T. D. PALMER.

STEAM GARMENT PRESSING MACHINE.

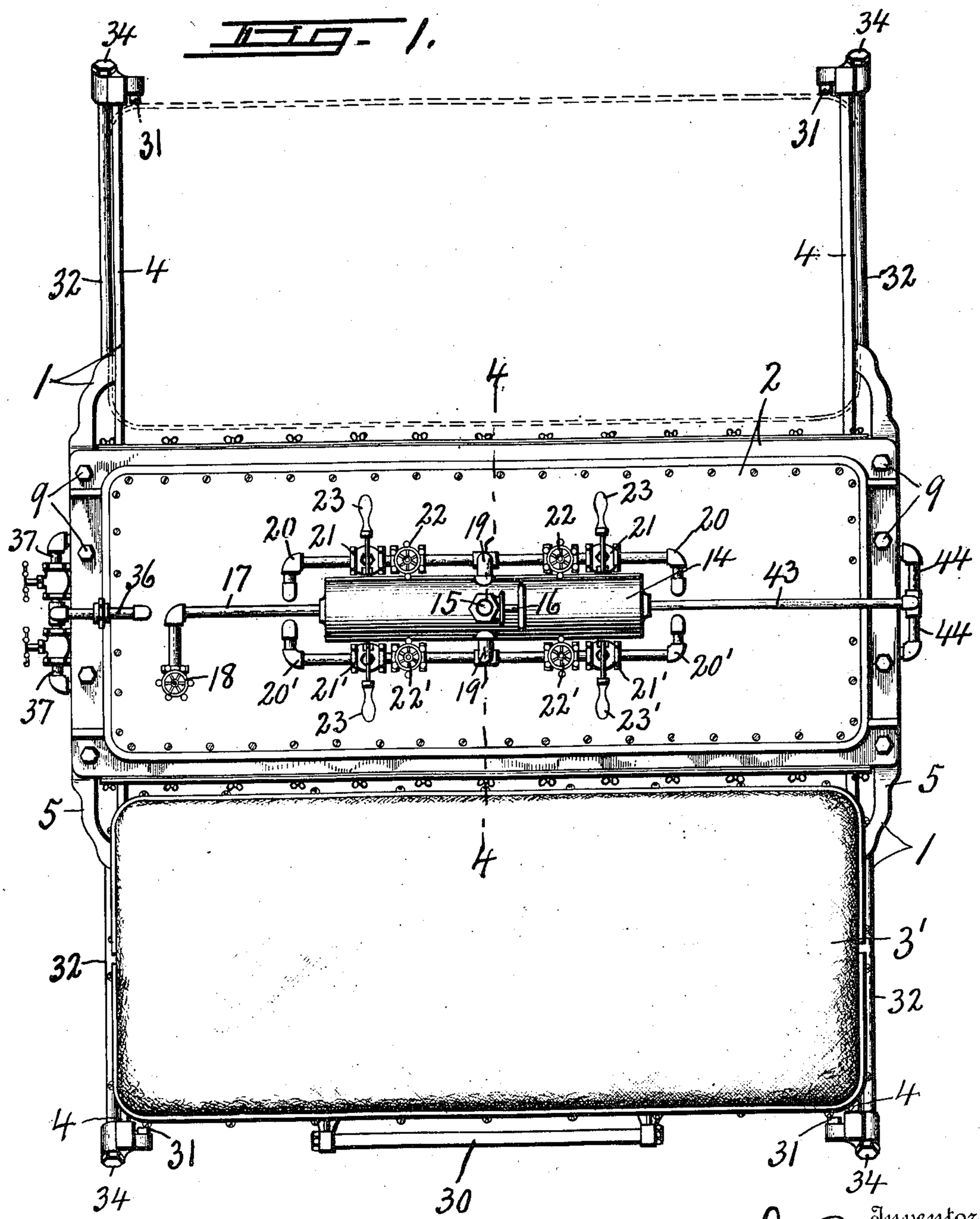
APPLICATION FILED DEC. 18, 1911.

1,154,799.

Patented Sept. 28, 1915.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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4 SHEETS—SHEET 2.

FIG. 7.

