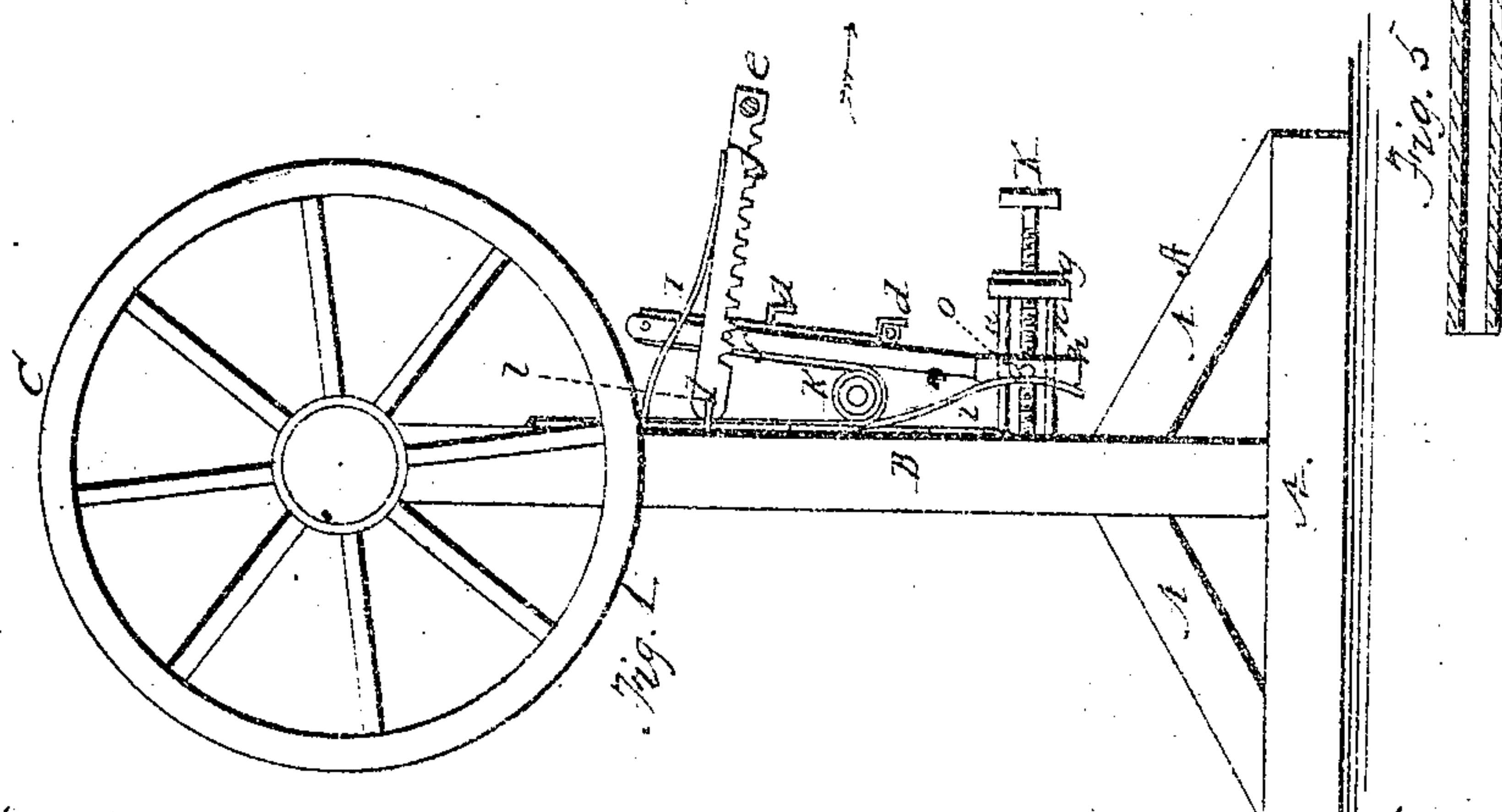
