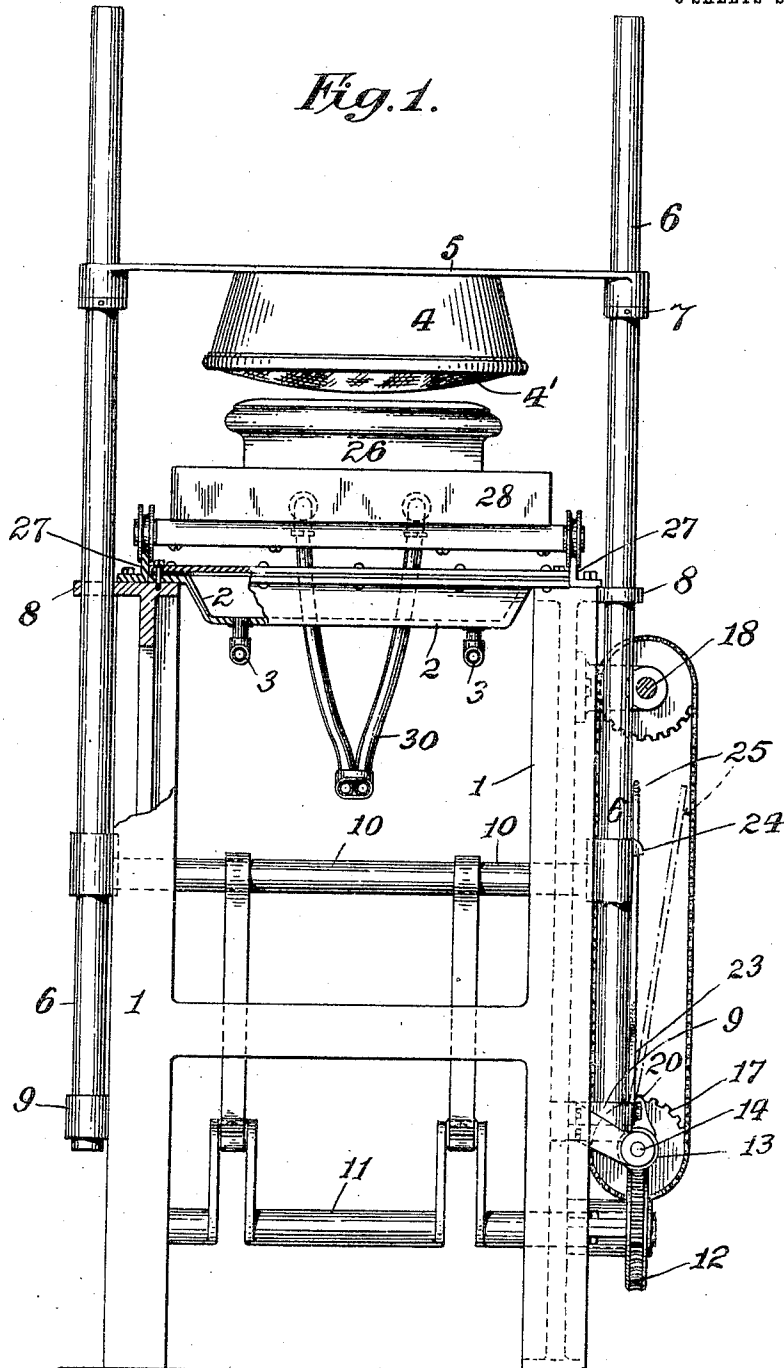


A. B. WARING.
HAT FLANGING MACHINE.
APPLICATION FILED APR. 25, 1908.

971,094.

Patented Sept. 27, 1910.

