

(No Model.)

J. C. GRANT.
HAT FELTING MACHINE.

No. 270,422.

Patented Jan. 9, 1883.

Fig. 1.

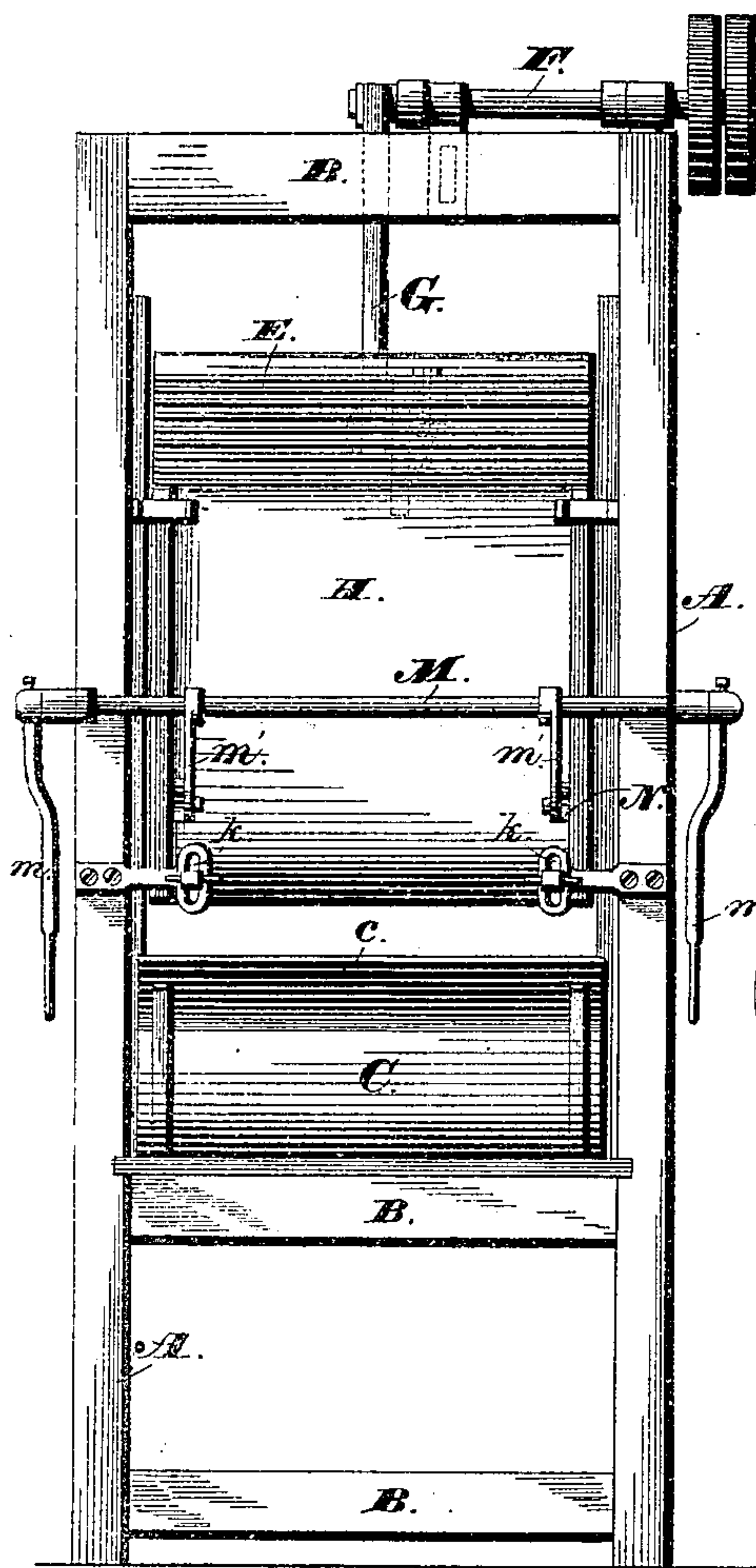
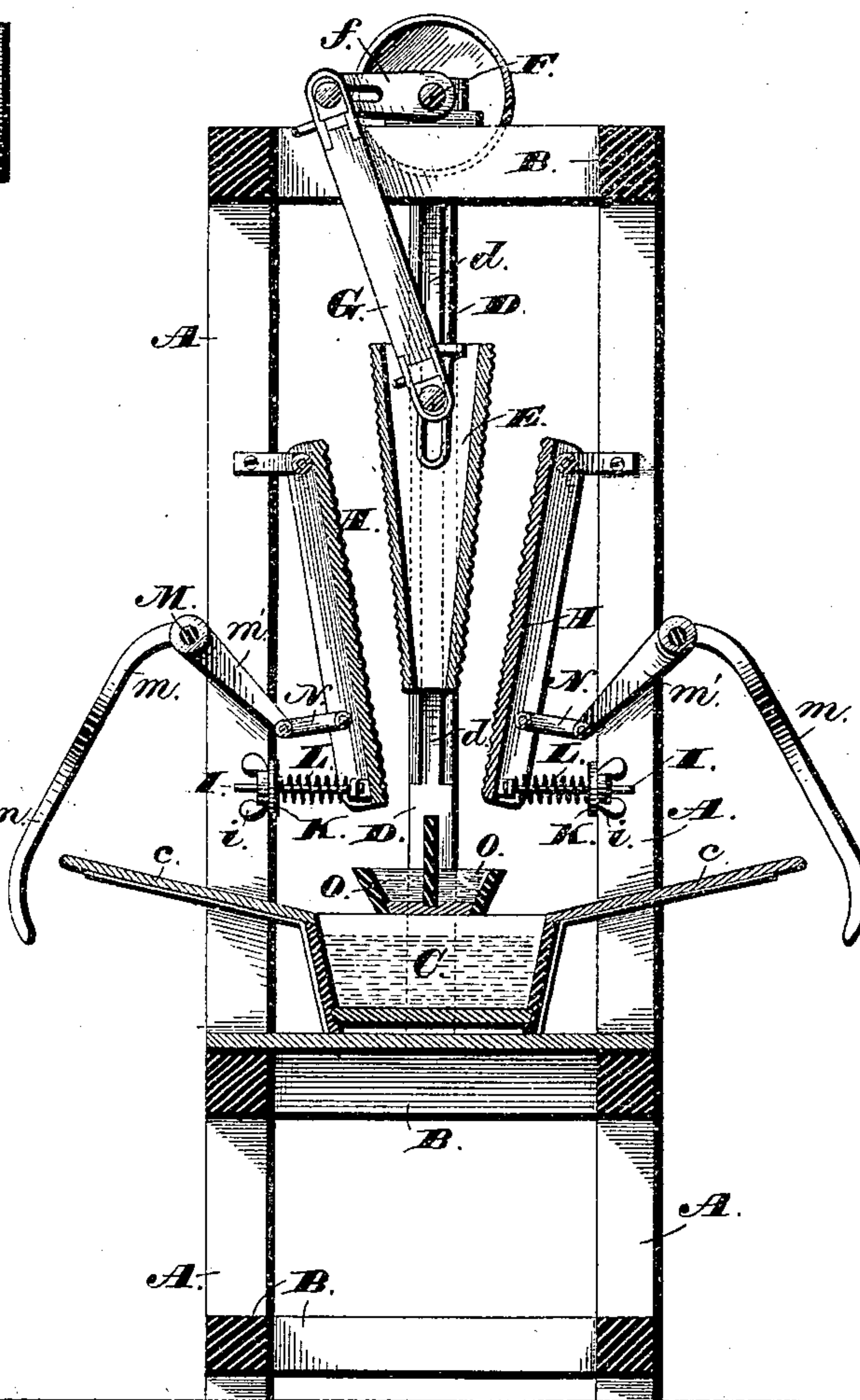