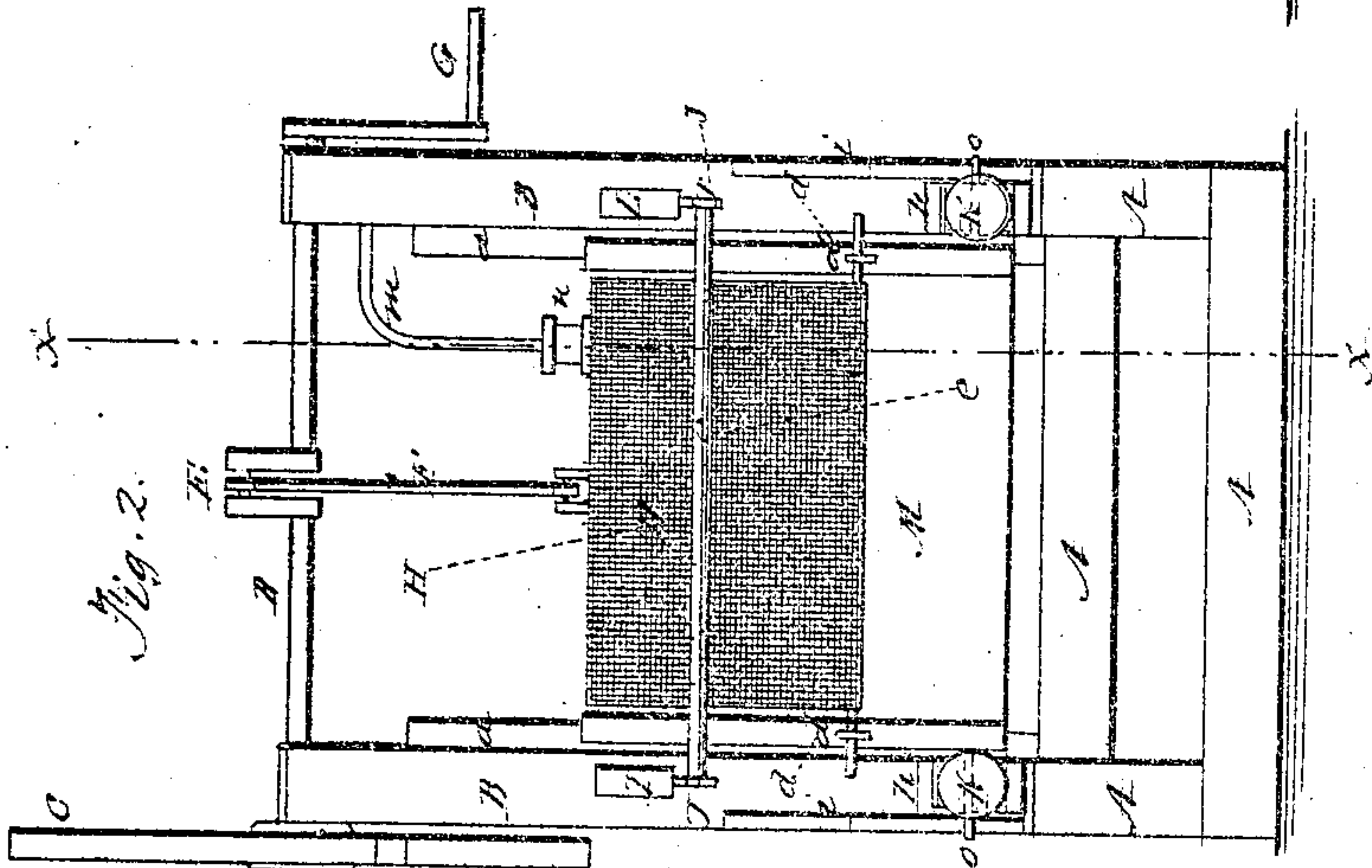
