(No Model.)

# A. PELISSE.

## MACHINE FOR FELTING HAT BODIES AND OTHER ARTICLES.

No. 263,951. Patented Sept. 5, 1882.

Fig. 3.

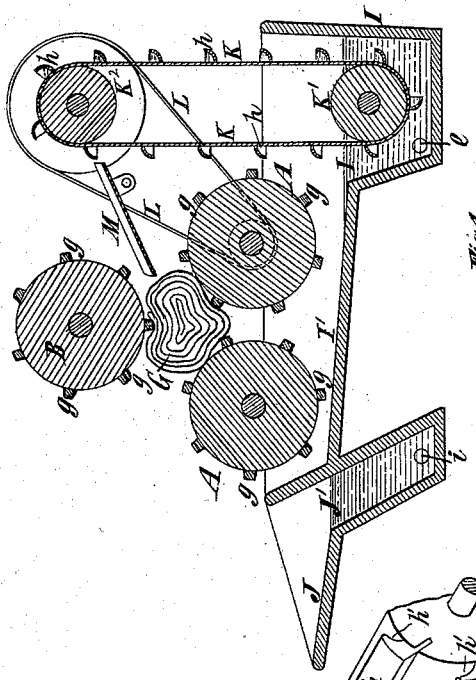


Fig. 4.

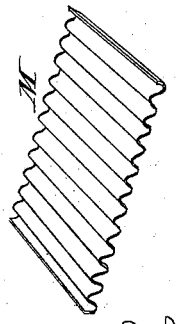


Fig. 2.

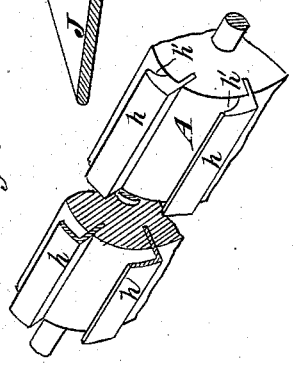


Fig. 5.

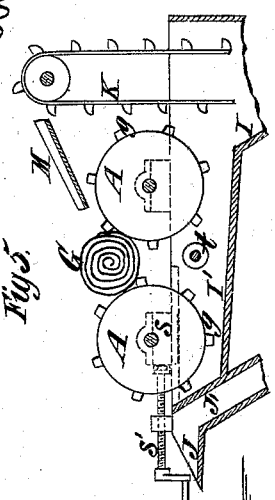
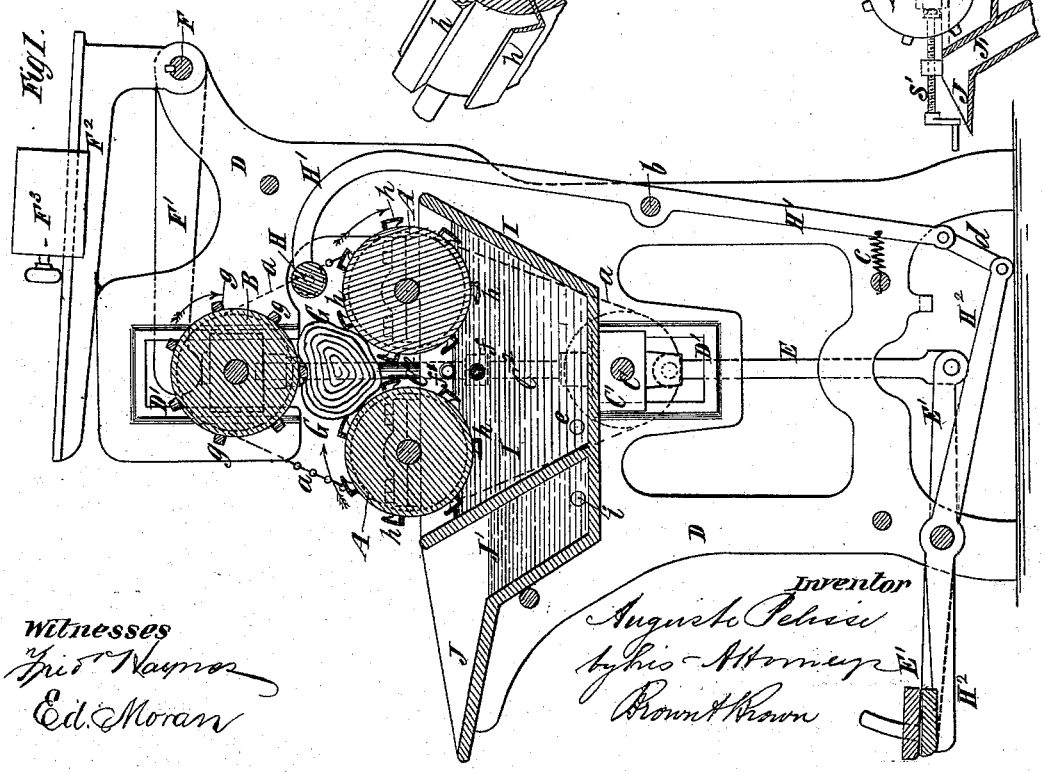


Fig. 1.