3 SHEETS-SHEET 1.



Attest:
Edgworth Young
J. E. Kimball

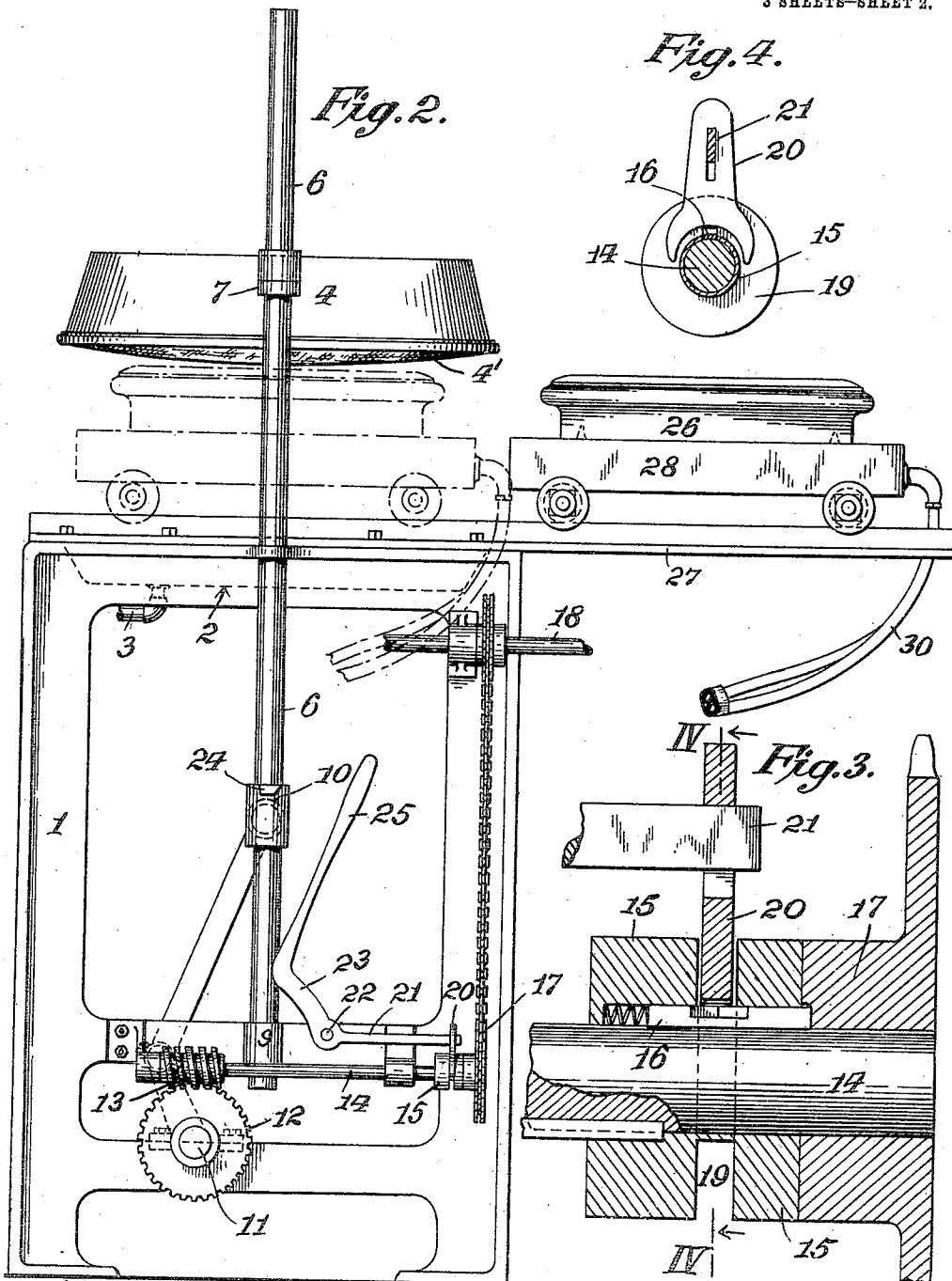
Arthur B. Waring Inventor:
by *Arthur B. Waring* Atty's.

A. B. WARING.
HAT FLANGING MACHINE.
APPLICATION FILED APR. 25, 1908.

971,094.