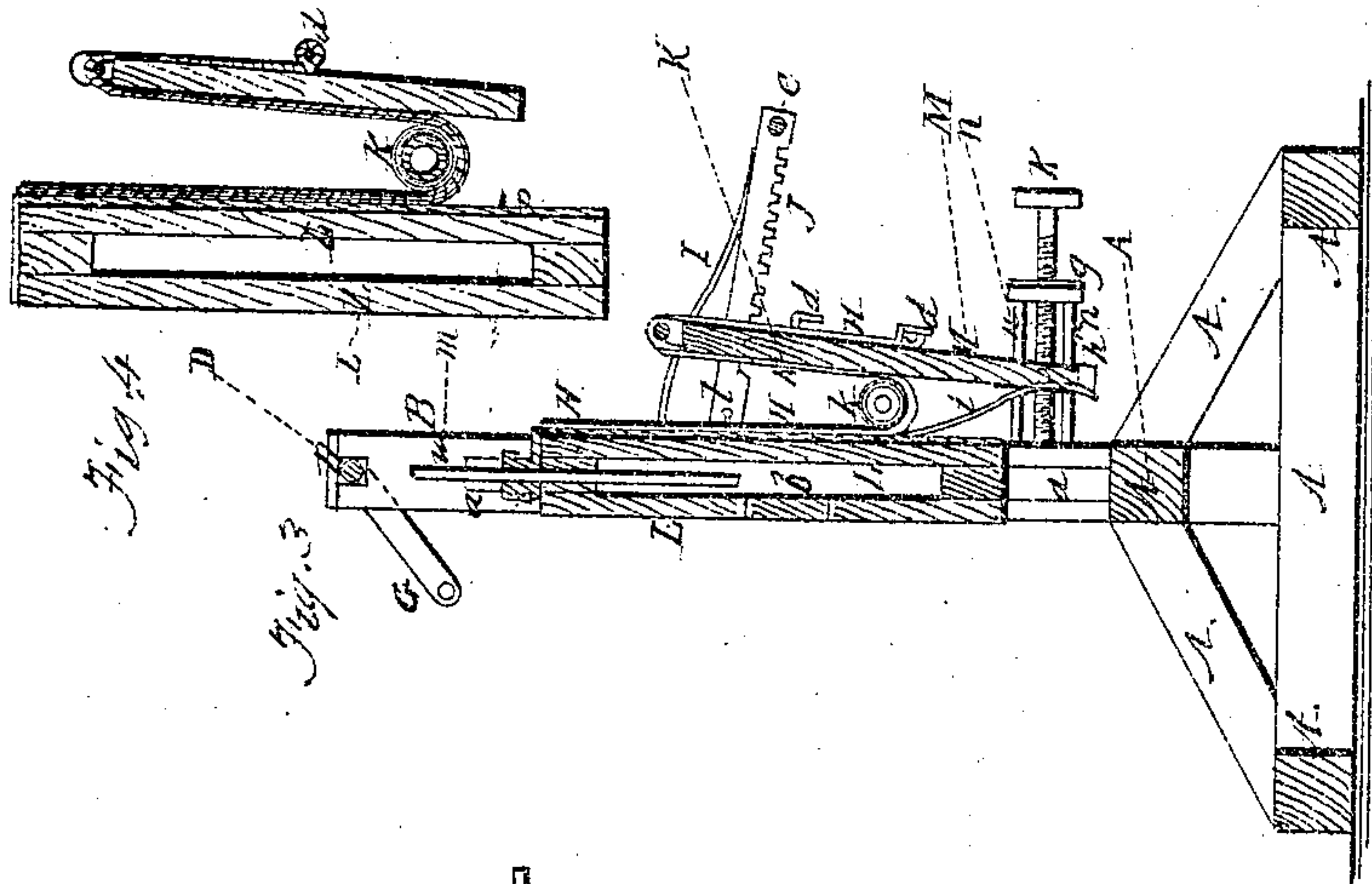


