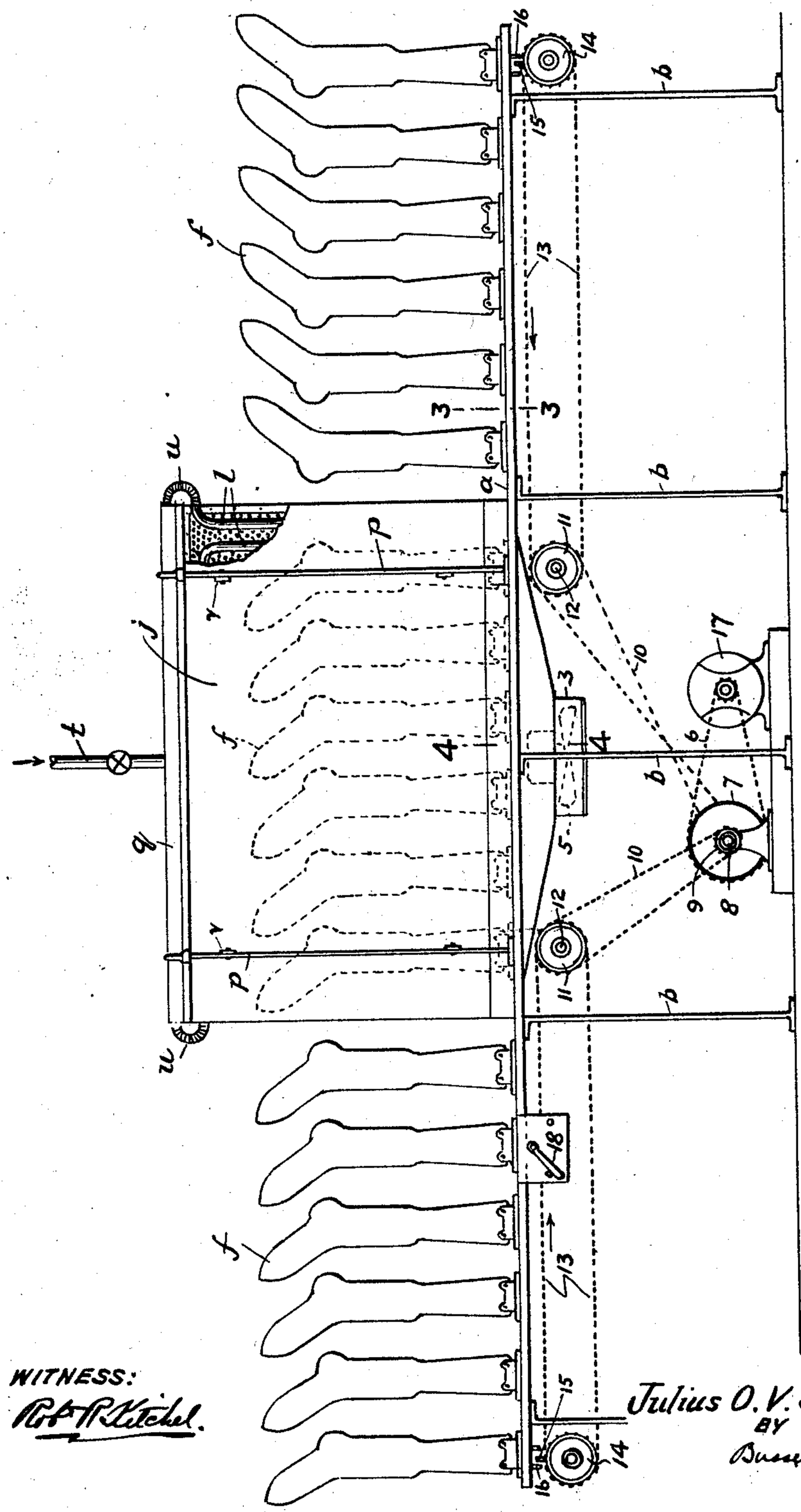

FIG. 1.