Patented Sept. 27, 1910.

3 SHEETS-SHEET 2.



Attest:
Edmund G. Gine
H. S. Kinsman

Inventor:
Arthur B. Waring
by *Arthur B. Waring* Attys.

A. B. WARING.
HAT FLANGING MACHINE.
APPLICATION FILED APR. 25, 1908.

971,094.

Patented Sept. 27, 1910.

3 SHEETS—SHEET 3.

Fig. 5.

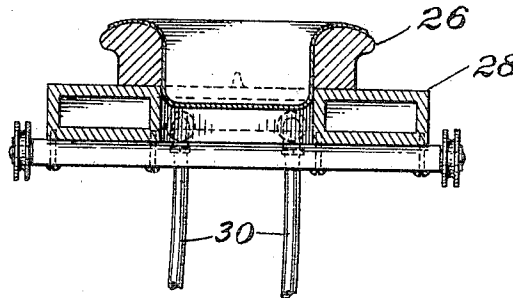


Fig. 6.

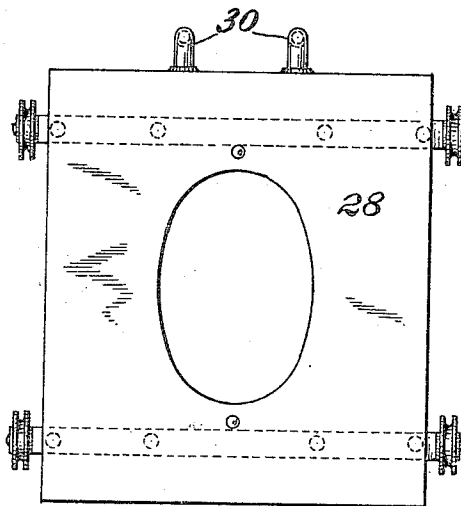
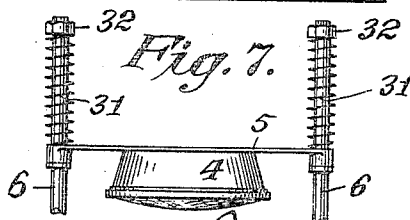


Fig. 7.



Attest:
Edgewood Green
H. Kinsale

Inventor:
Arthur B. Waring
by *McDonough & Co.* Attys.

UNITED STATES PATENT OFFICE.

ARTHUR B. WARING, OF NEW YORK, N. Y.

HAT-FLANGING MACHINE.

971,094.

Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed April 25, 1908. Serial No. 429,144.

To all whom it may concern:

Be it known that I, ARTHUR B. WARING, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Hat-Flanging Machines, of which the following is a full, true, and concise specification.

My invention is an improvement in hat machinery, and relates particularly to machines for flanging the brims of hats, the object of the invention being to produce an organized means for this purpose adapted to apply heat and pressure to the hat brims in an effective and expeditious manner, to facilitate the manipulation of the forms or dies required for shaping the same, and otherwise to lessen the labor and time required for giving the hat its desired shape.

The invention also involves means for effecting the prompt removal of moisture from the hat-brim whereby the proper and desired setting of the same is promoted, all as will be hereinafter more particularly described and pointed out in the claims.

A machine embodying my invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a rear elevation; Fig. 2 a side elevation; Fig. 3 an enlarged longitudinal section of the clutch mechanism; Fig. 4 a detail of the same taken on line IV—IV of Fig. 3; Fig. 5 a cross-section of the flange form and its carriage; Fig. 6 a plan of the carriage with the flange form removed; and Fig. 7 a modification.

The machine illustrated comprises a frame 1 of ordinary construction, supporting at its upper extremity a steam-chest or other appropriate heater 2. The heater may conveniently serve as one of the cross-members of the frame-work, for which purpose it may be bolted to the top bars of the same, as shown. Inlet and outlet connections for admitting steam or other heating medium to the chest are attached to its bottom, as shown at 3.