Benedict & Wylie.

Felting-Machine.

N<sup>o</sup> 81244

Patented Aug. 18, 1868.



Witnesses;  
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# United States Patent Office.

W. J. BENEDICT AND JOHN WYLIE, OF SOUTH NORWALK, CONNECTICUT.

*Letters Patent No. 81,244, dated August 18, 1868.*

## IMPROVEMENT IN FELTING-MACHINES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, W. J. BENEDICT and JOHN WYLIE, of South Norwalk, in the county of Fairfield, and State of Connecticut, have invented a new and improved Hat-Felting and Napping Machine; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of our improved machine.

Figure 2 is a front view of the same.

Figure 3 is a section, taken through the line *x x* of fig. 2.

Figure 4 is a detail section of the looped cloth and the sheeting-cloths on the box and apron.

Figure 5 is a detail view of the elastic roller.

Similar letters of reference indicate corresponding parts.

The nature of this invention relates to the felting of hats, and consists in the mechanism as set forth in the following.

In the accompanying plate of drawings the frame of the machine is shown to consist of the uprights B, resting upon and forming part of the base-frame A A A A, as shown.

The simplest form of our invention only is shown, but the same principle thereof may be employed in the multiplication of the parts claimed in the invention, as will be hereinafter set forth.

L is a box or hollow bed, of wood, iron, or other suitable material, made sufficiently tight to hold steam, and grooved to work up and down between the uprights B.

A guide, *a*, on each upright fits on the grooves of the box L.

The crank-shaft D, with the crank E and connecting-rod F, serves to give the box L a vertical motion on the guides *a a*.

C and G are the fly-wheel and crank, for obvious purposes.

The sides of the box L are plane surfaces, and a plate, M, is held in a contiguous and nearly parallel position to the side of the box by means of the pivoted racks J J, the teeth of which catch upon pins *f* upon the sides of the plate.

The lower part of the said plate is supported by nuts *h*, which slide on the rods *n n*, which latter are affixed to the post uprights B B, as shown.

The pins *o* from the plate pass through the nuts *h*, and project beyond, thereby serving as a point for the springs *i*, (affixed to the uprights,) to exert their tension against, and thereby throw the lower end of the plate from the box L, when the screw K, which works in the nut *g*, is turned for that purpose.

The upper part of the plate is adjusted by the racks J J, as aforesaid, the latter being held by the staples *l*, or other equivalent means.

Springs I serve to actuate the racks down upon the pins *f*.

Between the plate and the bed a fold of cloth, H, or its equivalent, hangs on a bight or loop, as shown.

This cloth is affixed to the upper part of the box, and down in contact with its side and up in contact with the plate, and over the top of the latter terminates in a rod, which catches under hooks *d d*, on the plate, as shown.

By this rod and the said hooks, the length of the loop or bight can be quickly adjusted to the different lengths required in the felting process.

A steam-pipe, *m*, enters the box through the stuffing-box *n*, and keeps the box supplied with the requisite steam. This pipe connects with any suitable steam-generator.

In order to prevent the cloth-bight or loop from slipping on the proximate surfaces of the plate or box during the upward motion of the latter, the proximate surfaces of both the plate and box are sheathed or faced with any suitable textile material, *p p*, or provided with a suitably-roughened surface, or coated with sand, or



other asperities, for the purpose of causing the part of the loop to hug the said surfaces, and not slip thereon during the motion of the box L.

The hats are rolled upon a roller, in the usual manner, and placed within the loop, and the box is moved up and down, whereby the bight or loop of the cloth rolls the bundle of hat-cones *k* in a manner very analogous to the hand-rolling, as practised with fur and other hats of finer quality.

The adjustment of the plate during the process will be understood by those skilled in the art of felting hats, and requires no description here.

This machine may be used in felting common woollen hat-cones, as well as those of fur and the finer qualities of wool hats, but in order to more perfectly simulate the operation of felting by hand, we employ a hollow roller of soft rubber, as shown at fig. 5, which, by its elasticity, conduces in a considerable degree to the perfect and thorough felting of the cones.

The sides of the box may be perforated, to emit jets of steam upon the cloth, H, and its contents.

In napping, a pipe for hot water may be located to discharge into the loop and its contents from above the same when the machine is to be used in napping, so called, which process being analogous to the felting process so far as pertains to the motion of the box and cloth, H, needs no further description here.

In practice, a plate, similar to the one shown, may be placed on the opposite side of the bar L, and provided with a bight of cloth, as previously shown and described, whereby one box is made to operate two bights at the same time.

Another modification contemplated, is to make the box with three or more vertical sides of equal dimensions, and to provide a corresponding number of plates and bights of cloth, each to operate as above described.

Thus, by the use of a pendent bight of cloth, or its equivalent, and the rubbing-surfaces, we imitate the operation of the human hand in felting fur hats, and accomplish the felting of the same in a superior and rapid manner.

We claim as new, and desire to secure by Letters Patent—

1. In a hat-felting and napping machine, the combination of the reciprocating steam-box L, the bight or loop of cloth H, roller K, and adjustable plate M, substantially as described for the purpose specified.
2. The racks J J, box L, and bight or loop of cloth H, constructed and arranged substantially as set forth, and for the purpose specified.
3. The arrangement of the shaft D, crank E, rod F, box L, uprights B, and looped cloth H, all substantially as and for the purpose shown and described.
4. The screw K, in combination with the plate M and looped cloth H, arranged substantially as shown for the purpose set forth.

The above specification of our invention signed by us, this 8th day of February.

W. J. BENEDICT,  
JOHN WYLIE.

Witnesses:

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ALEX. F. ROBERTS.