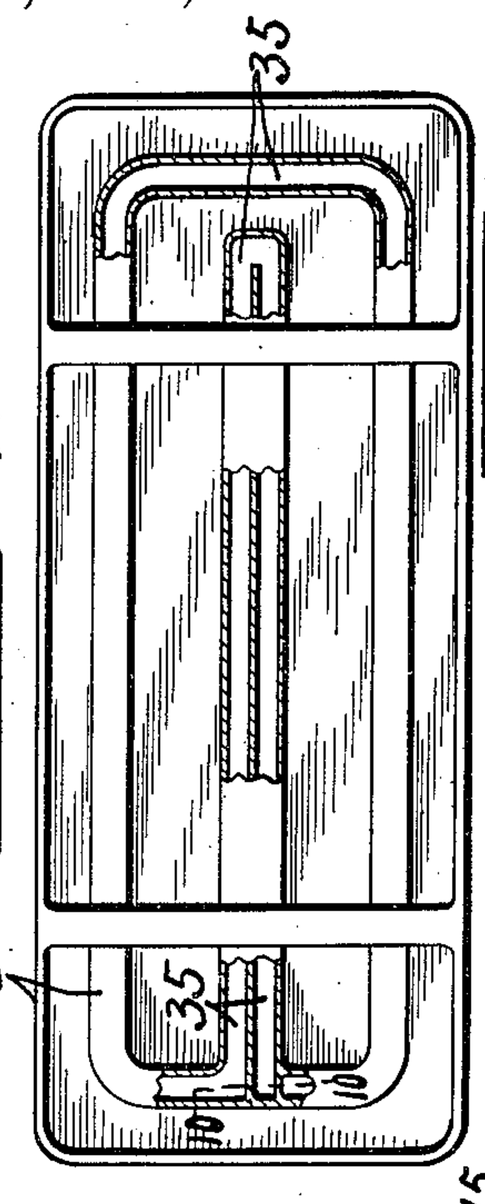


FIG. 12.

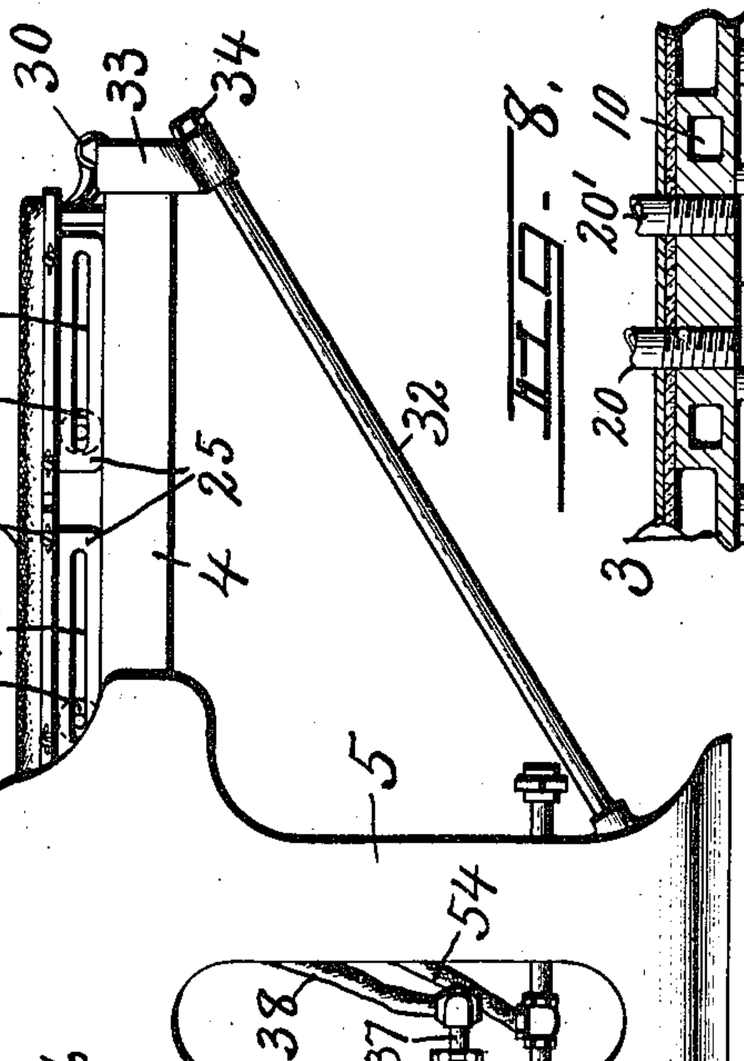


FIG. 8.

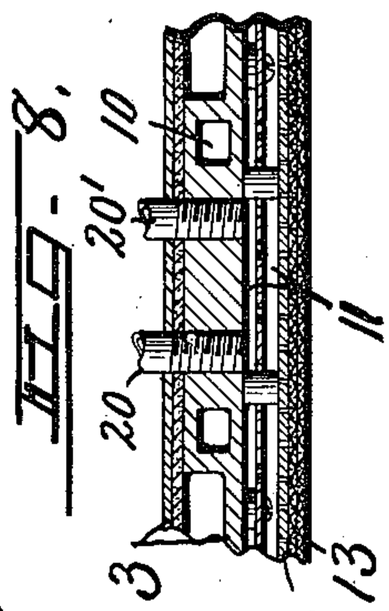


FIG. 6.

