

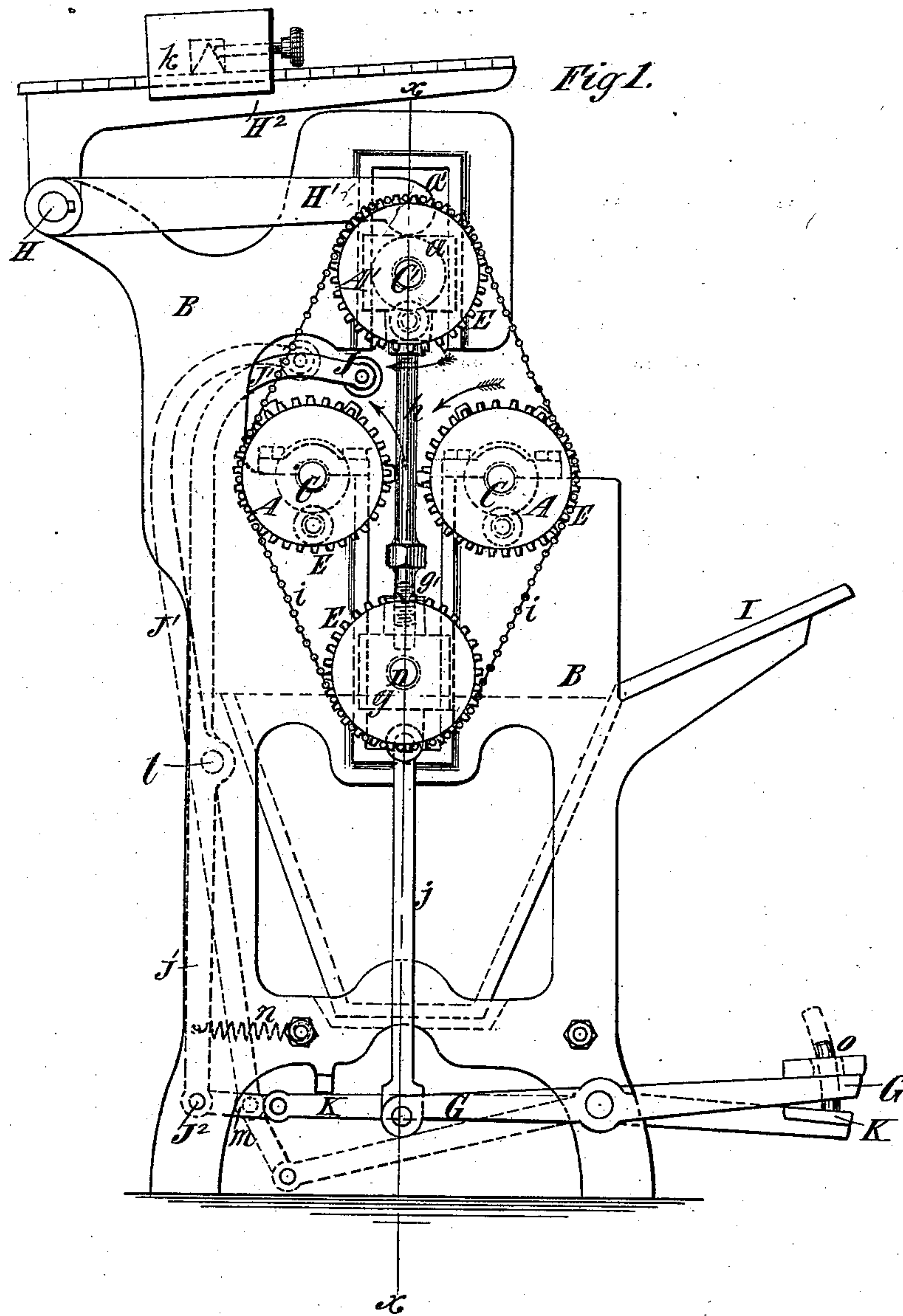
(No Model.)

2 Sheets—Sheet 1.

A. PELISSE.
FELTING MACHINE.

No. 254,041.

Patented Feb. 21, 1882.



