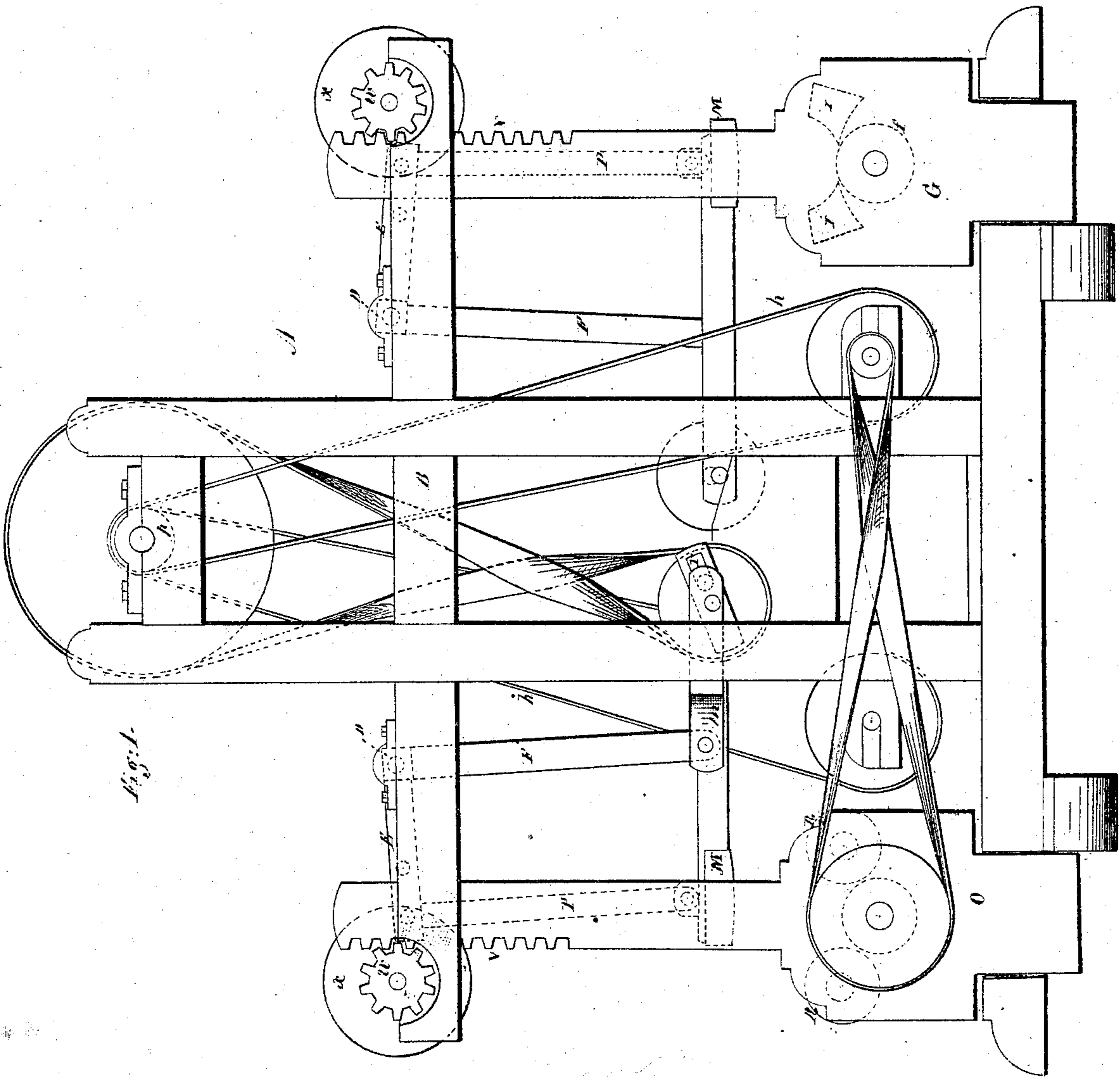


*H.L. Randall,  
Felting Machine*

*3 Sheets. Sheet 1.*

*No. 17115.*

*Patented. April 21. 1857.*