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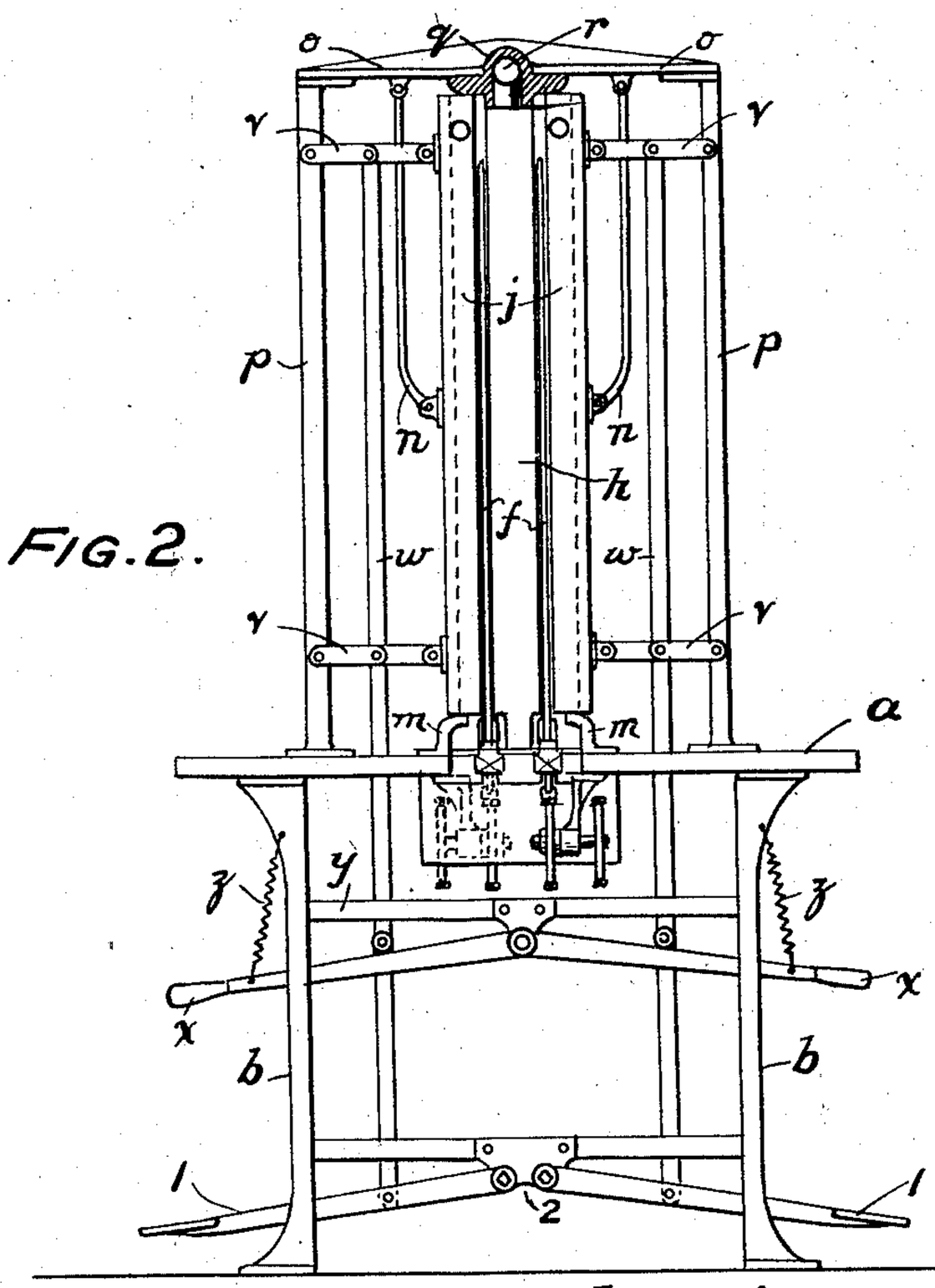
HOSIERY DRYING AND PRESSING APPARATUS

Filed May 1, 1924 3 Sheets-Sheet 2

FIG. 2.



