

(No Model.)

2 Sheets—Sheet 1.

J. C. CHAMBERLAIN.
MACHINE FOR BLOCKING AND STRETCHING HATS.

No. 546,640.

Patented Sept. 17, 1895.

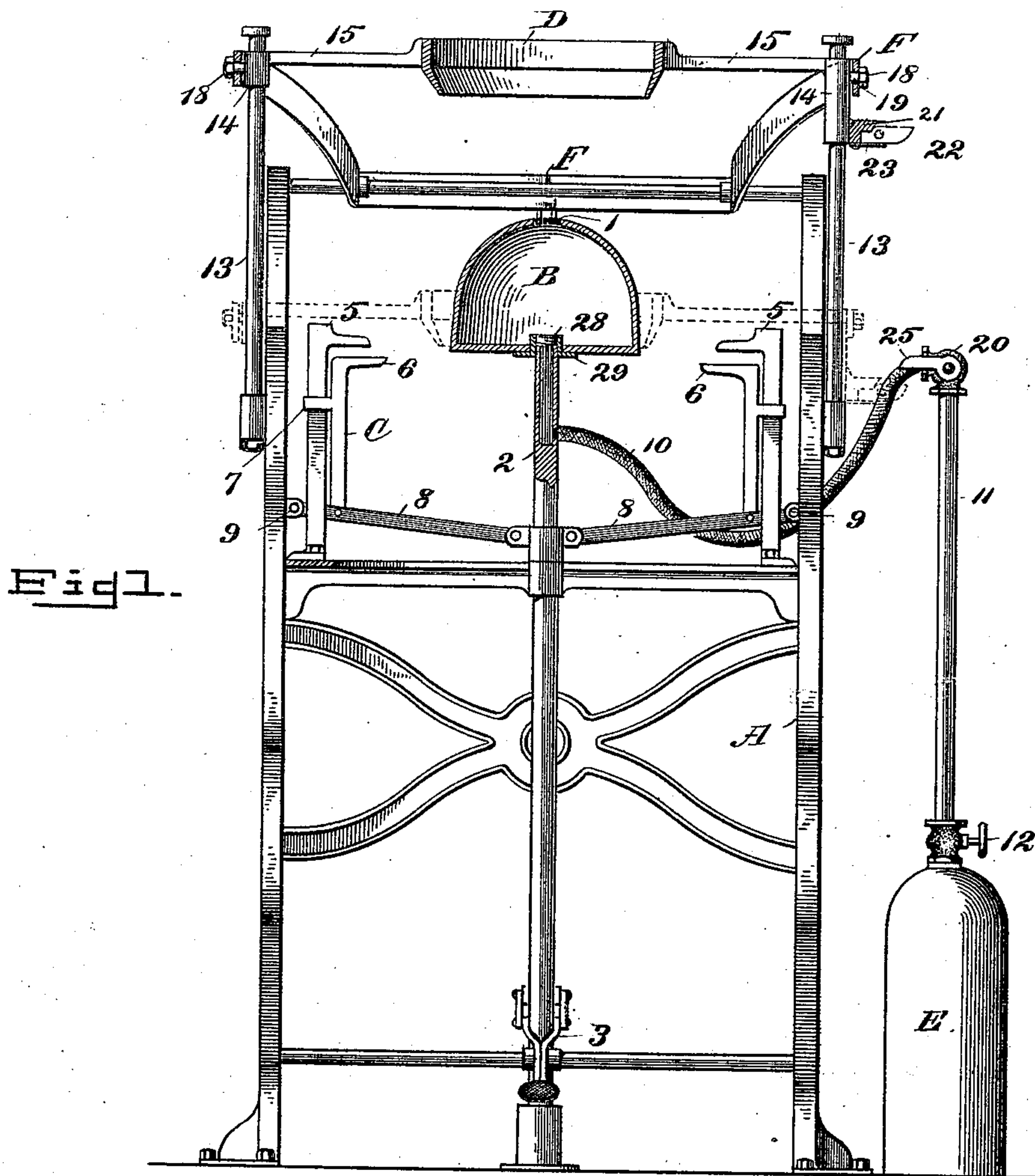
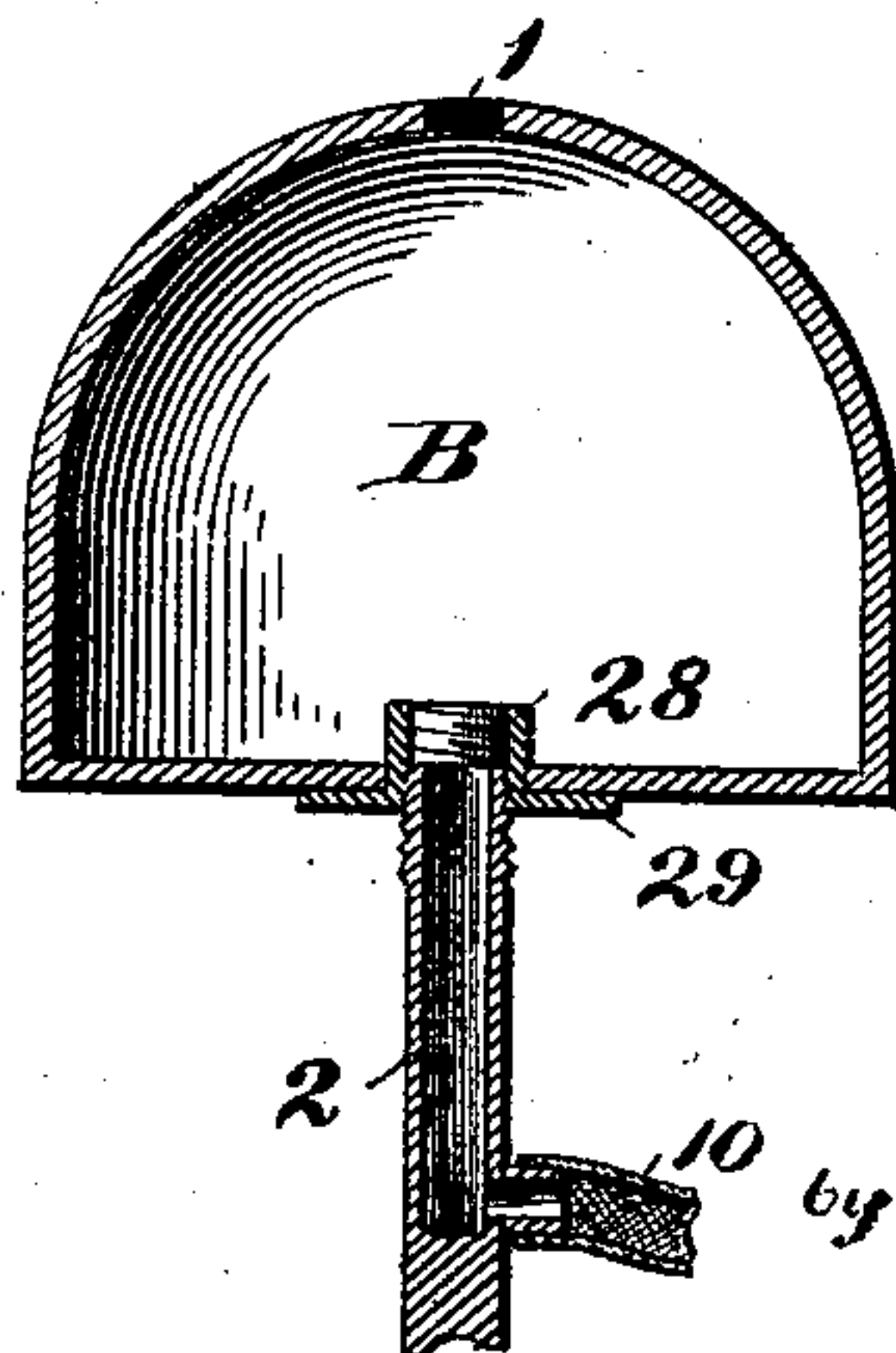


Fig 5.