Witnesses
Fred Haynes
Ed Moran

Inventor
Auguste Pelisse
by his Attorneys
Brown & Brown

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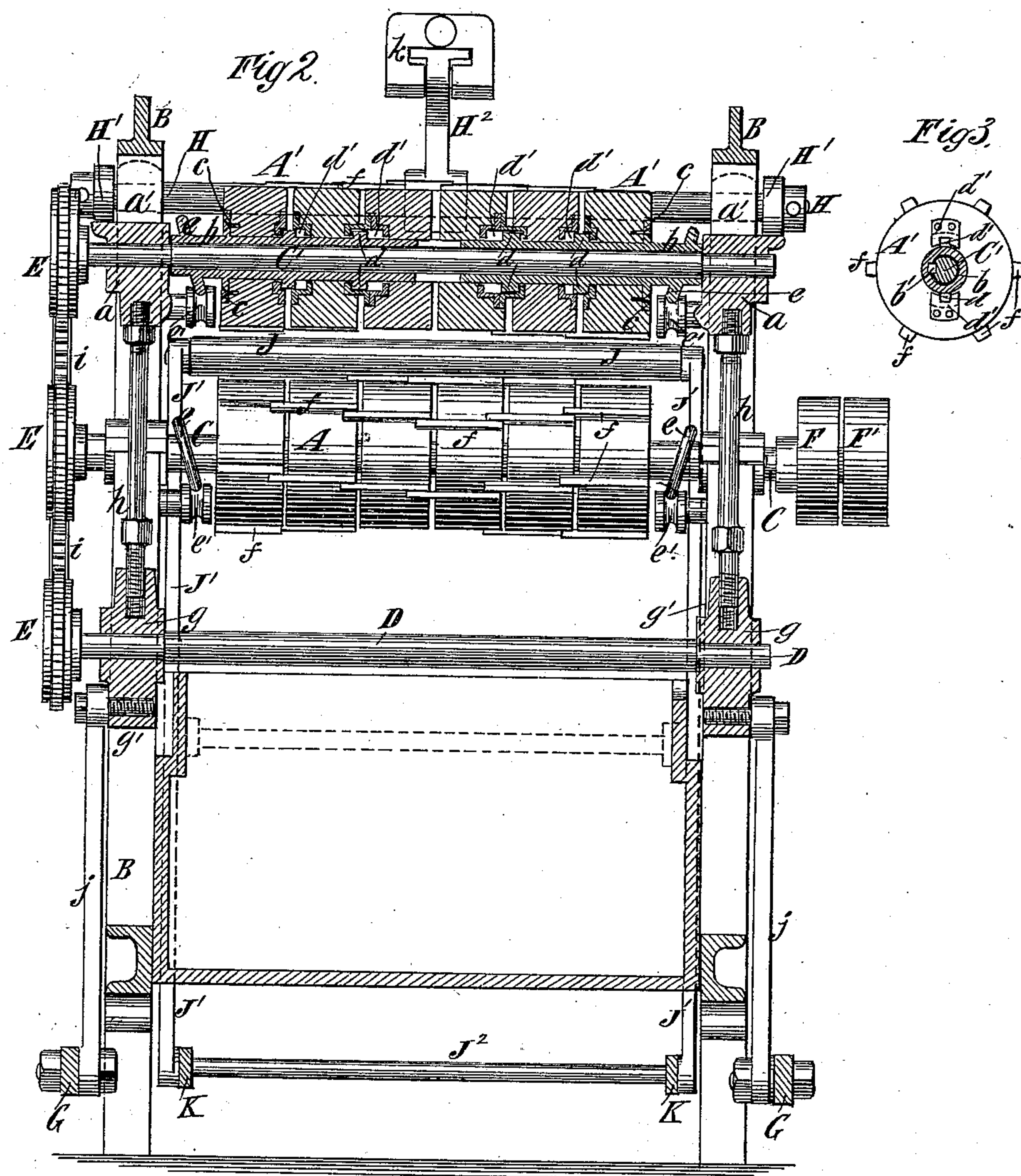
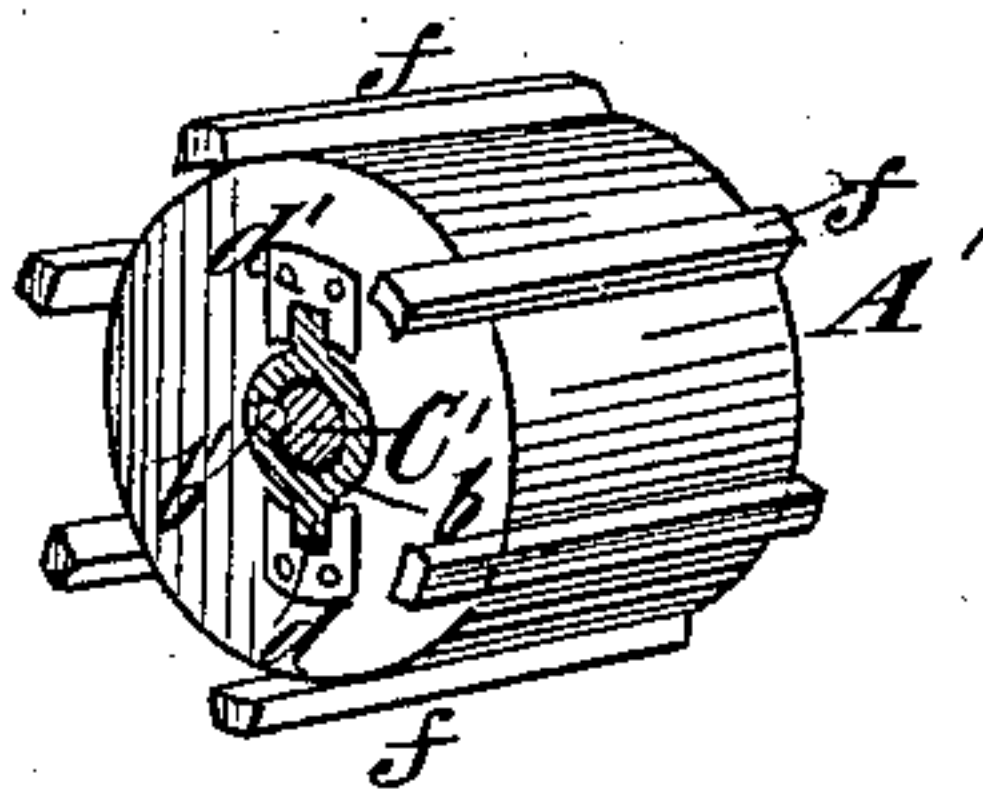


