

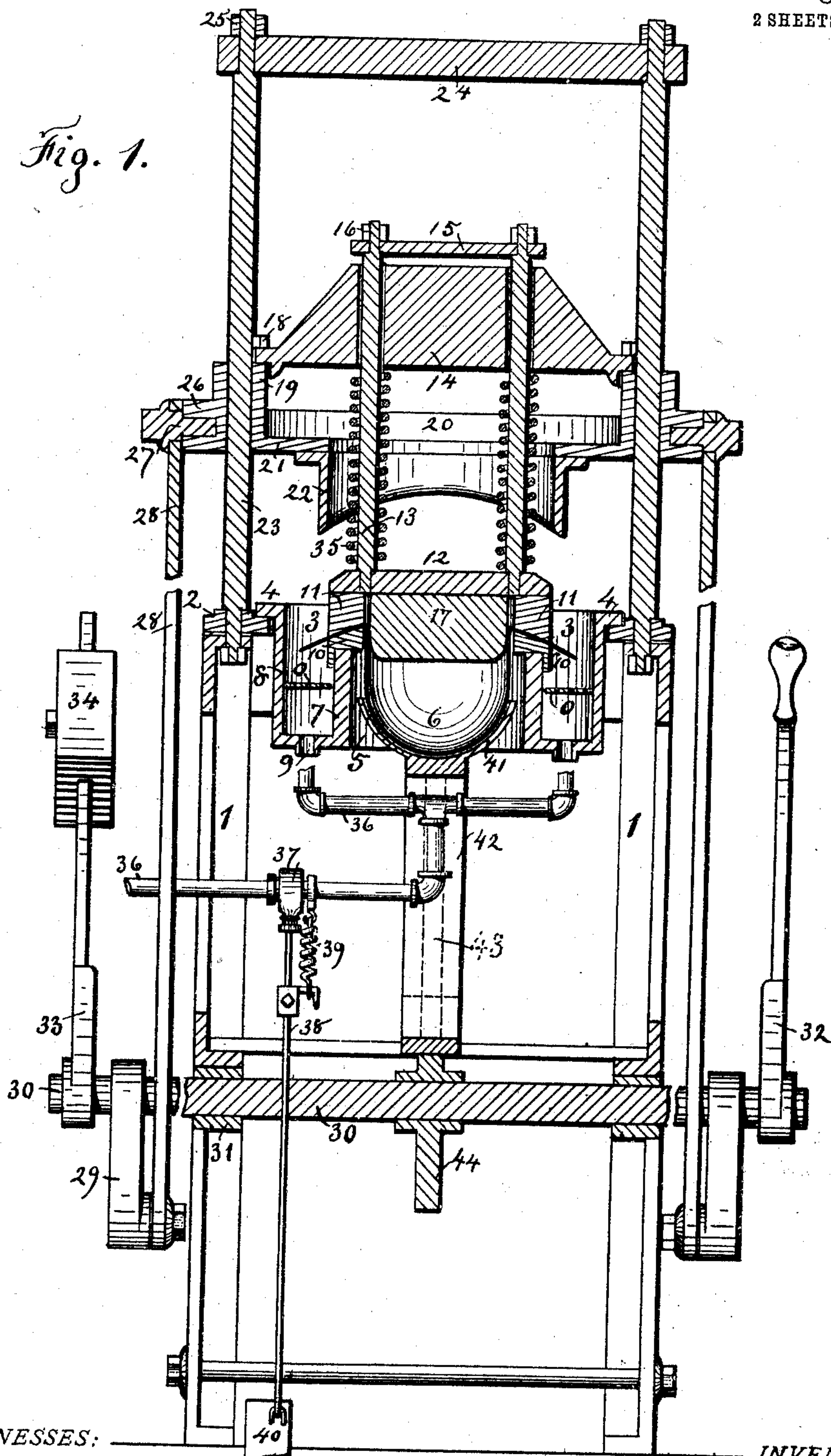
C. E. SACKETT.
PROCESS OF SHAPING AND SETTING HAT BRIMS.
APPLICATION FILED FEB. 8, 1909.

929,791.

Patented Aug. 3, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

INVENTOR.

