

No. 734,642.

PATENTED JULY 28, 1903.

A. A. WHITNEY.
HAT MACHINE.

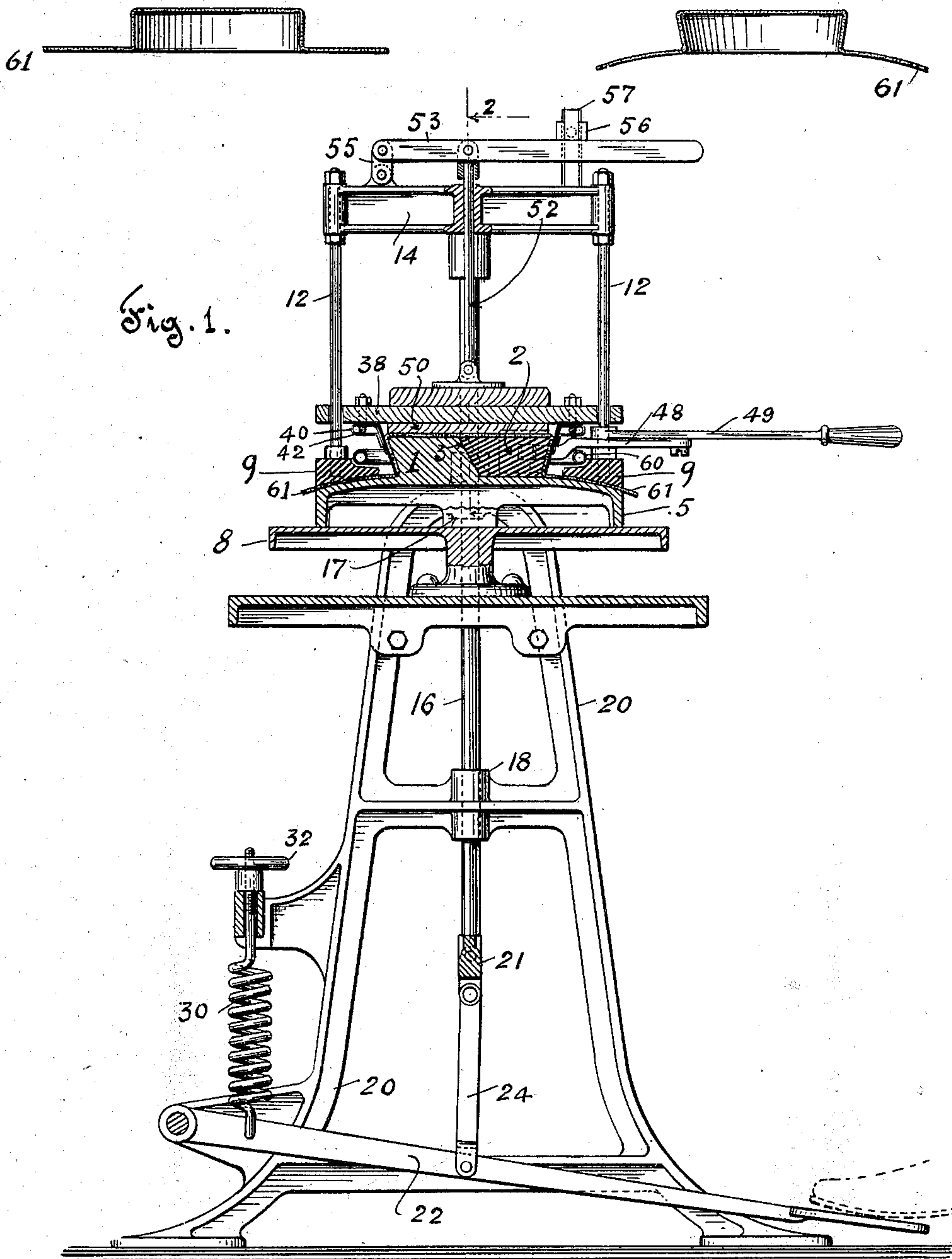
APPLICATION FILED SEPT. 17, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 4.

Fig. 5.



Witnesses
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Harry Conlin

Inventor
Arthur A. Whitney
By his Attorney
Walter Brown

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2 SHEETS—SHEET 2.

Fig. 3.

