

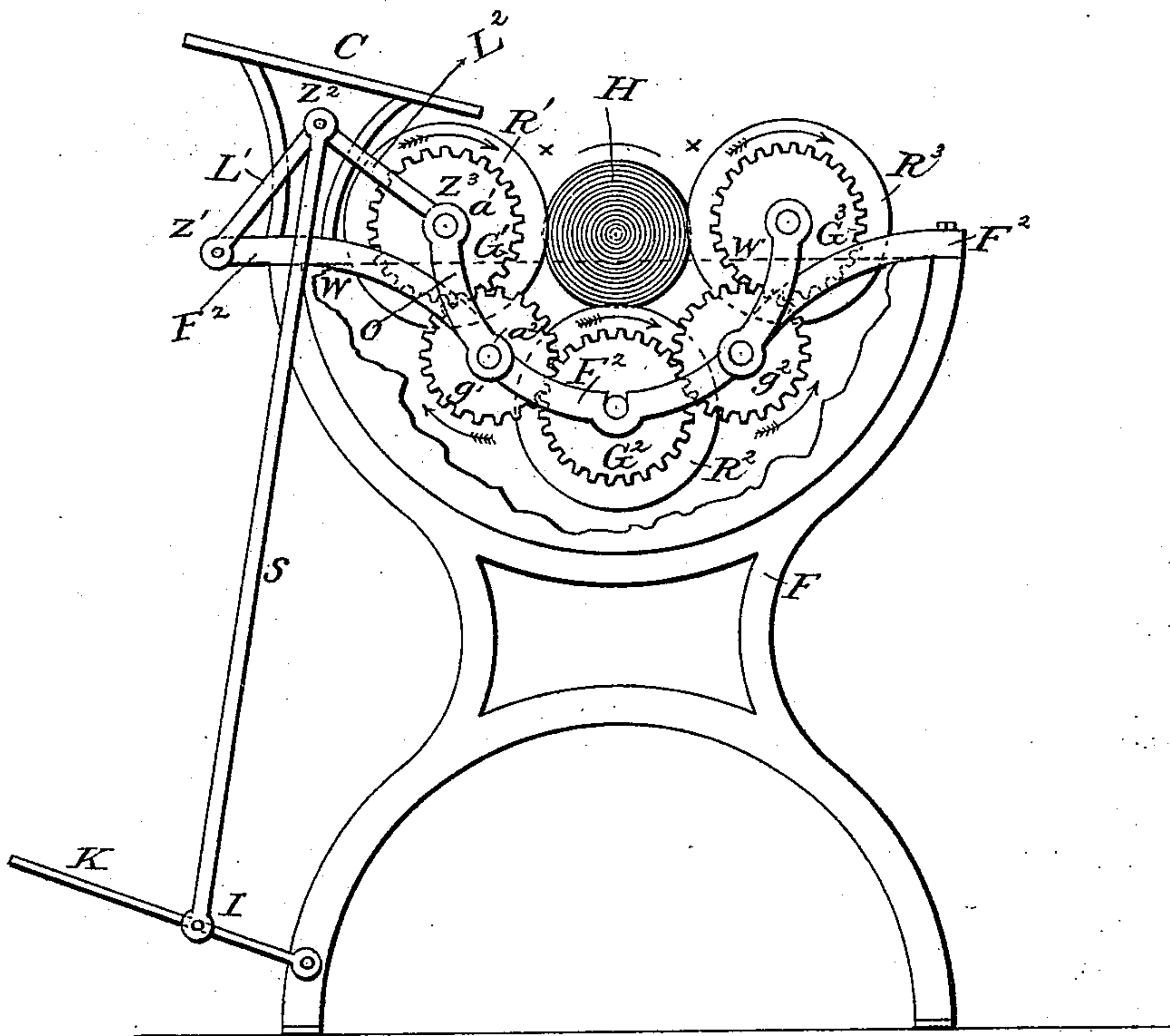
(No Model.)

J. S. TAYLOR.

METHOD OF AND MACHINE FOR SCALDING AND FELTING HAT BODIES.

No. 297,471.

Patented Apr. 22, 1884.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JAMES S. TAYLOR, OF DANBURY, CONNECTICUT.

METHOD OF AND MACHINE FOR SCALDING AND FELTING HAT-BODIES.

SPECIFICATION forming part of Letters Patent No. 297,471, dated April 22, 1884.

Application filed January 18, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES S. TAYLOR, of Danbury, county of Fairfield, and State of Connecticut, have invented a certain new and useful Method of and Machine for Scalding and Felting Hat-Bodies, which improvements are fully set forth in the following specification and accompanying drawing, having letters of reference marked thereon, which represents a side elevation of the machine, part being broken away to show the interior.

The object of my invention is to facilitate the process of felting hat goods and other fabrics.