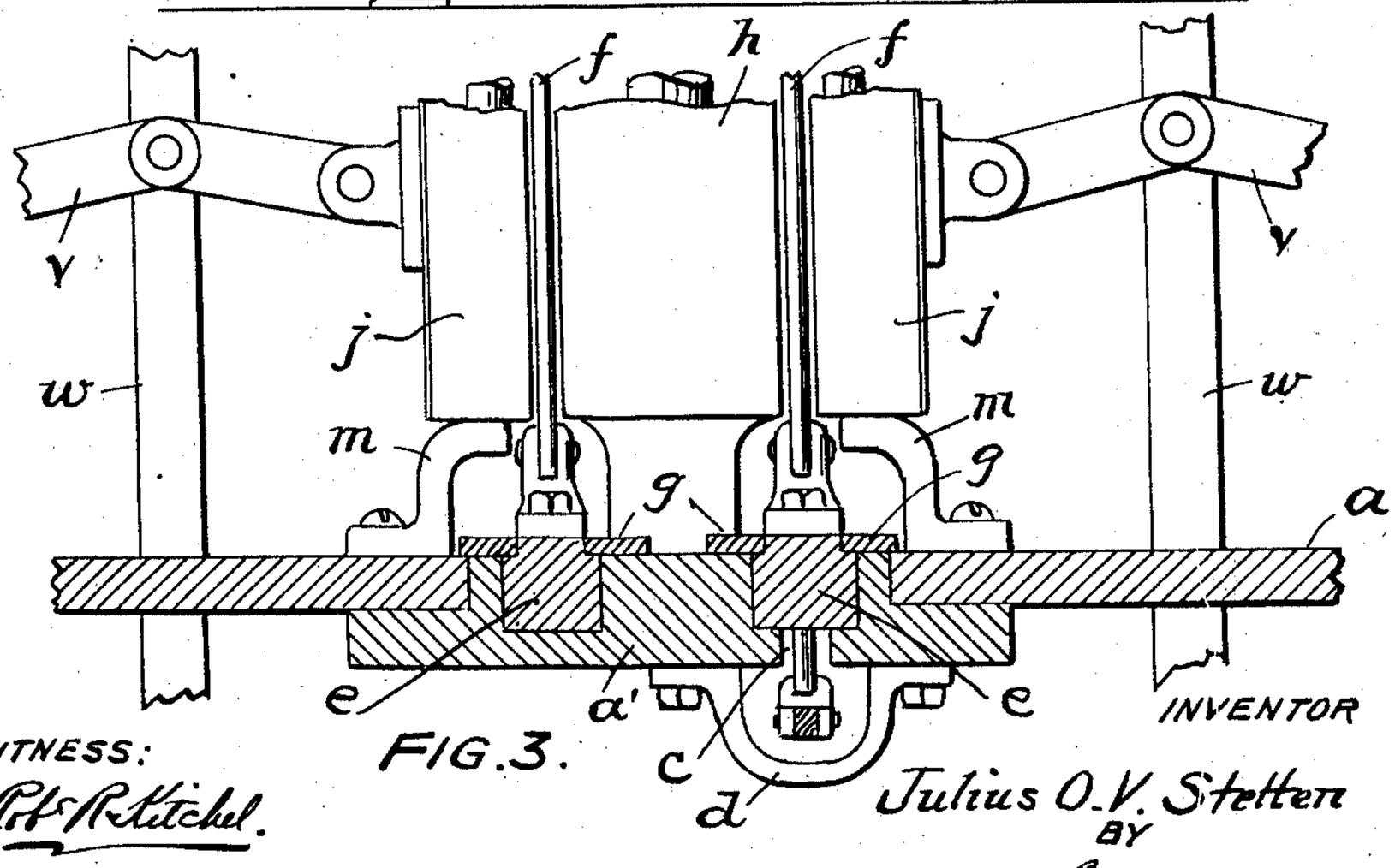


FIG. 3.