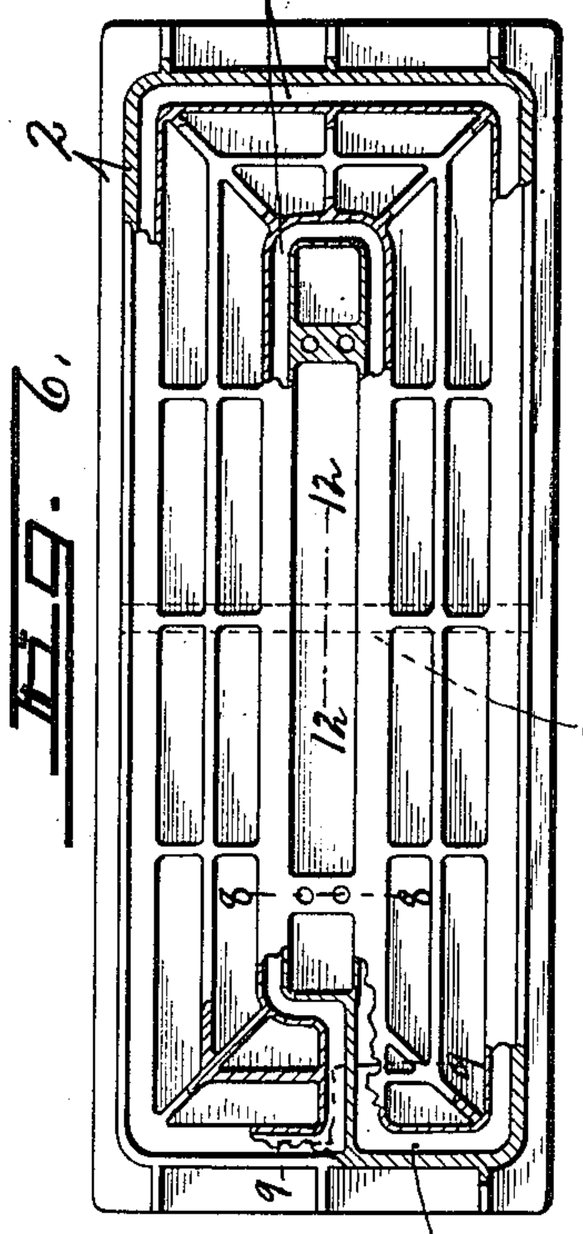


FIG. 2.

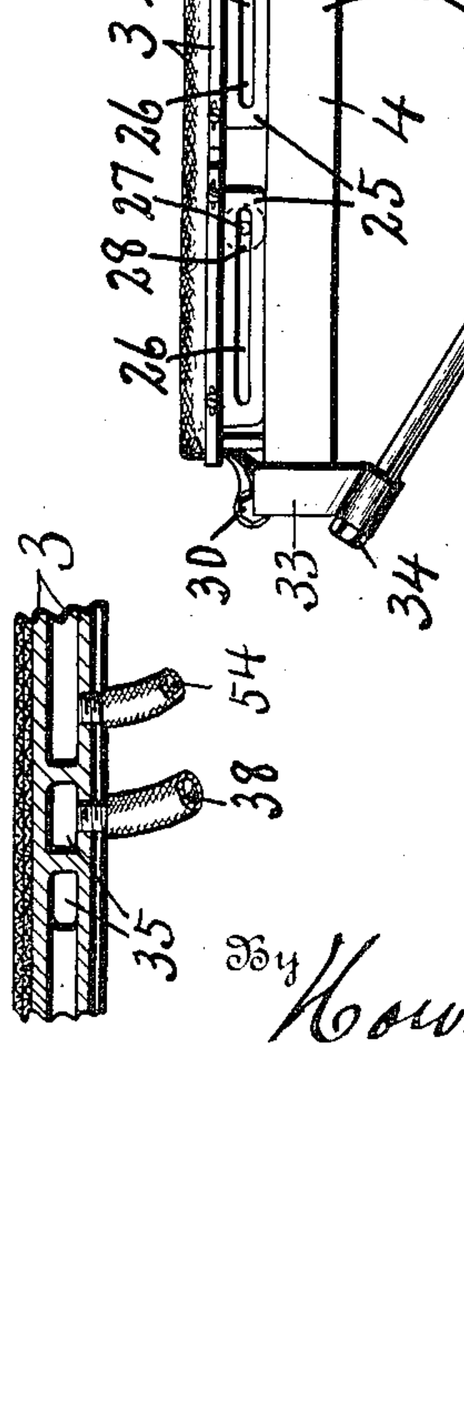


FIG. 9.

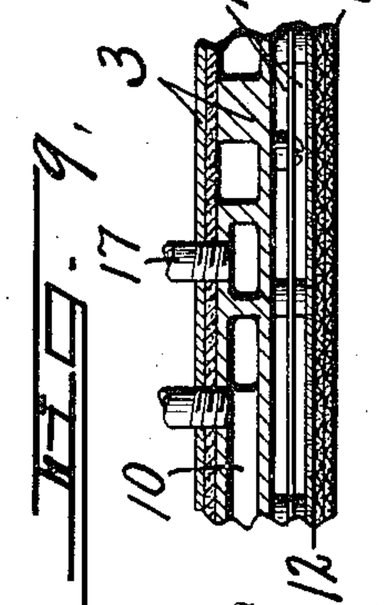
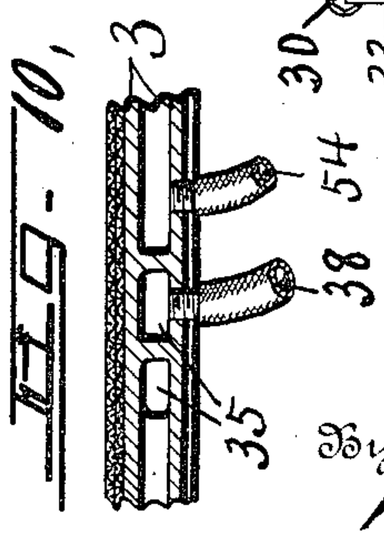


FIG. 10.