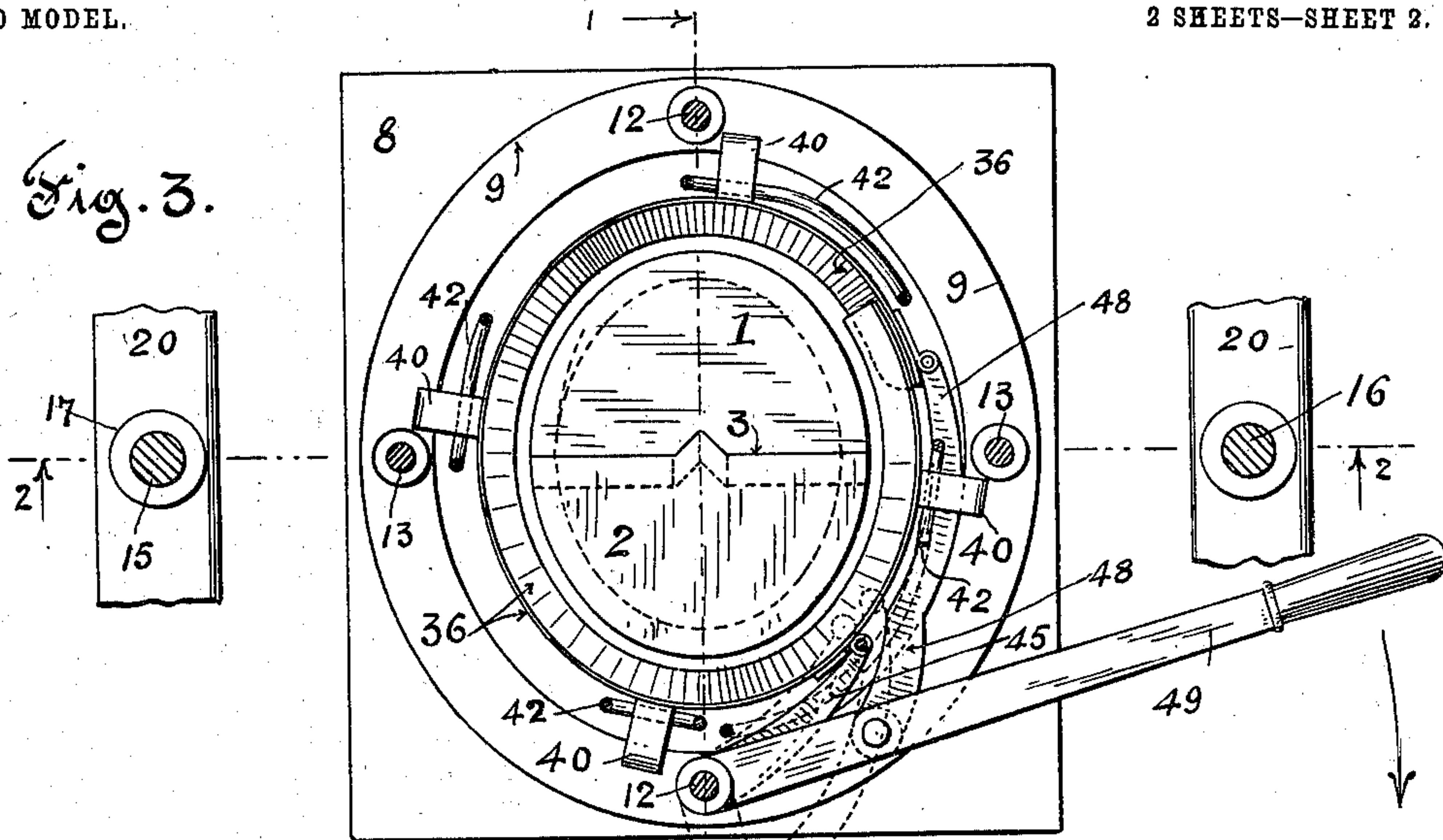
