Sheet 1. 2 Sheets.

J. H. Bloodgood & M. A. Johnson

Felting Mach

No. 27,345. Patented Mar. 6. 1860.

Fig. 1.

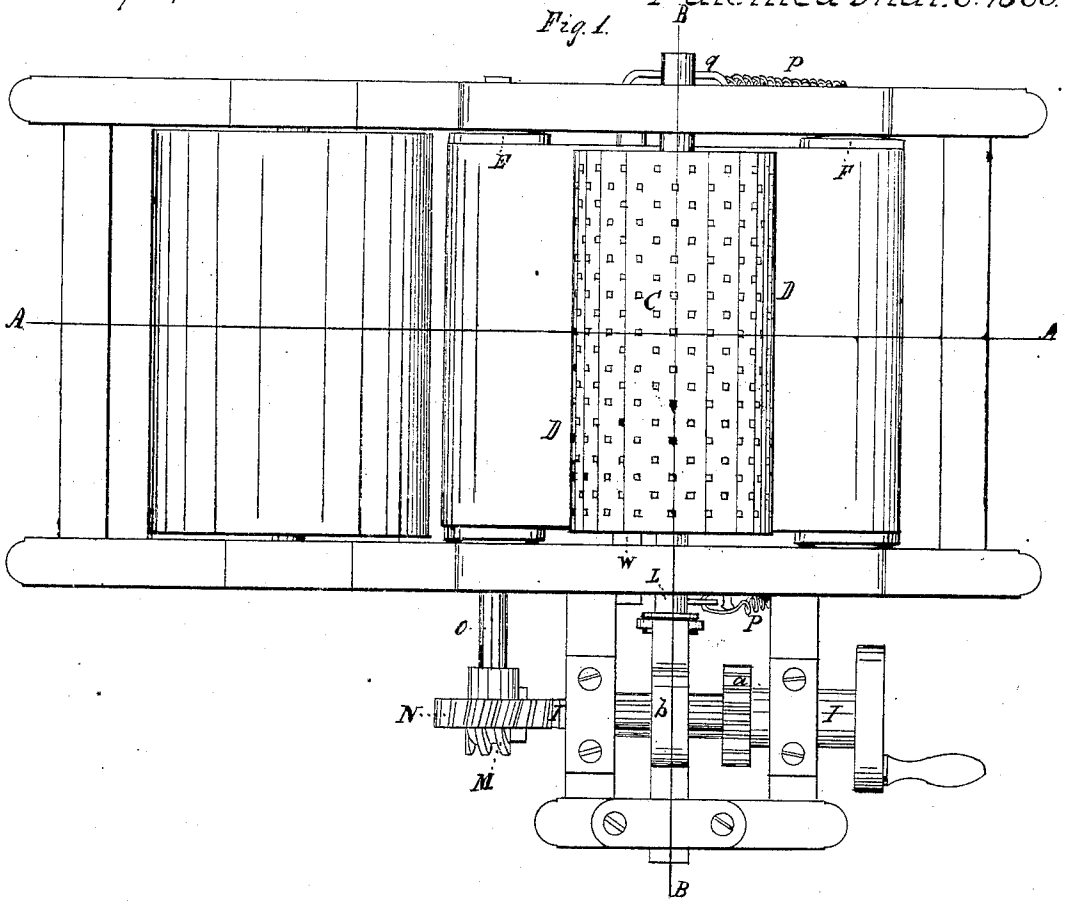
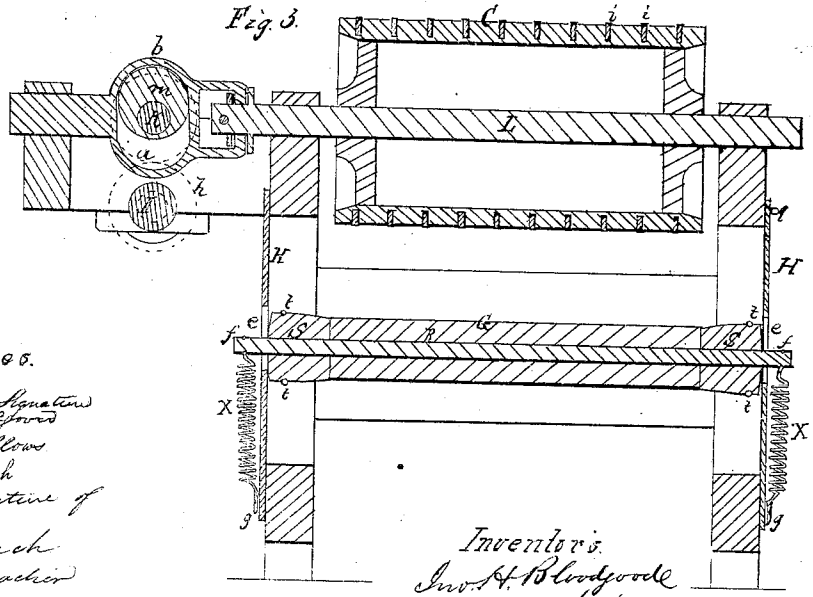