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4 SHEETS—SHEET 3.

Fig. 3.

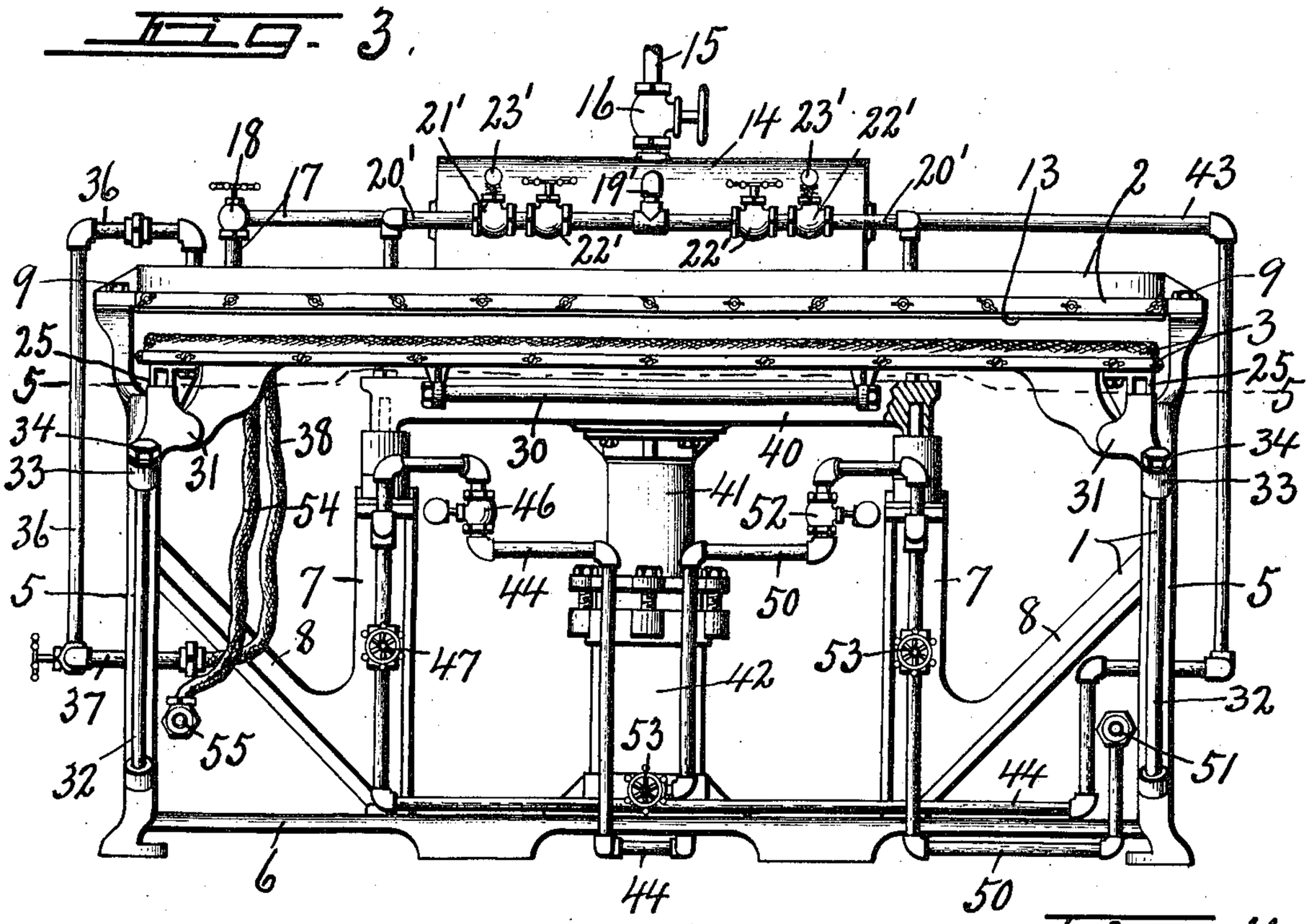


Fig. 4.