James F. Wilson
Esq. Switzer

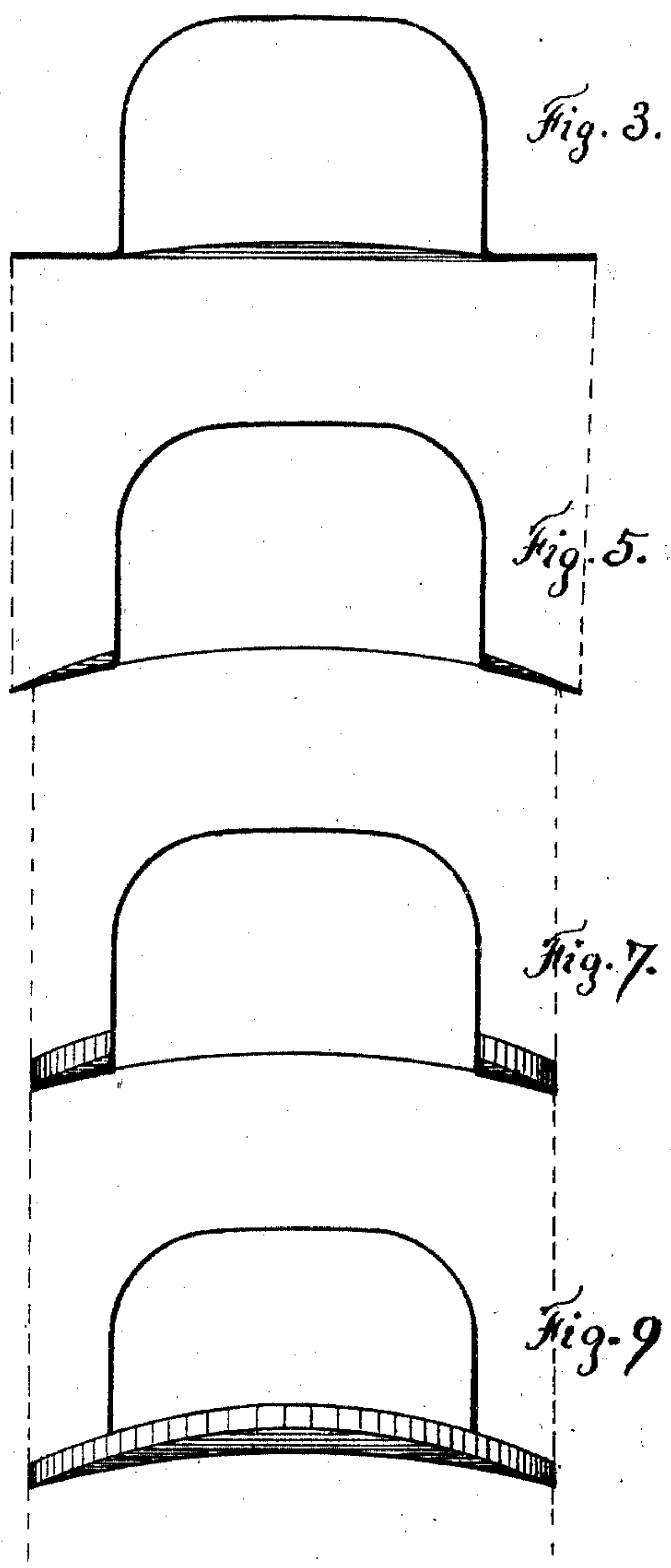
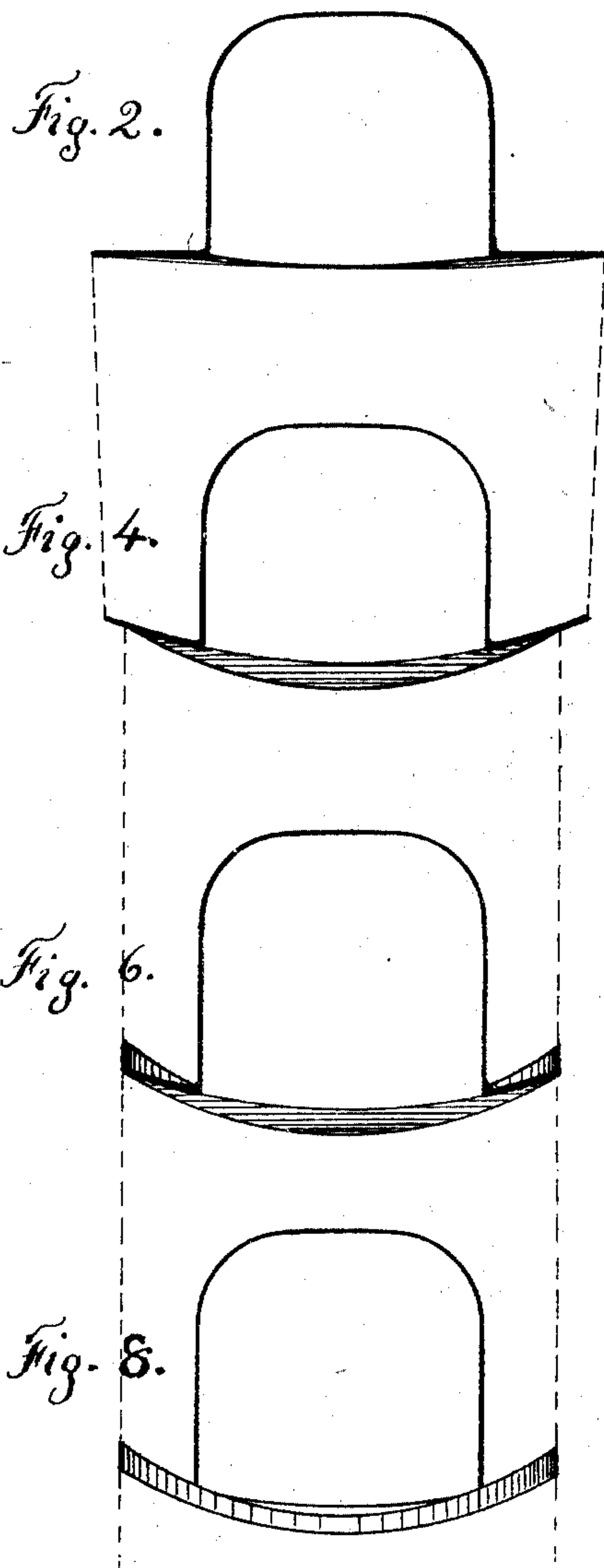
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WITNESSES:

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CHARLES E. SACKETT, OF DANBURY, CONNECTICUT.

PROCESS OF SHAPING AND SETTING HAT-BRIMS.

No. 929,791.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed February 8, 1909. Serial No. 476,816.

To all whom it may concern:

Be it known that I, CHARLES E. SACKETT, a citizen of the United States, residing at the city of Danbury, county of Fairfield, and State of Connecticut, have invented a new and useful Improvement in Processes for Shaping and Setting Hat-Brims, of which the following is a specification.

This invention relates to that part of the manufacture of hats, which consists in shaping and setting the hat brim, and though adapted to the manufacture of both soft and stiff hats, in the form here shown is more especially adapted to the manufacture of stiff hats which are designed to have curled, reversed, folded or welted brim edges.

The object of the invention is to combine in a one process machine the work that has formerly been carried on by several separate processes, and by different machines. By its use a hat brim can be shaped and set with more expedition, accuracy, and economy than is now done, and the brim will retain its shape more permanently than by present methods.

This process reverses the usual order of procedure in the manufacture of hat brims. It is now customary to begin the curling of a hat brim from a flat state, by a first process, which consists in curling its edge backward on a curling machine preparatory to ironing it into final shape by hand or machine, or otherwise finishing the brim edge. All curling machines operate on a flat brim only. After curling and finishing the brim edge, the entire normal hat brim is matriced as a final process, which consists in pressing the brim between suitable matrices, into its usual downward curves at front and rear, and its upward curves at the sides. In this invention, the matricing is done as a first process, and the shaping and setting of the brim edge as a final process, with this notable difference: When a hat brim has its edge rolled backward in the flat state by the application of moisture, heat, and pressure, generally sectionally applied, the fibers of the felt material adjust themselves to reinforcing the brim edge by their curl while the brim remains in the flat state, and when matricing takes place they are forced into an upward or downward curvature that is not natural to them, and the inevitable tendency after matricing is for the brim edge to revert gradually more or less to a flat state again. To resist this tendency all stiff