Witnesses
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William M. Nichols

Inventor:
John C. Chamberlain,
by Foster, Guman & Co.
his Attorneys.

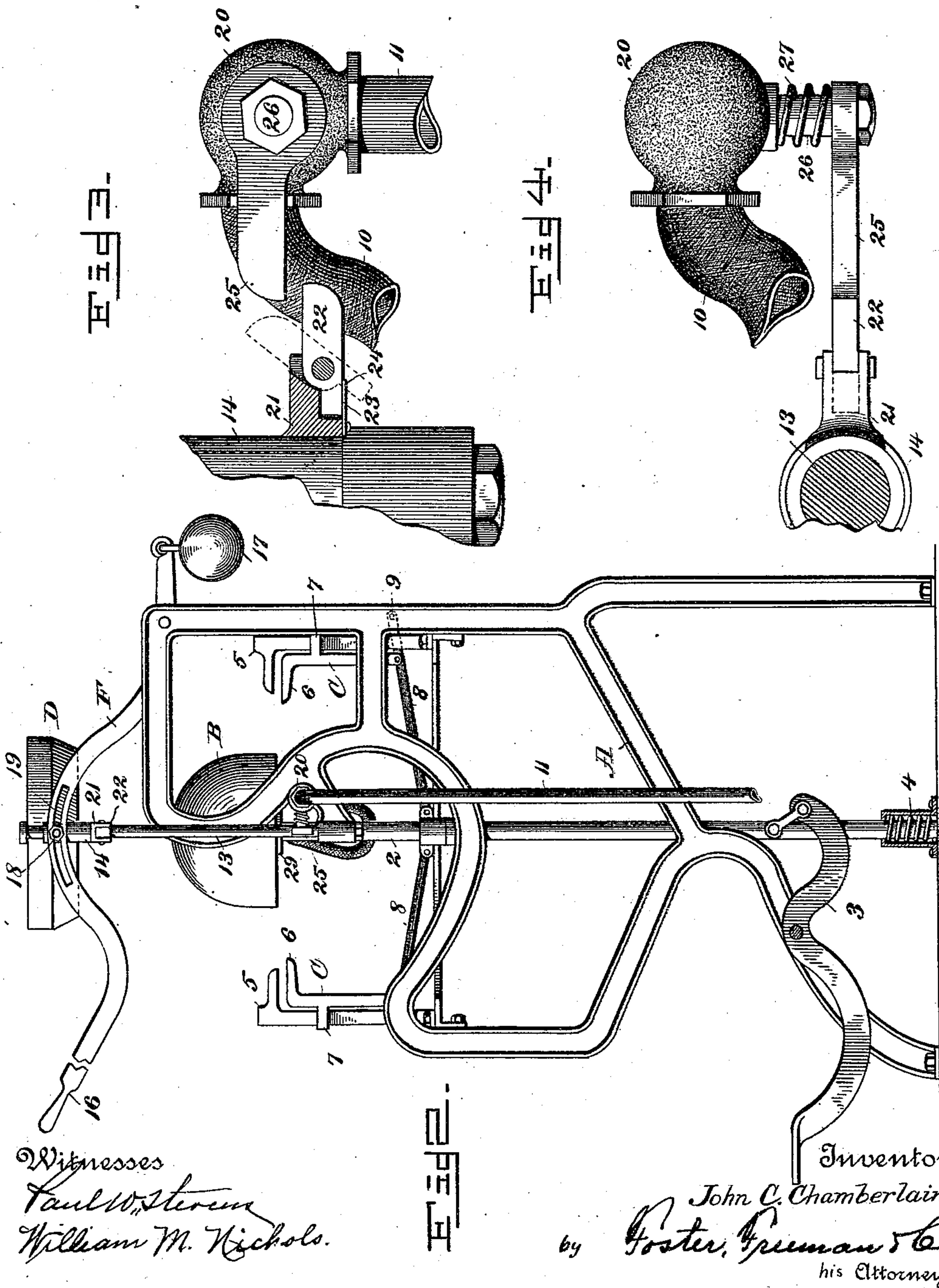
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOHN C. CHAMBERLAIN, OF BRIDGEPORT, CONNECTICUT.