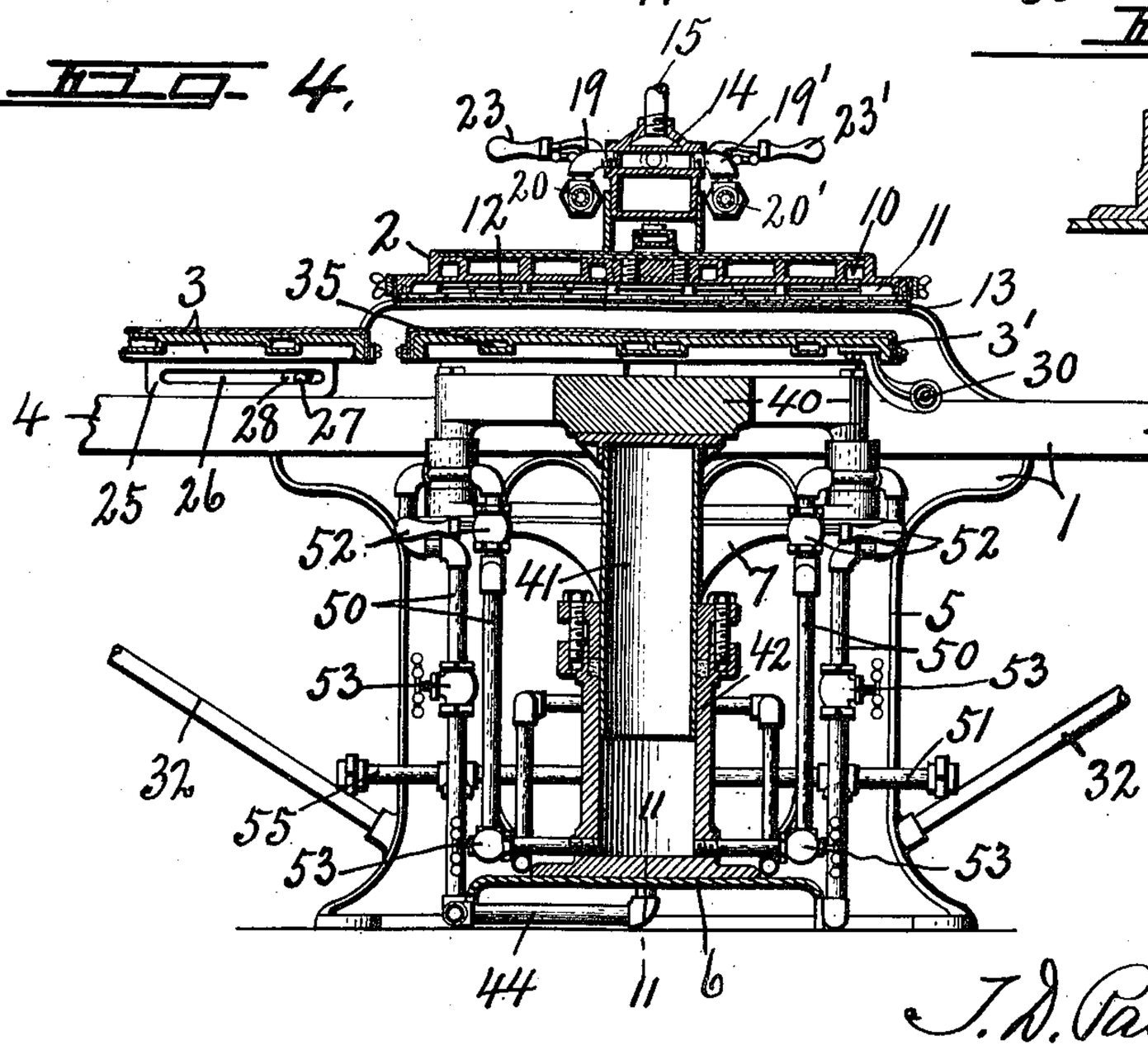
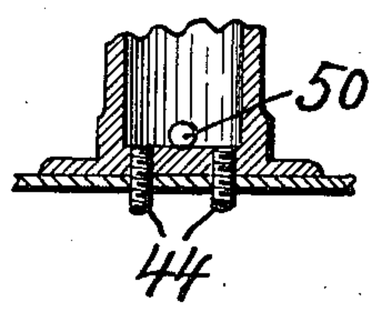


Fig. 11.



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4 SHEETS—SHEET 4.

FIG. 5.