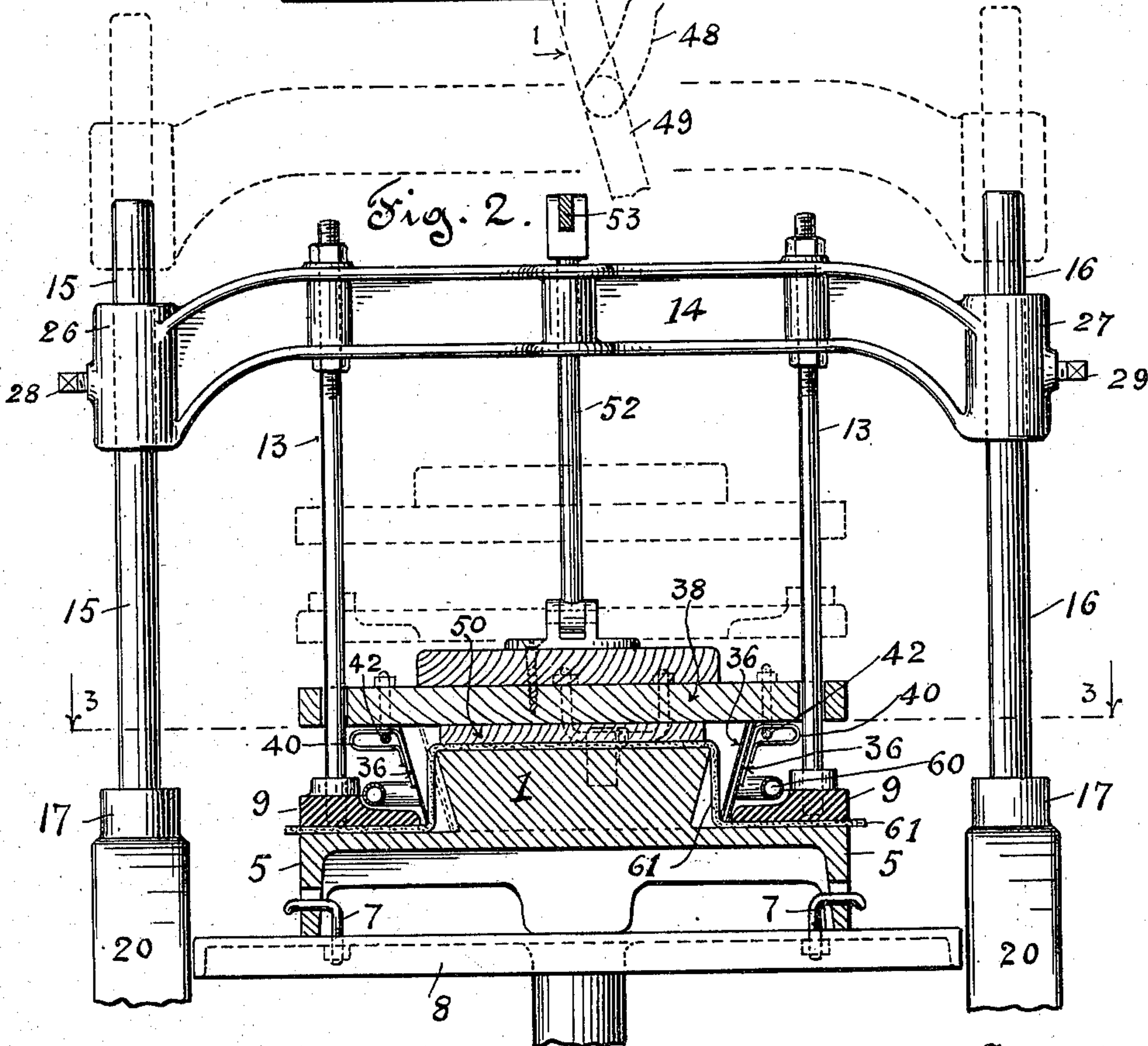