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# UNITED STATES PATENT OFFICE.

AUGUSTE PELISSE, OF NEWARK, NEW JERSEY, ASSIGNOR TO JOHN T. WARING, OF NEW YORK, N. Y.

## MACHINE FOR FELTING HAT-BODIES AND OTHER ARTICLES.

SPECIFICATION forming part of Letters Patent No. 263,951, dated September 5, 1882.

Application filed April 28, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTE PELISSE, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Felting Hat-Bodies and other Articles, of which the following is a specification.

Although my invention is applicable generally to the class of machines known as "felting-machines," it is especially useful in machines for scalding napped hat-bodies to expedite the working or fastening of the fur into the hat-bodies.

My invention consists in the combination, in a felting-machine, of two rollers placed side by side and adapted to receive a roll of hat-bodies or other articles between and above them, of a tank below said rollers for containing water, and devices for raising water from said tank and delivering it upon the roll of articles to be felted or scalded.

The devices for raising water may consist of an elevator-belt and buckets; or I may combine with said rollers buckets contained in or attached to them for raising water from said tank and delivering it upon the roll of articles being felted.

The invention also consists in the combination, with a roller felting-machine, of a water-tank arranged below or adjacent to the rollers, devices for raising water from said tank and delivering it upon the roll of hat-bodies or other articles while the latter is being felted and without interrupting the felting operation, and a second water-tank, into which the roll may be dipped by the workman preparatory to inserting it between the rollers of this machine.

The invention also consists in details of construction, to be hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a vertical section of a machine embodying my invention. Fig. 2 represents a sectional perspective view of one of the felting-rollers. Fig. 3 represents a section, similar to Fig. 2, of the principal parts of a machine of a modified construction, also embodying my invention. Fig. 4 represents a perspective view of a chute or spout for delivering water upon the roll in the machine shown in Fig. 3; and Fig. 5 represents a sectional detail view, hereinafter described.

Similar letters of reference designate corresponding parts in all the figures.

Referring first to Figs. 1 and 2, which illustrate a roller felting-machine, A A designate two rollers, arranged in stationary bearings side by side, and B designates the upper roller, which is arranged intermediately between the rollers A A, and is adapted to be raised to permit the roll of articles to be felted to be introduced between it and the rollers A.

C designates a shaft arranged below the rollers A, and the bearings C′ of the shaft C and the bearings of the top roller, B, are connected together by rods or bars $C^2$, and are adapted to move vertically in guides or slideways D′ in the frame D of the machine. The bearings C′ of the shaft C are connected by rods E at the ends of the machine with a treadle, E′, and by this treadle the shaft C, as well as the top roller, B, may be raised, when desirable.

The three rollers A A B are geared together by a belt or chain, *a*, which is shown dotted in Fig. 1, and which passes around pulleys or chain-wheels upon the shafts of the several rollers and upon the shaft C. Motion is imparted to one of the rollers A by a belt or otherwise, and by the chain or belt *a* the rollers are all caused to rotate in unison, even when the top roller, B, is raised or lowered.

The arrangement of mechanism for raising and lowering the top roller, B, and for causing the several rollers to rotate in unison is similar to that shown in my United States Letters Patent, No. 254,041, granted February 21, 1882, and forms no part of my present invention.

F designates a rock-shaft, which has two arms, F′, resting upon the bearings of the top roller, B; and $F^2$ designates a third arm or lever, carrying a weight, $F^3$, which serves to press the top roller downward upon the roll G of hat-bodies or other articles to be felted.

H designates a back roller, which prevents the roll G from being carried through the machine. The roller H is carried by levers H′, which are fulcrumed at *b*, and which are acted upon by a spring, *c*, to draw the roller H away

from between the rollers A and B. A treadle, $H^2$, is connected to the lower ends of the levers H′ by a link, *d*, and serves, when depressed, to move the roller H inward between the rollers A B.

The arrangement of the weight for acting upon the top roller, B, and the arrangement of mechanism for operating the back roller, H, form no part of my present invention, and are described and claimed in my above-mentioned Letters Patent.

Below the rollers A is arranged a tank, I, which is provided with an inlet-pipe, *e*, whereby steam may be admitted to heat the water contained in it. The tank I is provided with two outlet or overflow pipes, *f f′*, and when the lower one, *f*, is opened the water will be maintained at such a level that the rollers A will not dip into it; but when the upper one, *f′*, is opened and the lower one closed the water will be maintained at such a height that the rollers A will rotate in the water.