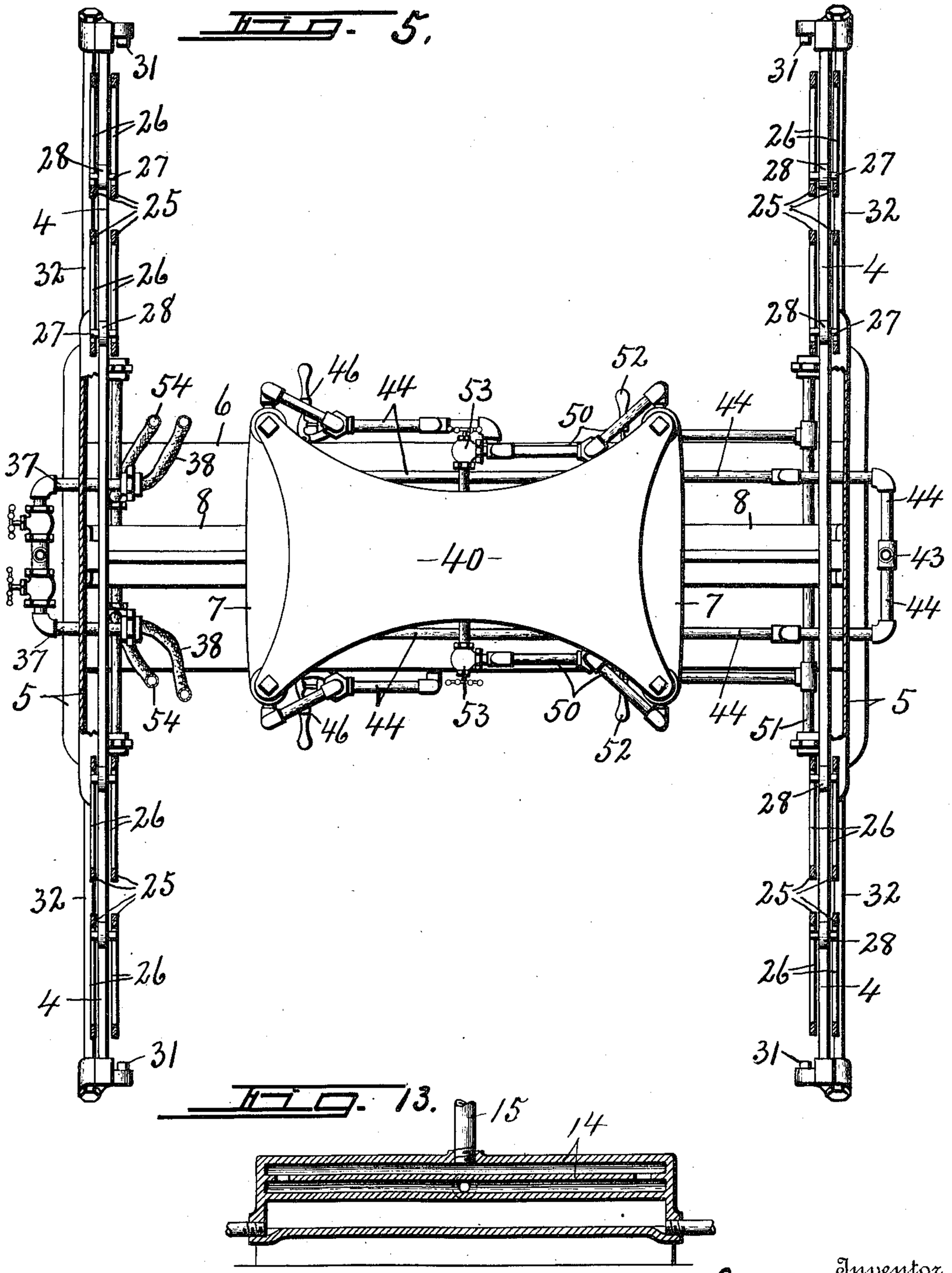

FIG. 13.

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UNITED STATES PATENT OFFICE.

THEODORE D. PALMER, OF SYRACUSE, NEW YORK, ASSIGNOR TO T. D. PALMER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION.

STEAM GARMENT-PRESSING MACHINE.

1,154,799. Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed December 18, 1911. Serial No. 666,452.

To all whom it may concern:

Be it known that I, THEODORE D. PALMER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Steam Garment-Pressing Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in fabric pressing machines, and while it is more particularly adapted for pressing newly made knit garments such as underwear and the like preparatory to marketing, it may be used with equal efficiency in pressing other garments and fabrics. In pressing these garments or fabrics, it is necessary first, to smooth the garment out upon the supporting bed or buck and, second, to bring the pressing elements into pressing position upon the garment or fabric, each operation requiring about the same length of time.

The main object, therefore, is to enable two operators to do the work of smoothing and pressing the garments or fabric upon the same machine without loss of time or interfering with each other, or in other words to enable each operator to perform each operation of smoothing the garment and pressing it in such manner that while one operator is smoothing the garment out upon one supporting bed, the other operator is subjecting another previously smoothed garment to moisture and mechanical pressure.

Another object is to bring the pressing elements to their pressing positions under fluid pressure, preferably steam derived from the same source as that which is employed to moisten the garment.

A further object is to apply the steam in such manner as to avoid excessive saturation of the garment while under mechanical pressure and at the same time to utilize the heat of the steam in the pressing elements for substantially drying the garment while under such pressure, thereby completing the work of moistening, pressing and drying the garment in a single operation so that they may be stacked and boxed for storage or transportation immediately upon coming from the machine.

A still further object is to provide the machine with duplicate sets of controlling devices for controlling the operation of the movable pressing elements and supplying steam to the garment.

Other objects and uses will be brought out in the following description.

In the drawings—Figures 1, 2 and 3 are respectively a top plan, an end view, and a side elevation of a garment pressing machine embodying the various features of my invention, one of the sliding beds or bucks being moved under the steaming head in Fig. 1. Fig. 4 is a transverse vertical sectional view taken on line 4—4, Fig. 1. Fig. 5 is a horizontal sectional view of the same machine taken on line 5—5, Fig. 3. Fig. 6 is a top plan partly in section of the stationary press head. Fig. 7 is an inverted plan partly in section of one of the garment supporting beds. Figs. 8, 9, 10, 11 and 12 are enlarged detail sectional views taken respectively on lines 8—8 and 9—9, Fig. 6; 10—10, Fig. 7 and 11—11, Fig. 4, and 12—12, Fig. 6. Fig. 13 is a longitudinal sectional view through the superheater.

As shown in the drawings, this machine comprises a main supporting frame —1— upon which are mounted a stationary pressing element —2— and duplicate sliding pressing elements —3— and —3′—, the latter being movable along suitable ways or guides —4— to and from a position directly under the stationary pressing element —2— and also having an independent vertical movement for pressing coaction with the stationary element —2—.