hat brims are wired with a curved wire inserted under the fold of the hat brim edge before binding it, in order to help to maintain the brim curvature in its original position. In this invention, the matricing being done as a first process, the entire normal hat brim is given its final curvatures from the flat shape at once, and the brim edge follows the periphery of the curvature from their highest to their lowest point. See Figures 4 and 5. A section of the brim edge is left projecting all around beyond the edge of the oval matrices which form the normal edge or shape of the hat brim. This section is first thoroughly steamed in order to soften its stiffening material and is then bent or flanged vertically at approximate right angles to the general lateral plane of the hat. See Figs. 6 and 7. When this vertical section is allowed to cool and stiffen again, its fibers have adjusted themselves to reinforcing the curved brim edge of the hat, and not its flat edge, and as a consequence will retain, and resist any tendency of the curvature to return to a flat state. See Figs. 8 to 11.

My process consists, first, in subjecting a hat brim in its flat state to the softening effect of weak steam vapor, second, compressing a section of said hat brim between matrices which both compress and protect said section from further action of the steam vapor, third, subjecting a peripheral section of said hat brim not covered by said matrices, to the action of live steam vapor, thoroughly softening the stiffening matter therein, to enable the felt to adjust itself to a changed form, fourth, breaking down said peripheral section of said hat brim at right angles to the general lateral plane of the hat, fifth, kneading and compressing said peripheral section while in its softened state, and still subjected to the action of live steam, to reduce its diameter by a shrinking process.

The mechanical means of carrying out this process are illustrated on Sheet 1 of the accompanying drawings, in which—

Fig. 1 is a sectional elevation of the entire machine through its lateral center line, and fully shows the means of carrying out the process. It is not intended to show the mechanical construction of the machine here in all its details, that being the subject of a future mechanical application for letters patent. Sheet 2 shows sectional lateral and longitudinal views of the hat brim in

the order in which it is shaped by this process, in which Fig. 2 is a cross section of the hat brim in its flat state, Fig. 3 a longitudinal view of the same, Fig. 4 a cross section of the hat brim after being matrixed, Fig. 5 is a longitudinal view of the same, Fig. 6 is a cross section of the hat brim after the portion projecting beyond the matrices has been vertically flanged, Fig. 7 is a longitudinal view of the same, Figs. 8 and 9 are outside elevations of the same.

The machine may be described as follows:

1, is a suitable machine frame, 2, its top platform, 3, is an open steam pot supported from the platform by a flange, 4; the steam pot has an open oval center space 5, adapted to receive the crown of a hat 6; this space is surrounded by an inner vertical oval wall 7, and an outer vertical wall 8, depending from the supporting flange 4. The walls are joined by a bottom floor tapped at 9 to receive inlet steam pipes and outlet drip pipes; about midway in the height of the pot is arranged a perforated baffle plate O, to distribute the steam evenly, and prevent the eruption of condensed water; the steam vapor escapes freely at the open top of the pot.

Removably mounted on the top of the inner oval wall of the steam pot is an oval matrix 10, having the same ellipse and lateral and longitudinal curvatures as the top surface of a predetermined finished hat brim to be shaped thereon; supported above this matrix is a companion matrix 11, of the same ellipse and curvatures, and registering with the lower matrix; the peripheries of both matrices are vertical, and register with each other; the upper matrix is removably attached to, and supported by a press platen 12, in which are bedded two upwardly extending guide rods 13; these rods pass up through long vertical sliding boxes in the cross head 14; they are joined together above the cross head by the connecting bar 15, in which they are shouldered and retained there by the nuts 16; attached to the press platen on its lower side is a hat block 17; its office is to center the hat accurately in the central opening of the lower matrix, as it descends.