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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

FELTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 254,041, dated February 21, 1882.

Application filed November 23, 1881. (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 Felting-Machines, of which the following is a specification.

This invention relates to that description of sizing-machines for felting hat-bodies and other articles in which are combined a series of rollers having parallel axes, and between and lengthwise of which a roll of hat-bodies or other articles in a sizing-cloth is placed and subjected to a rolling and pressing operation. Such machines are commonly provided with either three or four rollers, but may have a greater number, and the upper roller or rollers is or are generally movable away from the lower rollers to permit of the insertion between them of the rolls of hat-bodies or other articles to be felted. In such machines there is a constant tendency of the rolls of hat-bodies or other articles to longitudinal extension as they become smaller in diameter or thickness, and to obviate such extension the felting-rollers have been made with a concave longitudinal profile, so as to form between them a cavity or pocket, which is larger at the middle of the length of said rollers and tapers toward the ends thereof.

The principal object of my invention is to provide in a different and novel manner for preventing such longitudinal extension of the rolls of articles to be felted.

The invention consists essentially in a felting-roller, the periphery of which is capable of being extended and contracted lengthwise, and in a felting-machine comprising two or more rollers capable of such longitudinal extension and contraction. To enable the felting-rollers to be so extended and contracted I may make them of sections capable of approaching and receding from each other in the direction of the length of the rollers, and I may combine with such rollers in a felting-machine mechanism for moving the sections toward and from each other, either at each rotation of the rollers or at any desired interval of time. When the felting-rollers are rotated so that their working surfaces move toward the front of the machine, where the rolls of articles to be felted

are introduced, the said rolls are liable to be thrown out at the front of the machine, requiring their frequent replacement; but where the rollers rotate in the reverse direction the rolls are liable to be thrown out at the back of the machine.

The invention further consists in the combination, in a felting-machine, of rollers capable of rotation, so as to carry the rolls of articles to be felted away from the front of the machine, and a back roller to serve as a guard for preventing the rolls from being thrown out at the back of the machine.