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HOSIERY DRYING AND PRESSING APPARATUS

Filed May 1, 1924 3 Sheets-Sheet 3

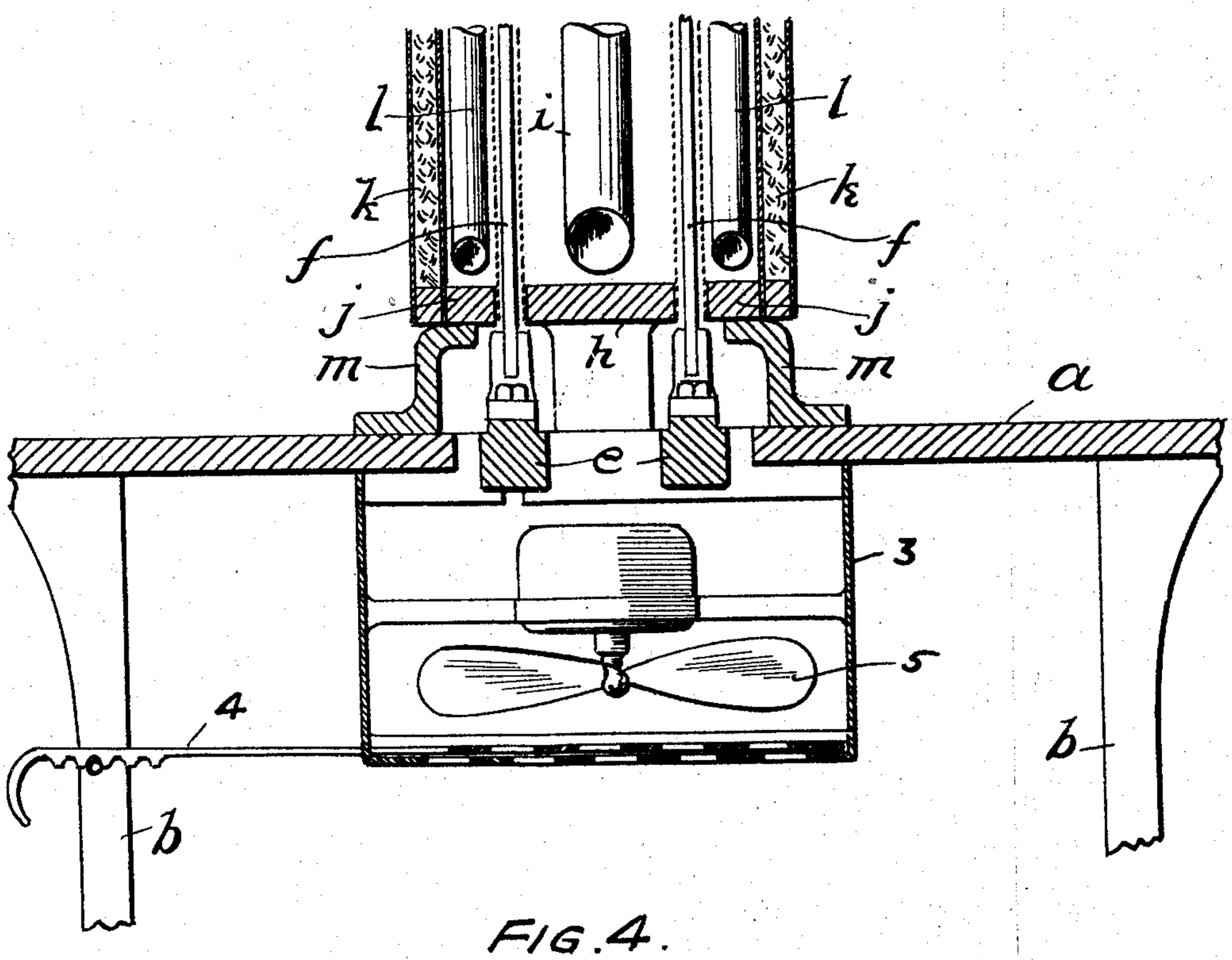

FIG. 4.