The upper roller, B, is provided with lags *g*, made in the usual way; but the lags of the lower rollers, A, are made in the form of buckets *h*, and as these rollers rotate in the direction indicated by the arrow in Fig. 1 the buckets fill with water and carry it upward, delivering it upon the roll G.

The buckets *h* may be cut down or notched at the ends, as shown at *h′*, so as to prevent the buckets from filling entirely full, and hence as the rollers are rotated the water will be less liable to be splashed about or thrown outward by centrifugal force.

The buckets *h* may be made of any suitable material which will resist the corrosive action of the acid contained in the water in the tank I, or they may be made of metal covered with india-rubber or any other non-corrosive composition, and the buckets have the same effect as solid lags in the operation of felting or sizing, and serve additionally to keep the roll G constantly wet. Hence there is no necessity of the workman or attendant interrupting the felting operation to remove the roll G from the machine at intervals for the purpose of wetting it.

J designates the feed board or table, on which the hat-bodies or other articles are rolled up by the workman to prepare them for felting, and J′ designates a second tank in proximity thereto, containing water, which may be heated by steam from an inlet-pipe, *i*. By employing the two tanks J′ and I, I enable the water in the latter to be maintained at such a high temperature that the workman could not use it in wetting the rolls preparatory to felting, because of the danger of scalding his hands, while the water in the tank J′ may be heated to a less degree.

Referring now to Figs. 3 and 4, A A B designate the three rollers, all of which are provided with solid lags *g*, and which may be driven by any suitable mechanism, none being here represented.

I designates a hot water-tank, which is provided with a steam-inlet pipe, *e;* but in this example of my invention the tank I is not directly below the rollers A, but at one side adjacent to them, and below the rollers is an inclined plane, I′, which directs the water falling from the rollers into the tank.

The arrangement of the second tank, J′, for water less highly heated, with its steam-inlet pipe *i* and the feed board or table J, is the same as previously described with reference to Fig. 1.

K designates an endless elevator-belt, mounted on rollers K′ $K^2$ over the tank I and provided with buckets *h*. The belt K may be operated by a belt, L, from one of the rollers A, or otherwise, and the water raised by the buckets *h* is delivered onto a broad spout or chute, M, by which it is conducted onto the roll G, to be felted. To cause a uniform distribution of water over the whole breadth or width of the spout or chute M, it may be corrugated or grooved, as shown in Fig. 4, so as to form channels or gutters.

If it is desired to interrupt or discontinue the delivery of water upon the roll G, I may open the lower outlet-pipe, *f*, in the form of machine shown in Fig. 1, so that the level of water in the tank I will be maintained below the rollers A, and in the machine shown in Fig. 3 I may throw off the belt L to stop the elevator-belt K.

My machine is particularly advantageous in making napped hat-bodies, as I provide for thoroughly scalding them, which expedites the working or fastening of the fur into the hat-bodies. In felting or scalding such napped hat-bodies the pressure of the rollers is required, and the pressure necessary for different kinds of fur varies considerably, some kinds of fur requiring almost no pressure. For this work the construction shown in Fig. 5 is very desirable.

A A designate the two rollers. I J designate the two tanks; I′ the incline leading to the tank. I K designate the water-elevator belt, and M the chute through which the water is delivered upon the roll G. In this case the upper roller may be adjusted up entirely out of the way, and the roll G is operated on only by the two rollers A A. In order to increase or diminish the effect of the two rollers, I may support one of them in movable bearings *s*, and provide screws *s′*, whereby such bearings may be moved to carry the roller supported in them away from or toward the other roller. The roll G is prevented from falling down beyond the rollers A by a guard or roller *t*, arranged between and below the rollers A, as clearly shown.

In lieu of the screws *s′*, levers, cams, eccentrics, or any equivalent well-known mechanical devices may be employed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a felting-machine, of

two rollers placed side by side and adapted to receive a roll of hat-bodies or other articles to be felted or scalded between and above them, a tank for containing water below said rollers, and devices for raising water from said tank and delivering it upon the roll of articles to be felted or scalded, substantially as herein described.

2. The combination, with the two felting-rollers A, of the tank I, the steam-inlet pipe *e*, and the two water-outlet pipes *f f'*, one above the other, substantially as herein described.

3. The combination, with a roller felting-machine, of a water-tank so arranged below the rollers that the lower rollers may run in the water, and buckets contained in or attached to said rollers for raising water from said tank and delivering it upon the roll of articles being felted, substantially as herein described.

4. The combination, with a roller felting-machine, of a water-tank arranged below or adjacent to the rollers, devices for raising water automatically from said tank and delivering it upon the roll being felted and without interrupting the felting operation, and a second water-tank into which the roll may be dipped preparatory to inserting it into the machine, and in which the water may be maintained at a lower temperature, substantially as and for the purpose herein described.

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