Fig. 2.



Witnesses:
Jas. C. Hutchinson.
Henry C. Hazard.

Inventor.
Jas. C. Grant, by
Geo. S. Grindle, his Atty.

UNITED STATES PATENT OFFICE.

JAMES C. GRANT, OF NEWBURG, NEW YORK.

HAT-FELTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 270,422, dated January 9, 1883.

Application filed October 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. GRANT, of Newburg, in the county of Orange, and in the State of New York, have invented certain new and useful Improvements in Hat-Felting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front elevation of my improved apparatus as arranged for use, and Fig. 2 is a vertical central section of the same upon a line passing from front to rear.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to enable the felting and shrinking of hat-bodies to be speedily and efficiently done; and to this end said invention consists in the construction and combination of parts of the machine whereby the desired result is secured, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A and A represent four posts, which are arranged vertically and are secured in relative position by means of a number of cross-bars, B, the whole forming the frame of my machine.

At a suitable height above the lower end of the frame is a water-tank, C, which has the necessary transverse and longitudinal dimensions, and at each side is provided with a table, c, that extends from the upper edge of said tank upward and outward, as shown, the inclination of each table being such as to cause water placed thereon to run toward and fall into said tank.

Secured to each side, at the center of the frame, is a vertical bar, D, which is provided within its inner face with a longitudinal groove, d, that receives a lug or tongue which projects from the edge of a part, E. Said part E extends between and engages with said guide-bars D, and is adapted to be moved vertically within certain limits by means of a shaft, F, that is journaled upon the upper end of said frame, and provided with a crank, f, and a pitman, G, which is journaled at one end upon said crank, and at its opposite end is pivoted to said part E, the arrangement being such that the rotation of said shaft will cause said part E to reciprocate vertically between and within said

guide-bars. The sides of the part E are grooved horizontally, and have a relative downward and inward inclination, the result being a wedge shape in end elevation.

Pivoted at its upper end upon the frame of the machine, opposite to each side of the part E, is a plate, H, which corresponds in size and shape to the like features of the contiguous grooved face of said part, and has its inner face correspondingly grooved.

To the lower end of each plate H are secured the ends of two bolts, I, which from thence extend outward through an opening, k, in a plate, K, and upon the outer threaded end of each bolt is placed a nut, i. Between each of said plates K and said plate H is a spiral spring, L, which surrounds said bolt I and operates to hold the lower end of said plate H with a yielding pressure at the inner limit of its motion, which limit is governed by said nut i, and may be varied by turning the latter upon its bolt.

In order that the lower end of each grooved plate H may be easily moved outward when desired, the following-described mechanism is employed, viz: A shaft, M, is journaled upon the outside of the frame, in front and near the vertical center of each plate, and is provided at each end with a radial bar or handle, m. Near each end of said plate H an arm, m', projects downward and inward from said shaft, and is connected with said plate by means of a short arm, N, which is pivoted at its ends upon and extends between said parts. As thus arranged, by raising either of the handles m the lower end of the plate H will be moved outward, while upon liberating said handles said plate will be moved inward to its normal position by the springs L.

A double trough or pocket, O, placed at the upper side of the tank C, beneath and in line with the reciprocating part E, completes the device, the operation of which is as follows, viz: The hat-bodies are immersed in hot water, (contained in the tank C,) and when thoroughly saturated are spread upon the tables c and rolled, after which each roll is inserted between the reciprocating part E and one of the grooved plates H, when by the operation of the former said hat-body is caused to roll upward and downward and to be more or less thoroughly felted. After each roll has been sufficiently

manipulated it is permitted to drop into one of the pockets O, after which it is unrolled, and if not perfect is rerolled and again passed through the machine. The yielding of the springs L at the lower ends of the grooved plates H causes them to move outward sufficiently to permit of the downward passage of the part E, while preserving all needed inward pressure to cause the felting operation to be thoroughly performed. After a hat-body has been sufficiently acted upon it may be released and permitted to fall into the trough O by moving the handles *m* upward, so as to draw the lower end of the grooved plate H outward. The wedge shape of the reciprocating part E causes it to exert a regularly-increasing pressure upon the hat-bodies from the commencement to the close of its downward movement, the result being a material increase in the quality and quantity of work over what would be practicable were said pressure constant.

The bolts I and nuts *i* enable the inward limit of motion of the grooved plates H to be fixed and varied, as may be necessary when operating upon hat-bodies having different degrees of thickness.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In a hat-felting machine, a vertically-reciprocating part having upon opposite sides grooved faces, in combination with two contiguous plates having each a grooved face and held with a yielding pressure toward said re-

ciprocating part, substantially as and for the purpose specified.

2. In a hat-felting machine, a vertically-reciprocating part having a wedge shape vertically, and having its faces grooved, in combination with contiguous bearing-surfaces which are grooved, and are held with a yielding pressure toward the grooved faces of said reciprocating part, substantially as and for the purpose shown.

3. In combination with the reciprocating grooved face part E, the plates H, having grooved inner faces, and adapted to yield and be moved outward at their lower ends when said reciprocating part moves downward, substantially as and for the purpose set forth.

4. The hereinbefore-described hat-felting machine, in which the frame A B, water-tank C *c*, guides D *d*, reciprocating part E, crank-shaft F *f*, pitman G, grooved plates H, bolts I *i*, plates K, springs L, shafts M, provided with the handles *m* and arms *m'*, connecting-bar N, and trough O, are combined to operate substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of October, 1882.

JAMES C. GRANT.

Witnesses:

J. C. BRUSH,
HIRAM LOZIER.