The invention further consists in the combination, with the rollers of a felting-machine, of a novel mechanism for driving said rollers, and for adjusting the upper roller or rollers toward and from the lower rollers, as hereinafter particularly described.

In the accompanying drawings, Figure 1 represents a side elevation of a machine embodying my invention. Fig. 2 represents a vertical section thereof on the plane of the dotted line *xx*, Fig. 1. Fig. 3 represents a transverse section of one of the felting-rollers, and Fig. 4 represents a perspective view of one of the roller-sections.

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

In the machine here shown three felting-rollers, *A A A'*, are employed, the rollers *A A* being arranged side by side, and the roller *A'* intermediately between and above them; but in lieu of a single upper roller two might be used. The two rollers *A* are arranged in fixed bearings in the side frames, *B*, of the machine, but the roller *A'* is arranged in bearings *a*, which are adapted to be raised or lowered in guide-ways *a'* in the said side frames.

According to my invention the several rollers, *A A'*, are each capable of being extended or contracted in the direction of their length for the purpose of preventing the longitudinal extension of the roll of hat-bodies or other articles to be operated on, whereby there is obtained a more rapid shrinking or sizing of the said articles than could be obtained if such longitudinal extension of the rollers being operated on were permitted.

The longitudinal extension and contraction

of the felting-rollers may be provided for by any construction which will permit of such extension or contraction, but as here shown the rollers are composed of sections which are adapted to be moved toward and from each other in the direction of the length of the roller.

C C C' designate respectively the shafts of the three rollers A A A', upon which the several sections of the rollers are supported, and the construction of the rollers is clearly shown in Figs. 2, 3, and 4. As here shown, each roller is composed of six sections, though a greater or lesser number of sections might be used; and *b* designates two sleeves which are fitted upon the shaft of the roller so that they may move freely longitudinally thereon, but will rotate therewith. As clearly seen in Fig. 3, the shaft C' is connected with the sleeves *b* by a spline or feather, *b'*.

Upon the sleeves *b* are flanges or ears *c*, to which the outer sections of the roller are rigidly fastened, and also lugs or ears *d*, which fit in sockets *d'*, formed in the adjacent faces of the roller-sections. When the sleeves *b* are moved toward each other the two outer sections, which are rigidly fastened to the sleeves, act upon the sections next to them, and these upon the next or middle sections, and thereby all the sections are brought close together, making a continuous roller-surface. The sockets *d'*, in which the lugs or ears *d* fit, are, however, of different depths, and in moving the sleeves *b* away from each other the outer sections of the roller are moved outward because of their rigid attachment to the sleeves *b*. The sections next to the outer sections are then moved, and after the latter have partly completed their movement the two middle sections are moved apart. By this means the roller-sections, in being moved away from each other, are held at a uniform distance apart.

The sleeves *b* of all the rollers are here shown as provided with oblique flanges *e*, that engage with cams *e'*, which may consist of rollers, and as the felting-rollers rotate the sections are moved toward and from each other at each rotation. Any other suitable arrangement of mechanism might be employed for giving the desired movement to the roller-sections, and in lieu of being moved at regular intervals of time they might be moved as often as desired, and allowed to remain at a fixed distance apart for any length of time between their movements.

Upon the periphery of the roller-sections are lags *f*, which project beyond the end of the sections, so that they will overlap the adjacent sections, thus forming in effect continuous lags extending the whole length of the rollers. The sectional lags *f* are arranged so that those sections near the ends of the rollers travel or move in advance of the intermediate sections.

Below the rollers A A is arranged a shaft, D, which is mounted in bearings *g*, which are adjustable vertically in guideways *g'* in the frames B, and the bearings *g* are connected by

means of rods *h* with the bearings *a* of the upper roller, A', so that both will move in unison.

Upon the ends of the roller-shafts C C' and on the shaft D are chain or sprocket wheels E, which are all in one vertical plane, and around said wheels is passed a chain, *i*, which engages therewith and causes the three felting-rollers to travel in unison in the direction indicated by the arrow in Fig. 1. In lieu of the chain-wheels and chains, pulleys and a band or belt may be used.

Upon the shaft C of one of the rollers A are fast and loose pulleys F F', which may receive a belt for imparting motion to the machine.