In the drawing, F represents the frame of the machine. F<sup>2</sup> is a suspended frame supporting three rollers on parallel shafts represented at R' R<sup>2</sup> R<sup>3</sup>. These rollers are usually made of wood, and are about two feet long, and about four and one-half inches in diameter. They may, if desired, be concave, convex, grooved, fluted, or plain, all of which descriptions have been used for many years in the trade. The rollers are suspended in part below the water-line marked at w w, and are provided each with a driving-gear, G' G<sup>2</sup> G<sup>3</sup>, which gears in turn are connected by two pinions or gears, g' g<sup>2</sup>. The arrangement of these rollers in a transverse curve is such that they form a U-shaped opening or chamber, with its opening above for receiving and manipulating the goods. There is no other roller over or before said opening, so that the roll of goods manipulated in the machine is at all times under the supervision of the operator. The roller R' is suspended at each end on an arm represented at O, and revolves upon its axis or bearing marked a'. This arm is pivoted on a center, a<sup>2</sup>, concentric with that of the pinion g', which engages with the gear G' of the roller R'.

To the roller R' a compound lever, L' L<sup>2</sup>, is attached at each end, the levers being represented as turning on their pivots or bearings Z' Z<sup>2</sup> Z<sup>3</sup>. To the pivot Z<sup>2</sup> a connecting-rod, S, is attached, which is united with a foot-lever, K, at the point I.

Over or above the roller R' is attached a board or plank, C, about two feet square, on which the workman rolls and unrolls the goods. The lower edge of this plank is extended, for the convenience of the workman, as near as

practicable to the roller R', projecting down or near to the roll of goods while being felted.

The suspended frame F<sup>2</sup>, the gears, and all parts exposed to the action of the acids held in solution by the heated liquid are made of brass or other metal found best suited for withstanding the corrosive action of such acids.

In operating this machine the workman rolls up the goods to be felted in a cloth usually employed for that purpose, and deposits them in the chamber or receptacle marked at x x. Motion is simultaneously communicated, by any well-known means, to the three rollers R' R<sup>2</sup> R<sup>3</sup> in the same direction as indicated by the arrows, which rollers in their action communicate a rotating motion to the roll of goods H. Downward pressure of the foot on the lever K causes the compression of the goods through the medium of the roller R'. A light or a very heavy pressure may be exerted, as desired, through the action of the toggle-joint. The roller R', freely swinging on its arm O, pivoted at a<sup>2</sup>, will, when released from pressure applied at K, relieve the roll of goods from compressive force by its own weight or gravity without the aid of springs or weights. The goods can thus be readily removed from the machine or entered for the process of felting. To accomplish this result it is necessary that the pivot a<sup>2</sup> of the arm O shall be to the right or inside of the perpendicular line of the center of the rolls, so far as to allow the roller to fall or swing by its own gravity away from the chamber or receptacle formed for receiving the goods.

In conducting the process the goods are partially immersed in the heated liquid, and, as revolved, saturated therewith. The amount of saturation is regulated by the amount of pressure applied to the roller R'. When lightly pressed, the amount of water and heat in said goods is thereby increased, and correspondingly decreased as the pressure is increased. It may be alternately increased or decreased while the goods remain in the machine.

Having thus described my invention, what I claim as new is—

1. The method herein described of scalding and felting hat-bodies, which consists in gently rolling and manipulating the same in scalding



water without superimposed pressure, substantially as set forth.

2. The combination, in a hat scalding and felting machine, of three rollers adjusted at  
5 suitable distances to felt a bundle of hats by rolling and pressing it in the cavity between them, the felts being inserted into and removed from the cavity without altering the distances of the rollers for that purpose, sub-  
10 stantially as set forth.

3. In a hat scalding and felting machine, a series of parallel rollers combined and arranged to form an open and unobstructed chamber, within which the goods may be inserted and  
15 felted, and from which they may be conveniently removed, substantially as set forth.

4. The method herein described of scalding and felting hat-bodies, which consists in the operations, while the goods are entirely or  
20 partly submerged in scalding water, of rolling and subjecting them to variable pressure between revolving surfaces, substantially as set forth.

5. The method herein described of scalding  
25 and felting hat-bodies, which consists in the operations, while the goods are exposed to the action of hot water, of continuously rolling the goods between revolving surfaces and alternately compressing and relieving them from  
30 pressure, whereby the water, by such variation of pressure, is successively taken up by the goods and in part ejected therefrom, substantially as set forth.

6. The combination, in a scalding and felt-  
35 ing machine, of a vat or tub to hold scalding

water, and inclosed within said tub, so as to be wholly or partially submerged in the water, a series of stationary rollers, and one or more rollers having a positive or variable pressure derived from connections controlled by the  
40 operator, substantially as set forth.

7. The combination, in a felting-machine, of a series of stationary rollers, and one or more rollers having a positive or variable pressure derived from connections controlled by the op-  
45 erator, substantially as set forth.

8. The toggle-joint  $L' L^2$ , as applied to the roller  $R'$ , in combination with the lever  $K$  and connecting-rod  $S$ , operating in the man-  
50 ner and for the purpose substantially as described.

9. The combination of the toggle-joint  $L' L^2$ , arm  $O$ , and roller  $R'$ , operating in manner and for the purpose substantially as described.

10. The plank  $C$ , arranged as shown, in  
55 combination with the roller  $R'$  and chamber or receptacle  $x x$ , substantially as set forth.

11. The rollers  $R^2$  and  $R^3$  in parallel bearings, as described, and the roller  $R'$ , operated by means of the toggle-joint or its equivalent,  
60 in combination with the vessel for holding heated liquid for saturating the goods while undergoing the process of felting, all operating in manner and form substantially as described.

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Witnesses:

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