The cross head 14 is secured by bolts 18 to the vertical side boxes 19, these boxes are joined to each other by a vertical ring casting 20, having an inward horizontal flange 21; depending from this flange, and removably attached to it by a similar flange, is a vertical oval ring 22, whose inner ellipse is of the same conformation as the vertical sides of the two lower mating matrices, plus the thickness of the felt of a hat brim to be shaped between them; the lower edge of the vertical ring is rounded outwardly, so that it may enter freely around the lower matrices, and it is curved to correspond with the

usual curvature of a hat brim as a saving of material; a straight edged ring would answer the purpose just as well. The boxes of the flanged ring supporting this oval vertical ring have a vertical sliding movement upon guide posts 23, which are securely bedded in the machine frame and terminate at top in a cross bar 24, in which they are shouldered and retained by nuts 25; on the outer side of the boxes are hubs 26, into which are screwed journal pins 27, upon which are journaled depending side bars 28, which pass downward outside of the machine frame, and are journaled at their lower ends to the extremities of cranks 29, which cranks are keyed at their fulcrum ends to a shaft 30; journaled in boxes 31, attached to the machine frame, upon one end of the shaft is secured a lever 32, on its other end an arm 33, carrying a balancing weight 34, near its extremity; upon the platen guide rods 13 are fitted spiral springs 35, which are compressible between the platen surface and the cross head and give a resilient movement to the cross head and all parts connected with it, which is felt at the lever, while they at the same time hold a steady pressure upon a hat brim between the two matrices; steam is supplied to the steam pot in adjustable quantities through the connecting pipes 36, and a gate valve 37 which is operated by a rod 38 with a spring movement 39, from a foot treadle 40, hinged to the floor. To remove the hat from the machine, a metallic cup 41 is provided, adapted to fit the oval hat crown; this cup is attached to a frame 42 with outer boxes sliding upon guide rods 43 beneath the platen of the machine. Beneath the frame carrying the cup the shaft is fitted with a cam 44, which, when the lever has raised the upper matrix clear of the lower one, becomes operative, and lifts the hat away from the lower matrix for the purpose hereafter set forth, and for its ready removal.

The process which forms the substance of this invention, can be carried out on the aforescribed machine as follows: When the cross head is elevated by the lever to its highest point it carries up with it the upper matrix, and space is opened for the placing of a hat in the central opening of the lower matrix, crown downward; the hat is then supported by the cup which remains at the same position from which the last hat was delivered. The operator now subjects the hat brim to the gentle action of weak steam vapor by pressure on the foot treadle. In a few moments the brim will be soft enough to matrix, and a movement of the lever forward lowers the hat upon the lower matrix and brings down the upper matrix upon it; there is then a projecting section of hat brim all around the matrices; the operator stops the lever as soon as he has

compression between the matrices, and opens the steam valve for a vigorous steaming of the projecting brim until it will almost drop of its own weight; this requires
5 but a few moments. The lever is again moved forward and the flanging ring brought down, compressing the projecting section of hat brim flat against the vertical sides of the lower matrix; by a short move-
10 ment of the lever forward and backward at this point aided by the resiliency of the springs on the platen guide rods, all flutes or convolutions of the projecting section of hat brim will be smoothed out against the
15 vertical sides of the lower matrix, and under the softening action of the steam, the fibers of the felt will readjust themselves vertically to the general lateral plane of the hat brim curvatures. This also takes but a few mo-
20 ments, when a backward throw of the lever will open the matrices, and the cam will push up the hat matriced and vertically banded, as in Figs. 4 to 9. If the hat brim now be allowed to cool and restiffen, it will
25 be seen that the vertical band connects the edge curvatures from their highest to their lowest point, and virtually forms an arched truss from front to rear of the hat, that will prevent the curved edge from ever changing
30 its position.

Having now described the process, what I claim and desire to secure by Letters Patent is:

In the manufacture of hats, the method or process of shaping a hat brim from its flat 35 state into its final lateral and longitudinal curvatures, by, first, subjecting said hat brim to the direct contact of weak steam vapor to slightly soften its stiffening material, second, while in a warm state compressing said hat 40 brim between suitable matrices, third, superheating a projecting peripheral section of said hat brim to the point of saturation by the direct contact of live steam while its protected section is compressed between said 45 matrices, fourth, manipulating said flat peripheral section of said hat brim while so heated, and so saturated, into any desired shape, fifth, cooling said hat brim whereby the curvatures obtained in its superheated 50 state re-stiffen and become permanent.

In testimony whereof, CHAS. E. SACKETT has signed his name to this specification in the presence of two subscribing witnesses, this 4th day of February 1909.

CHAS. E. SACKETT.

Witnesses:

JAMES P. WILSON,
E. R. WILSON.