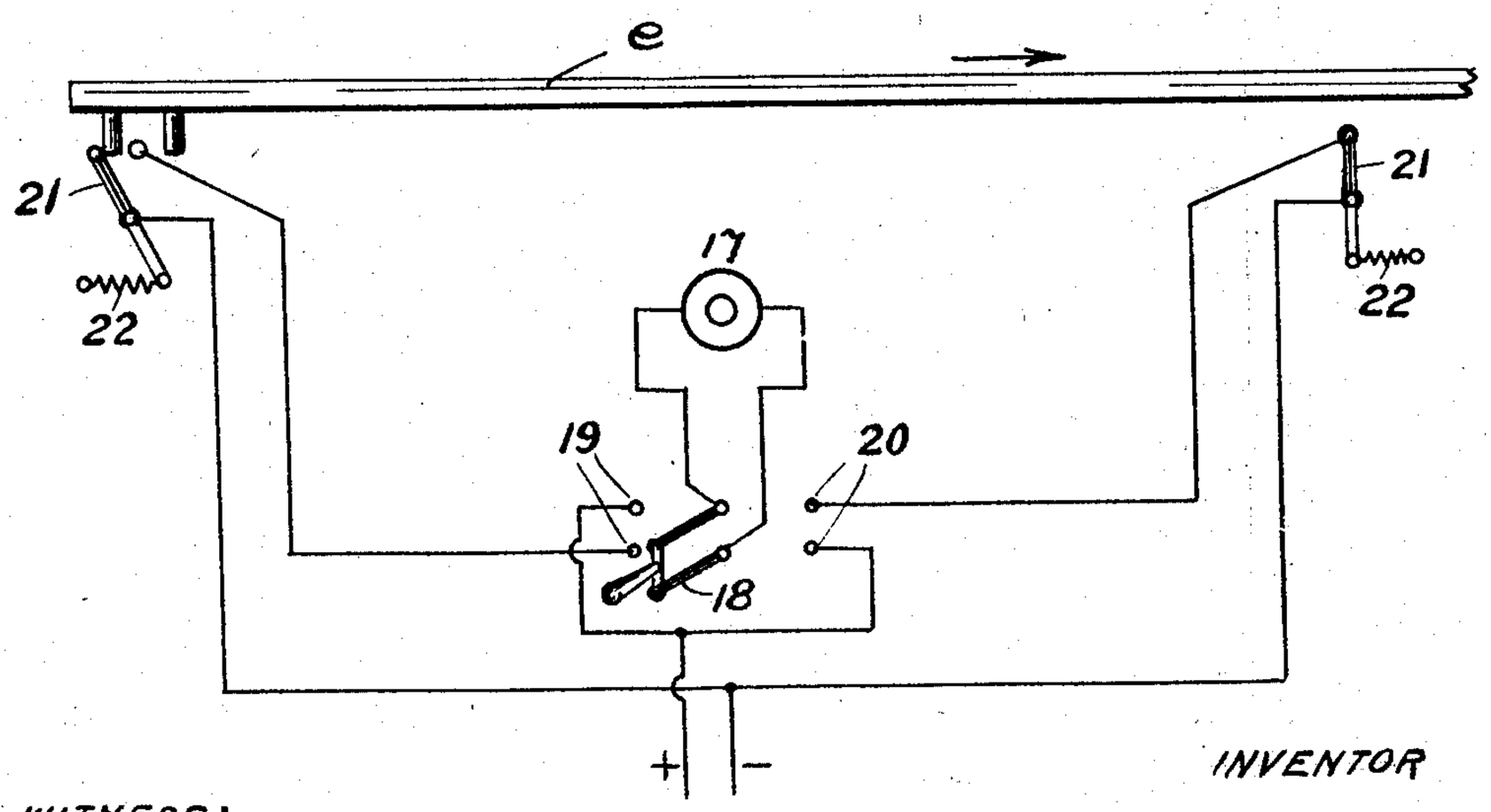

FIG. 5.

WITNESS:
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Patented Oct. 7, 1930 1,777,705

UNITED STATES PATENT OFFICE

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HOSIERY DRYING AND PRESSING APPARATUS

Application filed May 1, 1924. Serial No. 710,241.

My invention relates to an improved form of apparatus for drying and pressing hosiery.

Heretofore in the drying and pressing of hosiery, as a step in its manufacture, after the dyeing operation it has been customary to place the hosiery on hollow steam heated forms or boards on which it is allowed to remain until dry, or, alternatively, to place it upon solid forms or boards and subject the hosiery thereon to external heat.