The shaft D and the upper roller-shaft, C', with the bearings of which the bearings of the shaft D are connected, can be raised by means of a treadle, G, which is connected with the bearings *g* of the shaft D by rods *j*, and the rising movement of said upper roller may be resisted by springs or weights arranged in any suitable manner.

In the present instance I have represented a rock-shaft, H, as provided with levers H', which rest on the top of the bearings *a* of the upper felting-roller, and with another lever, H², intermediate between the levers H'. The lever H² has upon it an adjustable weight, *k*, and may have a graduated scale marked upon it, as seen in Fig. 1, for regulating the downward pressure on the upper roller.

The rolls of articles to be felted are introduced at the front of the machine, where is the front board, I, and the direction of the rotation of the rollers will tend to carry the roll toward and throw it out at the back of the machine. To prevent this I employ a back roller, J, arranged as shown in Fig. 1. When the upper felting-roller, A', rises and falls the back roller, J, should be moved inward and outward, and to provide for such movement I mount the said back roller in the upper ends of two levers, J', arranged at opposite sides of the machine. These levers are fulcrumed at *l*, and are connected at their lower ends by a rod, J², to which a treadle, K, is connected by a link or links, *m*. The back roller, J, tends constantly to move outward, because of the springs *n* applied to the lower ends of the levers J', and when the treadle K is pressed down the said roller is moved inward.

In the present instance I have represented the treadle K as provided with a pin, *o*, which extends through the treadle G, and when the foot is placed upon the pin *o* it first depresses the treadle K, and thereby moves the back roller, J, inward, and then acts upon the treadle G to raise the upper felting-roller, A'.

If desired, any of the felting-rollers might be made with a concave profile in the direction of their length, one or more of them being composed of sections, as herein described, and they may have any kind of peripheral surface—as, for instance, the peripheries may have a series of projecting rings, knobs, or any other kind of projections.

It is obvious that my improved mechanism for driving and adjusting the felting-rollers and the back roller, J, may be applied to machines having felting-rollers of any construction.

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

1. In a felting-machine, a felting-roller the periphery of which is capable of being extended or contracted lengthwise, substantially as specified.

2. A felting-machine comprising two or more felting-rollers capable of being extended or contracted lengthwise, substantially as specified.

3. In a felting-machine, a felting-roller composed of sections capable of approaching and receding from each other in the direction of the length of said roller, substantially as specified.

4. The combination, in a felting-machine, with a roller or rollers composed of sections capable of movement toward and from each other in the direction of the length of the roller or rollers, of mechanism for producing such movement, substantially as specified.

5. In a felting-machine, the combination of a roller-shaft, sleeves mounted thereon and movable longitudinally thereof, roller-sections fitted to said sleeves, and mechanism for moving said sleeves toward and from each other, substantially as specified.

6. The combination, with the roller-shaft, of the sleeves *b*, provided with oblique flanges *e*, the cams *e'*, and the roller-section adapted to be moved by the longitudinal movement of said sleeves, substantially as specified.

7. In a felting-machine, the combination, with the lower rollers and the rising and falling upper roller or rollers, of a back roller for preventing the rolls being felted from being thrown out at the back of the machine, substantially as specified.

8. In a felting-machine, the combination of the lower rollers, the rising and falling upper roller or rollers, the back roller, and mechanism for adjusting it toward and away from the felting-rollers, substantially as specified.

9. In a felting-machine, the combination, with the two lower felting-rollers, the rising and falling upper roller or rollers, and a shaft below said lower rollers, having its bearings connected with those of the upper roller or rollers, of wheels upon said rollers and shaft, and a chain or band passing around all said wheels for imparting rotary motion from one wheel to all the others, substantially as specified.

10. The combination of the three roller-shafts *C C C'*, the shaft *D*, the rods *h*, connecting the bearings of the shafts *C'* and *D*, the wheels *E*, and the chain or band *i*, and the treadle and rods for raising the shafts *C'* and *D*, substantially as specified.

11. In a felting-machine, the combination of the upper rising and falling roller, *A*, the rock-shaft *H*, the levers *H'*, and the lever *H²*, and weight *k*, substantially as specified.

AUGUSTE PELISSE.

Witnesses:

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