The frame —1— comprises opposite upright end plates or standards —5— spaced a sufficient distance apart to receive between them the slidable pressing elements —3— and —3′— and are rigidly connected at the bottom by a cross bar or plate —6— having intermediate upright standards —7— and diagonal braces —8—, the latter being extended upwardly from the intermediate portions of the plate —6— in inclined planes and secured to the end standards —5— to stiffen the bottom plate and standards against any strains to which they may be subjected and also to hold the standards —8— in operative position, the entire frame being made of cast metal.

The main body of the pressing element —2— preferably consists of a hollow cast

metal plate of suitable width extending from end to end of the main supporting frame and secured by suitable fastening means as bolts —9— to the upper edges of the end standards —5— a sufficient distance above the plane of the beds —3— and —3′— to permit the latter to move freely thereunder and serve to additionally brace the standards —5— against lateral or torsional strains, thereby reinforcing the main supporting frame. This pressing element —2— is also provided with non-communicating compartments —10— and —11— disposed in planes one above the other, the upper compartment constituting what may be termed a heating chamber, while the lower compartment constitutes what may be termed a steam distributing chamber and is provided with a perforated bottom or press plate —12— normally covered by a press cloth —13— to distribute the steam more evenly over the entire surface of the garment.

The pressing element or head —2— is substantially flat and shallow and therefore the compartments —10— and —11— are also shallow vertically, said head being provided with an additional heating chamber —14— running along its upper longitudinal center for superheating the steam.

Normal steam may be supplied from any source through a pipe —15— to the superheater —14—, said pipe being provided with a normally open valve —16— close to the superheater and adapted to be closed to cut off the supply of steam when necessary for repairs to the superheater or other parts of the machine.

The superheated steam is conducted from one end of the superheater by a pipe —17— to the chamber —10— for maintaining steam therein to keep the pressing element —2— heated at a constant temperature, the pipe —17— being also provided with a normally open valve —18— adapted to be closed when necessary for repairs or other requirements.

The superheated steam is also supplied from the same superheater to the distributing chamber —11— from which it is diffused through the perforated plate —12— and press cloth —13— over the surface of the garment during the pressing operation and in order that the admission of the steam to the chamber —11— may be controlled from either side of the machine by either operator, I have provided opposite sides of the superheater with additional delivery pipes —19— leading from the central portions of opposite sides thereof and connected by separate distributing heads or pipes —20— and —20′— extending lengthwise of the pressing element —2— at opposite sides of the superheater and in opposite directions from their respective delivery pipes —19— and —19′—, the opposite ends of each of the pipes —20— and —20′— constituting branch pipes which are connected to the chamber —11— for discharging superheated steam therein and to the surface of the garment under pressure when required.

Each branch of the pipe —20— is provided with a self-closing valve —21— and a normally open valve —22— located between the corresponding valve —21— and delivery pipe —19— for positively shutting off the steam when necessary, each of the valves —21— being provided with a hand lever —23— operable at will each independently of the other for controlling the flow of the superheated steam to the chamber —11—. In like manner the branches of the opposite distributing pipe —20′— are provided with separate self-closing valves —21′— and normally open valves —22′— located between the corresponding valves —21′— and delivery pipe —19′— for permitting the superheated steam to be positively cut off when desired, each of the valves —21′— being provided with a hand lever —23′— adapted to be opened at will to admit the superheated steam to the chamber —11—.

It is now apparent that each operator has under his control a pair of self-closing valves each operable independently of the other for admitting steam to either or both ends of the chamber —11—, and in some cases the chamber —11— may be divided transversely by a partition —24— into separate compartments so as to permit the application of steam to the garment at either end of the pressing element —2— without admitting steam to the other end thereof, thereby economizing in the use of steam when working upon small garments.

Each of the garment supporting beds or bucks —3— and —3′— is movable by hand into and out of a position directly under or in vertical alinement with the fixed pressing element —2— and in order that this movement may be effected with a minimum power, the opposite ends of each bed are provided with pendant flanges —25— having lengthwise slots —26— for receiving the reduced ends —27— of suitable roller bearings —28— which ride along and upon the track —4—, thus providing differential roller bearing connections between each sliding bed and the main supporting frame of the machine to reduce friction and permit the beds to be easily moved back and forth with a minimum amount of power, the outer end of each head being provided with a handle —30— by which it may be manipulated.

The tracks or ways —4— extend laterally a distance beyond the opposite edges of the pressing element —2— corresponding to the transverse width of said pressing elements so that when the garment supporting beds are drawn outwardly their entire upper sur-

face is exposed, such outward movement being limited by yielding buffers or stops —31— on the outer ends of the tracks —4—.

In order that the tracks may be properly supported against undue vibration or bending under the load of the beds —3— and —3′—, they are connected to the main frame by braces —32— consisting of tie rods having their upper ends passed through suitable brackets —33— on the ends of the tracks —4— and provided with nuts —34— by which the braces may be tightened.

The garment supporting beds —3— and —3′— are duplicates, each being substantially co-extensive in area with that of the pressing elements —2— with which it is adapted to coöperate, and consists of a hollow, substantially flat cast metal plate, having one or more steam chambers —35—, to which superheated steam is supplied from one end of the heating chamber —10— of the pressing element —2— for heating the bed and drying the garment.