It has been found that while the hollow form method of drying and pressing is substantially satisfactory, it is open to a number of objections. The use of solid forms subjected to external heat has heretofore proved rather less satisfactory, since the means provided for supplying and subjecting the forms to heat have been cumbersome to handle, more or less complicated in construction and expensive to provide and maintain. Further, it may be said that such apparatus has not proved of great efficiency, with the result that the majority of manufacturers have within the last few years utilized the hollow forms.

Now the object of my invention is to provide an improved apparatus, using solid forms and provided with means whereby hosiery on the forms will be subjected to external heat and pressing action.

Further objects of my invention are to provide an apparatus which will be semi-automatic in operation, so arranged as to give a maximum of efficiency both from the standpoint of results obtainable and from the standpoint of labor and maintenance economy, and at the same time an apparatus which will be simple and economical of construction and operation with a maximum of durability and efficiency.

Having indicated, in a general way, the nature, purpose and advantage of my invention, I will proceed to a detailed description thereof, with reference to the accompanying drawings in which I have illustrated a preferred embodiment, and in which—

Fig. 1 is a view of apparatus embodying my invention in elevation and partly cut away.

Fig. 2 is an end view of the apparatus illustrated in Fig. 1.

Fig. 3 is a sectional view on the line 3—3 Fig. 1.

Fig. 4 is a sectional view on line 4—4 Fig. 1.

Fig. 5 is a wiring diagram.

In the several figures, *a* indicates a longitudinally extending table supported by legs *b* and having for a third of its length adjacent each end a central section *a'*, each provided with a pair of longitudinally extending parallel channels respectively in alignment, and opposite channels in the sections *a'* being provided with a slot *c* of less width than the channel. Brackets *d* span beneath the slots *c* and serve to maintain the integrality of the table.

Slides *e*, *e*, of a length of two thirds that of the table, are mounted in the channels and retained therein by plates *g*, *g*, as shown in Fig. 3. Solid forms or boards *f* are mounted at intervals on the slides *e*, *e*.

Centrally of the table between the slides *e*, *e*, and extending longitudinally a distance equal to a third of the table length, is rigidly mounted, on suitable brackets, a vertically extending hollow plate *h*, the side walls of which are perforated and within which is a steam coil *i*.

On opposite sides of the plate *h* are positioned vertically extending hollow plates *j*, *j*, the inner walls of which are perforated, while the outer walls are insulated with insulating material *k*. Within each of the plates *j*, *j* is a steam coil *l*. The bottoms of the plates *j*, *j* rest upon longitudinally extending brackets *m*, while the plates are supported in vertical position by means of arms *n*, *n* pivotally attached to the outside walls thereof and to cross members *o* supported above the chambers by standards *p*.

Supported at the top of the plate *h* is a longitudinally extending cover member *q* which extends laterally over the tops of plates *j*, *j*. Thus, there is formed between the plates *h* and *j*, *j* and cover *q* drying chambers for the reception of the forms. Within the cover member *q* is a steam pipe *r*, connected to a source of steam supply,

indicated by the valved pipe *t*, which is connected to coil *i* and at its ends, through flexible pipes *u*, *u*, with the coils *l* in plates *j*, *j*.

The plates *j*, *j* mounted as described are adapted to be moved toward and away from the plate *h*. To this end, toggles *v* are pivotally connected to the outside walls of the plates *j*, *j* adjacent the four corners of each and are adapted to be operated through the medium of links *w*, *w*. For separating the plates there are provided hand levers *x*, *x* pivoted to a cross member *y* and adapted to act on the links *w*, *w* when raised to bend the toggles through rollers carried by, and extending laterally from, the links; springs *z*, *z* being provided and acting to tend to raise the levers. For straightening the toggles and moving the plates *j*, *j* toward each other, there are provided foot levers *l*, *l* pivoted to a cross member 2 and to which the links *w*, *w* are pivoted, whereby the links may be moved downwardly, as will be understood from inspection of Fig. 2.