MACHINE FOR BLOCKING AND STRETCHING HATS.

SPECIFICATION forming part of Letters Patent No. 546,640, dated September 17, 1895.

Application filed April 2, 1894. Serial No. 506,062. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. CHAMBERLAIN, a citizen of the United States, residing at Bridgeport, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Hat-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in machines for the manufacture of felt hats, and especially in that class of machines employed in shaping and blocking hats; and it consists in constructing the same as hereinafter fully set forth, and as illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my invention, the stretching-ring, the former, and part of its supporting-spindle being shown in section, said stretching-ring being shown in its elevated position in full lines and in its lowered position in dotted lines. Fig. 2 is a side elevation of the same, showing the stretching-ring in its elevated position. Fig. 3 is a detail side elevation of the devices for automatically admitting air or other fluid to the former. Fig. 4 is a plan view of the same. Fig. 5 is a sectional view of the former and its adjusting mechanism.

Heretofore in this step in the manufacture of hats it has been customary to make the formers of such machines of a solid wooden block with a central opening therethrough to support the former upon a spindle, and to place the hat thereon, clamp the edge of the hat by means of clamps, and then simultaneously lift the former and depress the stretching-ring. After the hat is stretched the former is removed from the spindle with the hat upon it, and the operator then places his mouth to the central opening of the former, blows through the same to overcome the adhesion between the moist hat and the former, and removes the hat from the former. This method consumes much time and necessitates the removal of the former from the machine after each hat has been stretched and blocked. To overcome these objections expansible

formers, each composed of a series of pivoted fingers have been used for stretching hats preparatory to the final pressing operation, but such formers invariably leave ridges in the hat, and when the latter is placed in the hydraulic press the die or plunger comes in contact with these ridges and mashes the hat out of shape.

In the drawings, A represents the frame of the machine constructed in any suitable manner. B is the hollow former in the shape of a metallic shell with an opening 1 at the top and supported upon a threaded spindle 2, which is tubular instead of solid, as usual, and is connected with a treadle 3, by which it may be lifted against the action of the spring 4, which tends to depress it.

Arranged adjacent to the former B are a series of clamps C, each of which is composed of a stationary jaw 5, supported upon the frame A, and a movable jaw 6, arranged parallel to and having a sliding connection 7 with the stationary jaw 5. Each of the movable jaws 6 is connected to a lever 8, which is pivoted at 9 to the frame of the machine and to the spindle 2 and arranged in such manner as to cause the opposing jaws 5 and 6 to come together at each elevation of the spindle 2 and to open as said spindle is depressed. A flexible tube 10 is connected at one end to the spindle 2 and to a trip-valve 20 at its other. This valve (the operation of which will be presently described) communicates by means of a pipe 11 with a boiler, pump, reservoir, or other means for supplying air or other fluid to the former B. As shown in Fig. 1, I prefer to make use of a reservoir E, in which is stored air under pressure, and connect the same to a hollow spindle 2 through the medium of a pipe 11 and flexible tube 10, provided with valve 20, which automatically admits air into the former at the proper time, and a regulating-cock 12.

The banding or stretching ring D is designed to reciprocate on vertical rods 13, secured to the frame A of the machine, and is connected therewith by means of collars 14, supported on the ends of a cross-head 15, to which the banding or stretching ring is secured. The said ring D registers with the hat-block or

former B and is adapted to be lowered upon said block and elevated above it by means of a bifurcated frame F, pivoted near its rear end to the frame A of the machine and having a handle 16 at its forward end. The extreme rear end of this frame F is formed for the reception of a weight 17 for balancing the banding-ring in its elevated position. The bifurcated frame F is connected to the collars 14 by means of pins 18, which engage slots 19 in said frame, which construction permits the vertical movement of the banding-ring D without binding upon the vertical rods 13.