Fig. 3.



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Sheet 2. 2 Sheets.

J. H. Bloodgood & M. A. Johnson.

Felting Mach.

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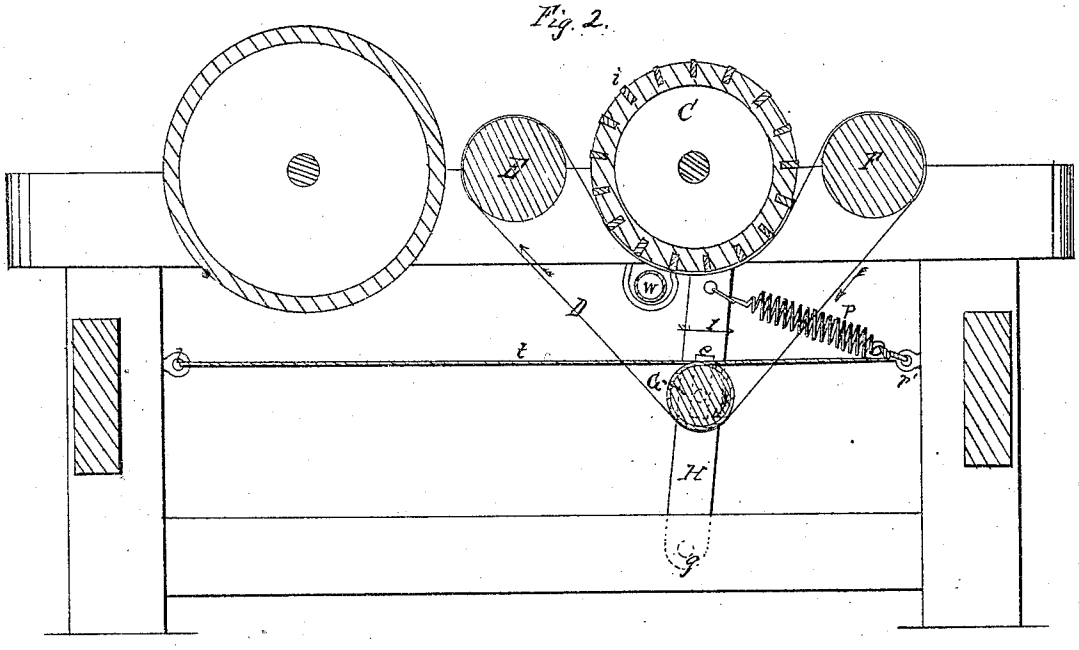
Fig. 2.



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UNITED STATES PATENT OFFICE.

J. H. BLOODGOOD, OF NEW YORK, N. Y., AND M. A. JOHNSON, OF LOWELL, MASSACHUSETTS.

FELTING MACHINERY.

Specification of Letters Patent No. 27,345, dated March 6, 1860.

To all whom it may concern:

Be it known that we, JOHN H. BLOODGOOD, of the city, county, and State of New York, and MOSES A. JOHNSON, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Machines for Felting, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of our improved machine; Fig. 2, a longitudinal vertical section upon the line A, A, of Fig. 1; Fig. 3, a vertical transverse section upon the line B, B, of Fig. 1.