Beneath the middle portion of the table and plates *h* and *j*, *j* is a fan casing 3, the bottom of which is provided with a shutter operable by a handle 4 and within which is a motor driven fan 5.

Beneath the table is positioned an electric motor 17 connected by means of a chain 6 and large sprocket 7 to a shaft 8, which in turn carries a pair of small sprockets 9 connected by chains 10 to sprockets 11 on transverse shafts 12 respectively mounted beneath the table *a*. Chains 13 carried by sprockets 14 mounted beneath the table and sprockets respectively carried by the shafts 12 are positioned beneath the slotted channels in the end sections of the table respectively and are adapted to move the slides upon which the sets of forms are mounted through the medium of upwardly extending lugs 15, carried by the chains 13, respectively, and engaging between downwardly depending lugs 16 carried by the slides, respectively, adjacent their ends, as will be seen from an inspection of Fig. 1.

As shown in Fig. 1, one of the chains 10 is crossed so that whichever way the motor 17 is driven the chains 13 will be driven in opposite directions, as indicated by the arrows in Fig. 1.

The motor 17 is manually controlled for starting by means of a switch 18, suitably mounted on the table and adapted for two positions to connect the motor with current in opposite directions to effect its rotation in either direction, as will be seen from an inspection of Fig. 5, from which it will be noted that if the switch is thrown to close the circuit across the points 19 the motor will operate in one direction, while if the circuit be closed across the points 20 the motor will be reversed.

The motor is adapted to be automatically stopped by means of switches 21, 21, respectively adapted to open the two circuits in which the motor may be placed by manipulation of switch 18. The switches 21, 21 normally retained in closed position by springs 22, 22 are positioned respectively at opposite ends of the desired travel of the lugs 16 carried by one of the slides *e*, so that as the slide reaches one extreme or the other, one of the lugs will contact with one or the other of the switches and open it, breaking the circuit and stopping the motor, which may then be restarted in the opposite direction by throwning switch 18.

In practice, the apparatus illustrated and described includes twenty-four forms consisting of two series of twelve forms each comprising two sets of six forms mounted on each of the slides *e* and the various parts are so arranged that one set of six forms from each series will be within the drying chambers between plate *h* and plates *j*, *j*, while one set of six forms from each series will be without such chambers at opposite ends of the table *a*.

Assuming now that the parts are in the position shown in Figs. 1 and 2 and the apparatus is to be put in operation, steam is turned into the coils in plate *h* and plates *j*, *j* and operators place hosiery to be dried upon the sets of forms at opposite end portions of the table. Plates *j*, *j* are moved laterally away from plate *h* by raising levers *x*, *x*, which causes the toggles to bend.

The motor is then started by throwing switch 18 and the slides caused to be moved longitudinally in opposite directions with the result that the sets of forms carrying hosiery are moved oppositely into the drying chambers between the plates, while the sets of forms occupying such chambers are moved oppositely out of the chambers to the end portions of the table. When the two sets of forms upon which the hosiery has been placed are fully within the chambers between the plates, the motor is automtically stopped through the opening of one of the switches 21, as described.

The plates *j*, *j* are then moved toward the plate *h* by manipulation of the foot levers *l*, *l*, which straighten the toggles, and the hosiery on the sets of forms within the chambers between the plates is subjected to the heat from the coils therein passing through the perforated walls thereof and it is also pressed between the walls. The fan 5 is started and the shutter adjusted by manipulation of handle 4 so as to withdraw from the chambers between the plates any steam which forms in the drying of the hosiery. The plates *j*, *j* may be moved together and permitted to remain during the drying operation or they may be manipulated back and forth. During the drying operation, wet hosiery is placed on the sets of forms occupying the end portions

of the table. When the drying is completed, the plates *j*, *j* are moved outwardly, the motor 17 started and the sets of forms with dry hosiery moved oppositely out of the drying chambers to the end portions of the table, where the dried hosiery is slipped therefrom and wet hosiery is placed thereon, while the sets of forms upon which wet hosiery has been placed, as above described, will be moved oppositely into the drying spaces.