Secured to a projection 21 of one of the collars 14 is a pivoted lug 22, having a tailpiece 23, designed to engage the said projection and permit the movement of the lug in one direction only. This lug, as shown, is retained in its normal position by a spring 24, connected to the projection 21 and bearing upon the tailpiece 23; but it may be retained in this position by gravity by having its outer end made heavier than the said tailpiece in order to overbalance it. This lug moves vertically with the banding-ring D and its supporting devices and is designed to spring past a projection 25 on the stem 26 of the valve 20, said projection being arranged in its path of movement, and trip it upon the elevation of the banding-ring D. The projection 25, as described above, is connected to the valve-stem 26. This stem is encircled by a spring 27 for returning it to its normally-closed position after it has been tripped by the upward movement of the lug 22.

As it is necessary to make hats of different depths, although otherwise of the same shape, it is desirable to vary the position of the former B with respect to the clamps C, and I therefore connect each former adjustably with the spindle 2, whether the latter is tubular or solid. A preferable arrangement is that shown best in Fig. 5, in which there is a hollow threaded nipple 28, with a surrounding flange 29 fitting an opening in the bottom of each former and adapted to the threaded end of the spindle 2, so that by turning the nipple upon the spindle the former may be raised or lowered to the extent desired. When the former has to be removed to change the shape or size it is simply necessary to lift it off the nipple 28 and put another in its place.

In operation the machine works as follows: The former B is lowered and the banding-ring D is elevated, as shown in Fig. 1. A hat is placed upon the former or block B with its brim occupying the jaws of the clamps C. The hat-block B is then elevated by means of the treadle 3 to close the jaws of the clamps upon the edge of the hat. The banding-ring is then lowered to the position shown in dotted lines in Fig. 1 by pulling down upon the bifurcated frame F, thus stretching the hat upon the block B. In lowering the band-

ing-ring the lug 22 springs past the projection 25 of the valve 20 and assumes a position for tripping it as the banding-ring is elevated. This tripping of the projection 25, which is effected after the banding-ring has been elevated above the former B a short distance, opens the valve 20 and allows a blast of compressed air or other fluid to be directed into the former and through the opening 1 in the top thereof, thus overcoming the cohesion between the hat and the former and removing the hat automatically from said former.

Without limiting myself to the precise construction of the devices described for effecting the objects of my invention, I claim as my invention—

1. In a hat stretching machine, the combination of the former provided with openings forming a free passage therethrough, the tubular spindle, upon which said former is supported, the flexible tube, the trip valve, a source of air supply communicating with said valve, and means for operating said valve to admit a blast of air through the former to remove a hat therefrom, substantially as described.

2. In a hat stretching machine, the combination of the former provided with openings forming a free passage therethrough, the reciprocating banding ring, and means for automatically admitting a blast of air through the former at each elevation of the banding ring, substantially as described.

3. In a hat stretching machine, the combination with the former provided with openings, the trip valve, a source of air supply connected therewith, connections between said valve and former, the banding ring, devices connected thereto for guiding the same and means on said guiding devices for tripping said valve to open the same as the banding ring is elevated, substantially as described.

4. In a hat stretching machine, the combination of the former, the clamps, the banding ring, the rods 13, the collars sliding thereon, provided with pins, devices connecting the collars and banding ring, the slotted frame for lowering said banding ring, the slots of which are engaged by the pins of said collars, substantially as described.

5. In a hat stretching machine, the combination of the former provided with openings, a source of air supply, connections between said former and source of air supply, the valve controlling said air supply, the valve stem having a projection thereon, the reciprocating banding ring and its frame, a lug secured to said frame for engaging the projection of the valve stem, to open the valve and permit the flow of air through the former, substantially as described.

6. In a hat stretching machine, the combination of a former provided with openings, a source of air supply, connections between

said former and source of air supply, a valve
and its operating devices in said connections,
a reciprocating banding ring and its frame
and a lug on said frame for engaging the op-
5 erating devices of the valve for opening the
same to permit the flow of air through the
former, substantially as described.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

JOHN C. CHAMBERLAIN.

Witnesses:

CHARLES W. MANN,
PAUL W. STEVENS.