Fig. 2.



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UNITED STATES PATENT OFFICE.

ARTHUR A. WHITNEY, OF NEW YORK, N. Y.

HAT-MACHINE.

SPECIFICATION forming part of Letters Patent No. 734,642, dated July 28, 1903.

Application filed September 17, 1902. Serial No. 123,706. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR A. WHITNEY, a citizen of the United States of America, and a resident of the borough of Manhattan, in the city of New York, State of New York, have invented certain new and useful Improvements in Hat-Machines, of which the following is a specification.

My invention relates to improvements in hat-machines, and particularly in the dies thereof.

While the invention is adapted to the pressing of any style of hats, it is particularly useful in connection with the manufacture of women's hats with wide brims and bell crowns, such as are now fashionable, and can be employed as well in the manufacture of straw hats as of hats of other materials.

Heretofore there has been no machine known to the trade which will satisfactorily press hats such as above mentioned, and it has been necessary either to shape them by hand or to employ machines in which the upper or female die for shaping the crown is made in a number of separate pieces which are pressed individually in against the male or inner die; but such machines are slow in operation and cannot finish the hat at a single operation. They also necessitate much hand-work to complete the hat. My invention, however, produces a machine in which any form of bell-crowned hat can be as readily and excellently shaped at a single operation as any other hat and in which the finished hat can be quickly removed from the machine and another hat-blank put in with practically no change in the dies.

Essentially my invention consists in the combination, with the male die, of a contractible female die and means for contracting the female die against the male die to shape the hat-crown and for expanding the female die or allowing it to expand from the male die after a hat-crown is pressed, so as to permit of the ready removal of the pressed hat and insertion of another blank. By preference the female die is an elastic spiral band which will itself expand to its original shape and dimensions when the operator releases the mechanism by which he has contracted it against the male die.

The preferred form of my invention is

shown in the accompanying drawings, together with other parts of a machine for pressing hats, in order that the construction and operation of the invention may be made clear.

Referring to the said drawings, Figure 1 is an elevation, partly sectioned, of a machine embodying my invention. Fig. 2 is an enlarged sectional elevation on the line 2 2 of Fig. 3 of the dies and certain other parts of a hat-pressing machine which is provided with my invention. Fig. 3 is a sectional plan view on the line 3 3 of Fig. 2. Fig. 4 is a sectional view of the partly-finished hat as shaped by the depressing of the die which forms the brim and corresponding to Fig. 2. Fig. 5 is a sectional view of the finished hat and corresponding to Fig. 1.

The under or male die for the bell-crown and the brim is preferably made in two parts, 1 and 2, respectively, which join together with inclined meeting faces 3 and a tongue and a groove, as shown in Figs. 1 and 3. Said part 1 is preferably made integral with or permanently fixed on the casting 5, which is shaped to give the proper curvature to the hat-brim and is supported on the platform 8, as is usual in machines for pressing hats, being secured thereto by bolt-hooks 7. The part 2 is preferably laid loosely in position on said platform 8, so as to permit of the ready removal of the finished hat by rising and sliding to the left as the hat is lifted off the die. The upper die 9 for the brim is of annular form and curved on its under side to correspond with the curvature of the said casting 5 to form the brim and is approximately concentric to said die 1 2 and carried on the lower ends of rods 12 13, which depend from a vertically-reciprocating four-armed cross-head 14, which is reciprocated by the rods 15 16, which rods are vertically guided through sleeves 17 and 18 of the frame 20 and are connected to the treadle 22 by the link 24, the upper end of which is pivoted to the cross-piece 21, which connects the lower ends of said rods 15 16. Said cross-head 14 is made adjustable on said rods 15 16 by the sleeves 26 27 and set-screws 28 29. Said treadle 22 is normally raised by the spring 30, which is made adjustable by the thumb-nut 32. The contractible die which forms the crown against the aforesaid die 1 2 is preferably con-