The first part of our invention consists in the employment of a revolving vibrating felter or rubber in combination with an endless traversing apron for carrying the slivers or bat to be felted.

In the said drawings C, is the revolving felter, the shaft of which rests in bearings in the framework; beneath it runs the endless apron D, which passes over the carrying rolls E, F, and is kept in contact with the vibrating felter by a roll G, which is drawn down by springs X. The gudgeons *f* of this roll run in slots *e* in the arms H, pivoted to the frame at *g*.

The machine is driven by power applied to the shaft I, from which through the gears *h*, *a*, (seen in red in Fig. 3,) motion is communicated to the shaft K. The shaft I carries the eccentric *m*, by which the vibratory motion is given to the revolving rubber, the eccentric playing within a strap *f*, attached to the shaft L, of the rubber. Any other suitable way of vibrating the revolving rubber may be adopted.

The shaft K carries a worm M, which engages with the wheel N, upon the shaft O, of the roll E, by which means motion is communicated to the apron D, which in return revolves the rubber C, the apron being pressed up with sufficient force against the rubber for this purpose.

The second part of our invention has reference to the character of the rubbing or felting surface which we employ. The surface which we have found best adapted to this purpose is one composed wholly or in part of the end grain of wood, and may be produced by building a light wooden cylinder the surface of which is filled with pins *i*. It may, however, be otherwise constructed provided a sufficient portion of the surface be of wood with the end of the grain exposed. The felting action of this rubber is superior to that of any other which we have tried. It wears away uniformly though very slowly which is not the case with a roll having the grain of the wood longitudinally of the rubbing surface, the latter becoming smooth, so as to cause the roll to slip upon the material, which is not the case when the end grain of the wood is exposed, this surface adhering more closely to the fibers than any other which we have experimented with.

The third part of our improvement is designed to maintain the apron constantly in the center of the machine and to prevent it from running too far toward either end of the rolls. This end is accomplished as follows: It has already been stated that the gudgeons of the roll G, run in slots in the arms H and that these arms are pivoted at the points F; they are both held against a stop *q* (in a position necessary to cause the apron D to run straight) by springs P. The roll G is drawn down by the springs X, by which the apron is caused to press with the required force upon the under surface of the roll G. At each end of this stretching roller is a conical roll S′, which runs freely upon the arbor R and is encircled once by a cord *t*, the ends of which are attached to the frame at *l* and *p*. It is evident that if either of the conical rolls S be turned in the direction of the arrow 2, that by the winding and unwinding of the cord *t*, this end of the roll will be carried in a direction contrary to the arrow 1 and that when the roll is again released the lever H, contiguous to it and one end of the roll G will be carried back in the direction of the arrow 1 by one of the springs P. If now from any cause the apron D run to either end of the roll G it will mount upon the conical roll S at that end and turn it in the direction of the arrow 2. This will move that end of the roll G in the direction opposite to that of the arrow 1 by which means the roll is skewed and the apron will be immediately returned to its central position, when the roll S will be again set free and the roll G will be drawn back to its original position by the spring P.

Steam for the purpose of moistening and warming the material being felted may be

introduced through the pipe W or may be otherwise admitted beneath the felting cylinder and traversing apron.

We do not claim a traversing apron either Neither do we claim a revolving vibrating felter, when such felter does not revolve. Neither do we claim a revolving vibrating felter when not used in connection with a traversing apron. Nor do we claim a revolving vibrating cylinder in combination with a traversing apron when not used for the purpose of felting; but

What we claim as our invention and desire to secure by Letters Patent as an improvement in felting machines is—

1. An elastic traversing apron, moistened and warmed by steam and, as the sole bed for the material that is being felted in combination with a revolving vibrating felter, operating in the manner substantially as described for the purpose specified.

2. We claim a felting or rubbing surface for felting machines composed of the end grain of wood and operating as described.

3. The device for keeping the apron straight upon its roll consisting essentially of the independent end pieces *s*, cord *t* and spring P or other equivalent operating substantially as set forth.

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MOSES A. JOHNSON.

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