The presser, designated 4, is preferably a sand bag, such as is customarily employed for flanging hat-brims, and consists of a receptacle provided with a flexible canvas bottom 4' and filled with sand. The presser is adapted to reciprocate in a vertical direction toward and from the steam-chest 2, and in its lowermost position is adapted to rest upon or over the said chest so as to be heat-

ed by it. When the machine is in use, however, a hat or flange-form 26 holding the hat to be shaped, is adapted to be temporarily interposed between the steam-chest and the sandbag so that the latter will then rest upon the form and the hat instead of upon the heater and will conform to the contour of the said form and press the hat-brim uniformly upon it. In order to accommodate these different positions of rest, the sandbag or presser has a lost motion connection with the reciprocating parts which support and operate it, so that the latter may continue their downward movement after the presser has come to rest on the hat, and re-engage with the presser on their succeeding upward movement to lift it off the hat. For this purpose the sandbag is fastened to a cross-bar 5 which is loosely sleeved to upper extremities of two upright reciprocating shafts or rods 6 and rests normally upon the adjustable abutments or collars 7 thereon. The rods 6 which serve both to guide and elevate the presser, are appropriately supported in journals 8 and 9 on the machine frame and are simultaneously reciprocated therein by means of their cross-head 10 and appropriate connections between the same and a crank-shaft 11. The crank-shaft 11 is somewhat offset, from the plane of the slide-rods, as indicated, in order to provide clearance for the lower ends of the latter.

Power is applied to the crank-shaft through gearing which comprises an automatic disconnecting clutch, functioned to stop the machine at the end of each reciprocation of the sandbag, whereby the latter is brought to rest and allowed to remain either upon the heater 2 or upon the flange form 26 as above explained, until the machine is again started. The gearing referred to comprises a worm-wheel 12 fast on the crank-shaft and driven by a worm 13 on the worm-shaft 14,—a clutch-block 15 keyed to the worm-shaft, a clutch-tooth 16 (Fig. 3) carried in a longitudinal seat in the clutch-block and spring-pressed therein toward a tooth recess in the face of the hub of a sprocket-wheel 17. The sprocket-wheel 17 is loosely mounted on the worm-shaft 14 and driven by sprocket-chain from the power-shaft 18. The clutch-block 15 is provided with a circumferential groove 19, which intersects the longitudinal seat of the clutch-tooth, and a wedge member 20, confined in

said groove by any appropriate means, is adapted to cooperate with a beveled notch in the top of the tooth 16 so that the latter in revolving, will encounter the wedge and be thereby withdrawn from the tooth recess against the tension of its spring, thus disconnecting the worm-shaft from its source of power. The wedge 20 is appropriately connected to the arm 21 of a throw-off lever, by which it may be raised and lowered within its groove into and out of engagement with the clutch tooth, and when slightly raised, as shown in Fig. 3, it allows the tooth to enter the recess in the revolving sprocket-wheel, thus coupling the clutch members and starting the machine. The throw-off lever is pivoted at 22 to the machine frame and its arm 23 is provided with an inclined surface disposed in the path of some part of the reciprocating presser mechanism such as the nose 24 on the cross-head 10, so that when the latter approaches the end of its downward movement it will strike the lever and rock it in a direction to lower the wedge 20 into the path of the revolving clutch tooth 16, whereby the latter is disconnected from the sprocket-wheel. The operating arm 23 of the throw-off lever is laterally flexible and provided with a handle 25 by which the operator may spring it past the nose 24 and return it to its operating position to release the clutch-tooth and start the machine again in motion.

It is to be understood that the invention is not limited to the foregoing means for accomplishing the automatic stopping of the presser mechanism at the end of each reciprocation and that other forms of automatically disconnecting clutch mechanism may be employed with equal effect.