In order that both of the supporting beds may be heated from the same source, I provide a single steam pipe —36— leading from the upper side of one end of the steam chamber —10— and extended downwardly at one end of the head —2—, where it is connected with branch pipes —37—, each having a flexible portion —38— connected to the under sides of the steam chambers —35— of the garment supporting beds, near one end so as to permit said beds to move freely back and forth to and from a position under the press head —2— without straining any portions of the connections between the press head and garment supporting beds.

Directly under and some distance below the press head —2—, and also below the plane of movement of the garment supporting beds, is a vertically movably lifting plate or head —40— mounted upon the upper end of a reciprocatory piston —41—, which is movable in a cylinder —42— and is adapted to be operated by steam pressure admitted to the lower end of said cylinder, for lifting either of the garment supporting beds, which may be in pressing position, into pressing coöperation with the press head —2—. For this purpose the superheated steam is taken from the superheater —14— through a single pipe —43— and delivered into branch pipes —44—, arranged on opposite sides of the machine and discharging into the lower end of the cylinder —42—.

Each branch pipe is provided with a valve —46— within easy reaching distance of the operator at that particular side of the machine, so that either operator may control at will the admission of steam to said cylinder, thereby controlling the operation of the piston and garment supporting bed operated thereby, said branch pipes being also provided with additional normally open valves —47—, adapted to be closed when necessary to cut off the supply of steam to the cylinder.

It is now clear that, although the valves —46— are normally closed and the piston is normally in its extreme down position, the opening of a valve —46— allows steam to force the piston —40— into lifting engagement with the garment supporting bed which may be in position for pressing, thereby forcing said bed into pressing co-action with the head —2—. In reverse manner, after the garment has been subjected to pressure, the garment supporting bed may be lowered so as to rest upon the track —4— by relieving the pressure in the cylinder —42—, and in order that either operator may control the release, I provide a pair of relief pipes —50—, connected at one end to the lower end of the cylinder —42— and having their opposite ends connected to a common relief or drain pipe —51—, the intermediate portions of these pipes —50— being provided with normally closed valves —52—, one for each operator, said valves being opened after each pressing operation to relieve the pressure under the piston and thereby permit said piston and garment supporting bed to return to their normal positions, the pressure fluid being discharged through the relief pipe —50— and thence into the drain pipe —51—, said pipes —50— being also provided with additional normally open valves —53— adapted to be closed at will to retain more or less pressure in the cylinder when desired.

The water of condensation which may accumulate in the chamber —35— of either of the bucks —3— and —3′—, may be withdrawn at will through flexible pipes —54— leading from the under sides of said bucks near one end thereof, to a common drain pipe —55—, which may, if necessary, be connected to the drain pipe —51—.

It is apparent from the foregoing description that each operator has under his control a pair of levers or valves for controlling the lifting operation of the buck, and that in order to accomplish this result one valve is opened when the other is closed, that is, for example, when it is desired to lift the buck to its pressing position, the relief valve is closed and the pressure valve is opened, while, on the other hand, to permit the piston and buck to return, the relief valve is opened and the pressure valve is closed, both operations taking place simultaneously, in which case the pressure fluid will be forced by the weight of the piston downwardly through the pipe —50— and into the drain pipe —51—.

In operation, assuming that the movable parts of the machine are in their normal positions, with one of the garment supporting

beds in position to receive a garment, as shown in Figs. 1 and 4, and that the other bed, with a garment thereon, is under the press head, or rather between the press head and piston head, ready to be forced into pressing co-action with said head, whereupon the operator controlling this last named bed will open the valve —46— and simultaneously close the valve —52—, thereby cutting off the pressure-relief and admitting steam pressure to the piston to raise the latter and the superposed bed into pressing co-action with the head, when in this position the same operator may open one or both of the steam supply valves —21— for an instant, just sufficient to admit a proper amount of moisture to the surface of the garment in contact with the under side of the press head, thereby slightly softening said garment, without saturation, to facilitate and expedite the perfect pressing of the garment, after which the valve —46— may be closed and the valve —52— may be opened to cut off the pressure fluid and to open the relief for the piston to the drain pipe —51— to allow the return of the bed and piston to normal positions.

It is evident from the foregoing description that steam may be diffused from the press head over a garment on the underlying buck before the latter is forced to its pressing position for the purpose of smoothing such garment preparatory to pressing, as for example when it is desired to impart a polished surface to the garment, in which case the press cloth may be omitted to permit the use of the polished metal press-plate directly upon the garment without using steam during the pressing operation.

What I claim is:—

1. In a steam clothes pressing machine, a stationary press-head having a perforated press-plate and a superposed steam chamber, separate non-rotatable bucks movable to and from a position under the press plate and each provided with a steam chamber, and fluid-pressure-operated means for raising either buck into pressing coaction with the press head.

2. In a steam clothes pressing machine, a press head and an underlying buck both disposed in substantially horizontal planes and each provided with a steam chamber, one of the pressing elements being slidable into and out of registration with the other, pipe connections between the steam chambers, and fluid-pressure-operated means for moving one of such elements into pressing coaction with the other element when registering with each other.

In witness whereof I have hereunto set my hand on this 2nd day of November 1911.

THEODORE D. PALMER.

Witnesses:

H. E. CHASE,

E. F. SPEARING.