It will be understood that I do not intend to confine myself to the details of the apparatus above described, as they may be varied in many respects without departing from the spirit of my invention.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. Apparatus for drying hosiery comprising, in combination, a drying chamber formed between a pair of internally heated plates, one of which is movable laterally relatively to the other, a toggle connected to the movable plate, means for manipulating the toggle to move the movable plate relatively to the other plate, a slide, a series of hosiery forms mounted in line on said slide, and means for moving the slide alternately in opposite directions to alternately enter into and withdraw from the chamber the said forms.

2. Apparatus for drying hosiery comprising, in combination, a drying chamber formed between adjacent pairs of three heated plates, two of which are movable relatively to the other, toggles connected to the movable plates, means to manipulate the toggles to move the movable plates relatively to the other plate, two slides, two series of hosiery forms mounted on each slide, means to move the slides alternately in opposite directions whereby part of said forms may be entered into and others withdrawn alternately from opposite ends of said chamber.

3. Apparatus for drying hosiery comprising, in combination, a drying chamber formed between a pair of vertically extending plates, a slide, a series of hosiery forms mounted on said slide, means including a reversible electric motor adapted to move said slide alternately in opposite directions to enter into and withdraw a part of the forms from said chamber alternately from opposite ends thereof, a manually operable switch for starting said motor, and switches operable by said slide at the end of its movement in either direction for stopping said motor.

4. Apparatus for drying hosiery comprising, in combination, a vertically extending internally heated plate having perforated side walls, a pair of laterally movable internally heated plates positioned adjacent opposite sides of said first mentioned plate and forming therewith drying chambers, actuating means connected to said movable plates, means for manipulating said actuating means to move said movable plates toward and away from said first mentioned plate, and a plurality of sets of hosiery forms for each chamber, part of the forms of each set respectively being adapted to be positioned within the chamber respectively, while the other forms of the sets respectively are positioned without the chambers.

5. An apparatus for drying hosiery comprising in combination, a pair of drying chambers formed between a fixed vertically extending internally heated plate and a pair of laterally movable vertically extending plates positioned adjacent the side walls of said fixed plate, toggles connected to said laterally movable plates, means connected to said toggles whereby they may be manipulated to move said plates toward and away from said fixed plate, a reciprocating slide in each chamber, two sets of forms mounted on each slide, one set on each slide being arranged to be moved into and from the chamber through one end thereof while the other set is reversely moved through the other end, and means to move the slides in opposite directions whereby one of the sets of forms on each slide will be positioned within a drying chamber and the other set on each slide will be positioned outside of its chamber.

6. Apparatus for drying hosiery comprising, in combination, a pair of drying chambers formed between a fixed vertically extending internally heated plate and a pair of laterally movable vertically extending plates positioned adjacent the side walls of said fixed plate, toggles connected to said laterally movable plates, means connected to said toggles whereby they may be manipulated to move said plates toward and away from said fixed plate, a pair of slides, a series of hosiery forms comprising two sets of forms mounted on each slide, a motor, means affording a driving connection between the motor and said slides so arranged as to move the slides in opposite directions whereby a set of forms of each series will be positioned within a drying chamber, means to automatically stop the motor when the forms are so positioned, and means for restarting the motor in a reverse direction whereby the sets of forms within the drying chambers will be withdrawn therefrom and the other set of forms of each series will be entered therein.

7. Drying apparatus comprising a drying chamber, a form, a reciprocating carrier for said form arranged to move said form into and out of the drying chamber, means for reciprocating said carrier, and means actuated upon the carrier's approaching an extreme position for rendering the reciprocating means inoperative to move the carrier beyond said extreme position.

8. Drying apparatus comprising a drying chamber, a pair of reciprocating carriers, forms mounted on said carriers, and means

for reciprocating said carriers in opposite directions along parallel paths to carry the forms into and out of the drying chamber, said carriers being so arranged that when forms carried by one carrier are outside of the drying chamber at one side thereof, forms carried by the other carrier are outside of the drying chamber at the opposite side thereof.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, Pa., on this 28th day of April, 1924.

JULIUS OTTO V. STETTEN.