The die or flange form 26 from which the hat-brim receives its desired shape, is adapted to be moved along a horizontal supporting track or way, from a position where it is convenient to the operator to insert and adjust the hat therein, to a position where it will be subjected to the heat and pressure of the sand-bag. In its preferred form, the track consists of two parallel rails 27 firmly secured to the top of the machine frame adjacent to the heater thereon and projected laterally or forwardly, beyond the same, to serve as a shelf or support which is of sufficient length to hold the form and its supporting mechanism without interference with the sandbag. A carriage or truck 28, supplied with wheels fitting the rails 27, supports the flange-form thereon and is provided with an oval hole corresponding to the hole in the form, which is adapted to receive the crown of the hat. Dowel pins or other means are provided for holding the form in proper registry with the hole in the carriage.

The invention contemplates the construc-

tion of the carriage as an independent heater for heating the form and maintaining it at all times in its most efficient condition. For this purpose the form is made of metal, as later explained, and the carriage is hollow and provided with flexible connections, such as the hose 30, for conducting steam to its interior, but other means for heating the carriage and form may be employed with equal effect. The said flexible conducting connections are preferably attached to the forward end of the carriage, as shown, so as not to interfere with the movement of the latter over the steam chest 2, and ordinarily such connections will hang in the space between the track rails. In operation the carriage, supporting and heating the flange-form with the hat in it, is moved along the track and into the path of the presser, while the latter is ascending or in an elevated position. The presser, which has been heated by reason of its previous contact with the steam chest 2, encounters the hat on its downward movement and comes to rest thereon, while its supporting rods continue their downward movement to the point where their motion is arrested, as above explained. After a proper time the operator throws the lever past the nose 24 and starts the rods on their upward movement, during which their collars 7 reengage the cross-bar sleeves and lift the presser, which permits the withdrawal of the carriage in obvious manner. On its succeeding descent the presser travels its full distance and comes to rest upon or over the heater 2 by which it is again heated for the next operation.

The flange-form 26, being made of metal as above stated, acquires substantially the same temperature as its carriage and the proper degree of heat is therefore applied simultaneously to both sides of the hat-brim, which instantly converts the moisture therein into vapor. The vapor thus develop, and although considerable in amount, is immediately drawn off and absorbed by the previously heated sandbag before it has had time to condense and stain the hat, and the latter is therefore practically dry when removed from the heat and sets or stiffens without distortion and in less time than usually required at present.

The present invention also contemplates means for creating an artificial yielding pressure for the presser member against the hat, which may be usefully employed to supplement the pressure afforded by gravity. To this end I interpose one or more springs, such as shown at 31 in Fig. 7, between the sleeves of the cross-bar 5 and the adjustable abutment nuts 32 on the tops of the slide-rods 6. These springs permit the relative motion between the presser and its operating mechanism above referred to, but are compressed by the continued movement

thereof after the presser comes to rest, so as to exert their thrust upon the presser to force it against the form.

Having described my invention, what I claim and desire to secure by United States Letters Patent, is—

1. In a hat flanging machine, a heater carried by the machine frame and a vertically reciprocating presser frame journaled to slide in said frame and carrying a presser bag or member adapted to rest on said heater, in combination with a pair of tracks secured at the side of the heater and extending laterally therefrom, a form-carrying truck provided with flexible means for conveying heat thereto, and adapted to be moved on the said tracks into and out of the space between said heater and presser member.

2. In a hat flanging machine, a heater and a vertically reciprocating moisture-absorbing presser member adapted to rest on said heater, a pair of tracks secured at the side of

said heater and supporting a movable truck, extensible means for conducting heat to said truck and a metal flange form carried and heated by said truck and movable on said tracks to a position above said heater and under said reciprocating presser.

3. In a hat flanging machine, a reciprocating presser mechanism and means for operating the same comprising a clutch-driven shaft and a clutch-controlling hand lever, in combination with a part carried by said reciprocating mechanism adapted to engage and swing said lever on its fulcrum, said lever being adapted to be moved laterally to its plane of swinging movement for disengagement with the said part.

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

ARTHUR B. WARING.

Witnesses:

JULIUS TACKMAN,
HARRY M. PERCIVAL.