5 structured and arranged as follows: A band of
 any suitable elastic material, as sheet steel
 or brass, is formed into a spiral 36, the clear
 opening through which is normally larger
 10 than said die 1 2 and which has the same flare
 as said die 1 2. Said spiral 36 is preferably
 somewhat higher than said die 1 2 and sus-
 15 pended in any suitable manner which will
 permit it to contract and expand from a ver-
 tically-reciprocating plate 38. In the draw-
 ings I show the mode of suspension of said
 spiral 36 as consisting of four radial loops 40,
 fastened to said spiral at the extremities of
 20 perpendicular diameters, said loops 40 being
 long enough to permit of the extreme in and
 out movements of said spiral 36. Through
 said loops pass U-shaped wires 42, which are
 bolted through said plate 38, the openings be-
 25 tween the legs of the U's being great enough
 to permit of the extreme movements of said
 spiral 36. The said spiral 36 is thus free to
 move in all directions. To the inner coil of
 said spiral and relatively near its inner end
 30 is pivotally connected an arm 45, the outer
 end of which is pivoted on one of the afore-
 said rods 12, Figs. 1 and 3. To the outer
 coil of said spiral 36 and near the extremity
 thereof is pivoted one end of a link 48, the
 35 other end of which is pivoted to a lever 49,
 which is fulcrumed on said rod 12. Said
 plate 38, on the under side of which I prefer
 to place a boss or plate 50 to press the hat-
 crown down hard on said die 1 2, is reciproc-
 40 ated by the connecting-rod 52, the upper
 end of which is pivotally connected with the
 lever 53, which is fulcrumed on the link 55,
 pivoted on said cross-head 14, 56 being an
 adjustable slide on upright 57 and fixed by
 45 a set-screw in the usual manner for holding
 down said lever 53. 60 is an annular gas-
 burner, the flames of which play down on
 said die 9 to heat it in the usual manner, and
 I also prefer to use a gas-burner (not shown)
 under casting 5 to heat die 1 2.
 50 The machine is operated as follows: The
 flat blank of any fabric of which the hat is to
 be made and cut to size is put in the machine
 on the die 1 2, the die 9 and the spiral 36 being
 in their raised positions and said spiral 36
 55 being expanded to its normal size. Said
 blank 61 being in position, the operator first
 depresses treadle 22, thereby forcing die 9
 down to shape the brim and bringing the
 blank to the shape indicated in Fig. 4, but
 60 not yet fully depressing plate 38 with its boss
 50 and spiral 36. Next the operator, still
 holding down the treadle 22, presses down le-
 ver 53 and at the same time shifts lever 49
 from the position of Fig. 3 to that of Fig. 1,
 65 thereby causing said spiral 36 to descend to
 its lower position and contract inwardly,
 pressing the crown of the hat-blank 61 hard
 against the die 1 2, and thereby giving the
 crown the desired shape, while at the same
 time the boss 50 has pressed the top of the
 crown. After the hat is pressed for a suffi-
 cient time the operator throws lever 49 back

to the position of Fig. 3, the spiral 36 springing
 out to normal size, and also raises lever 53,
 thereby lifting the plate 38, with its boss 50, 70
 and said spiral 36 clear of the hat. Finally
 he releases the treadle 22, when die 9 rises to
 its original position. The hat can now be
 removed from the machine, as the part 2 of
 the crown-die rises and slides freely on an 75
 incline to the left as the hat is lifted from
 the die.

Now, having described my improvements,
 I claim as my invention—

1. The combination in a machine for press- 80
 ing hats, of a die for the inside of the hat-
 crown, an elastic spiral band having over-
 lapping ends and adapted to contract and
 shape the hat-crown against said die and hav-
 ing one of its ends pivotally connected to a 85
 stationary part of the machine, and means
 for moving the other end of said band to con-
 tract it against said die, substantially as de-
 scribed.

2. The combination in a machine for press- 90
 ing hats, of a die for the inside of the hat-
 crown, an elastic spiral band for shaping the
 hat-crown against said die, means for rais-
 ing and lowering said band, and means for
 contracting it against said die to shape the 95
 hat-crown, substantially as described.

3. The combination in a machine for press-
 ing hats, of a die for the inside of the hat-
 crown, an elastic spiral band for shaping the
 hat-crown against said die, a pivotal arm 100
 connecting one end of said band with a sta-
 tionary part of the machine, and a lever op-
 eratively connected with the other end of
 said band and adapted to contract the same
 against said die, substantially as described. 105

4. The combination in a machine for press-
 ing hats, of a male die for the crown formed
 with a plurality of relatively movable parts,
 a contractible band for shaping the hat-crown
 against said male die, means for raising and 110
 lowering said band, and means for contract-
 ing said band against said male die, dies for
 the hat-brim and means for operating the
 same, substantially as described.

5. The combination in a machine for press- 115
 ing hats, of the two-part male die 1, 2, the
 elastic spiral band 36 for shaping the hat-
 crown against said die, means for raising and
 lowering said band and suspension devices
 for said band adapted to allow of the con- 120
 traction and expansion of said band 36, the
 pivotal arm 45 connecting one end of said
 band 36 with a stationary part of the ma-
 chine, means for moving the other end of the
 said band to contract the same against the 125
 said male die, and a pivotal link connected to
 said other end of the band with said means,
 substantially as described.

Signed at New York this 15th day of Sep-
 tember, 1902.

ARTHUR A. WHITNEY.

Witnesses:

R. B. VALENTINE,

DAVID WALTER BROWN.