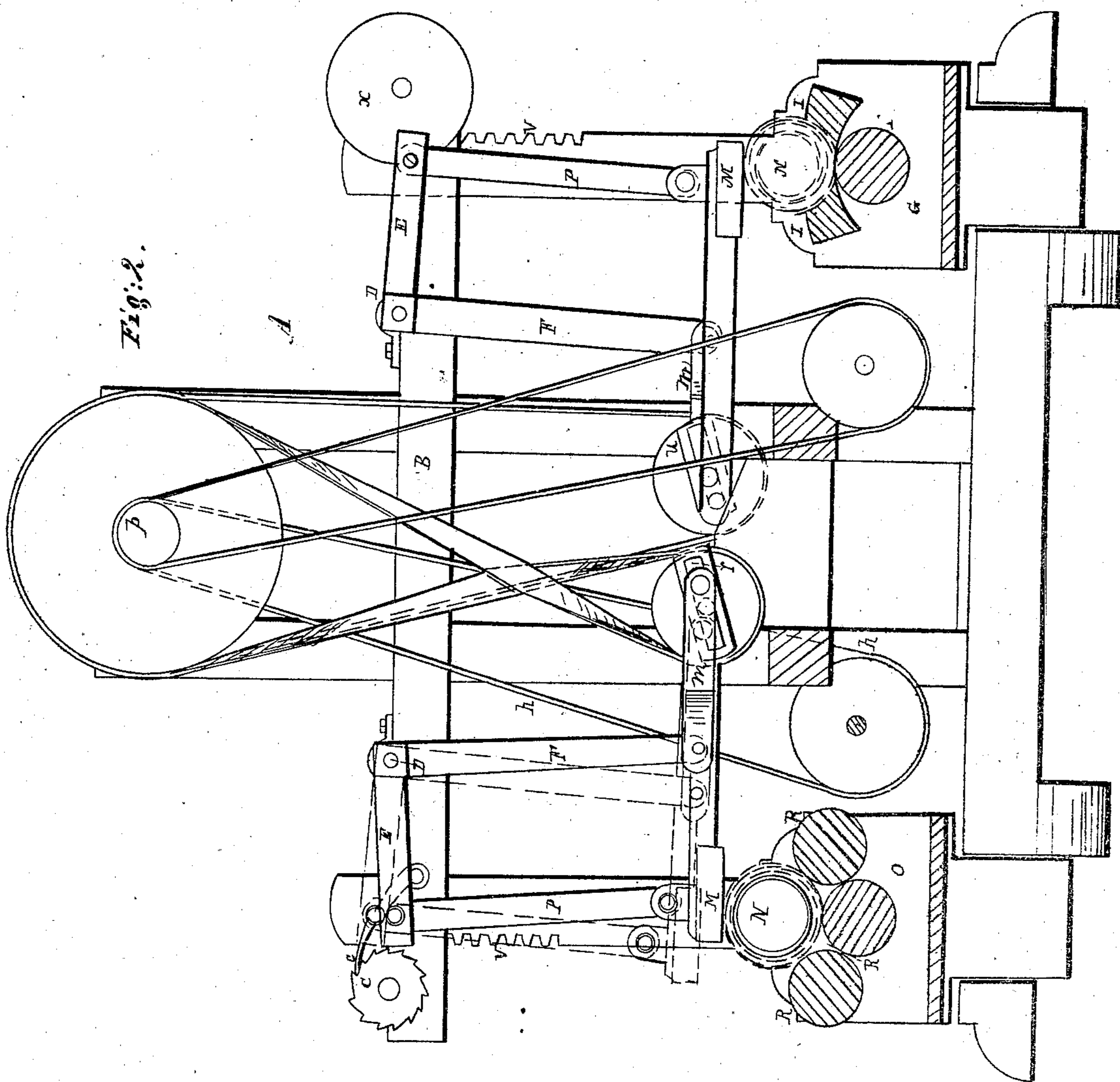


H. L. Randall,  
Felting Machine.

3. Sheets, Sheet 2.

No. 17115.

Patented April 21 1857.



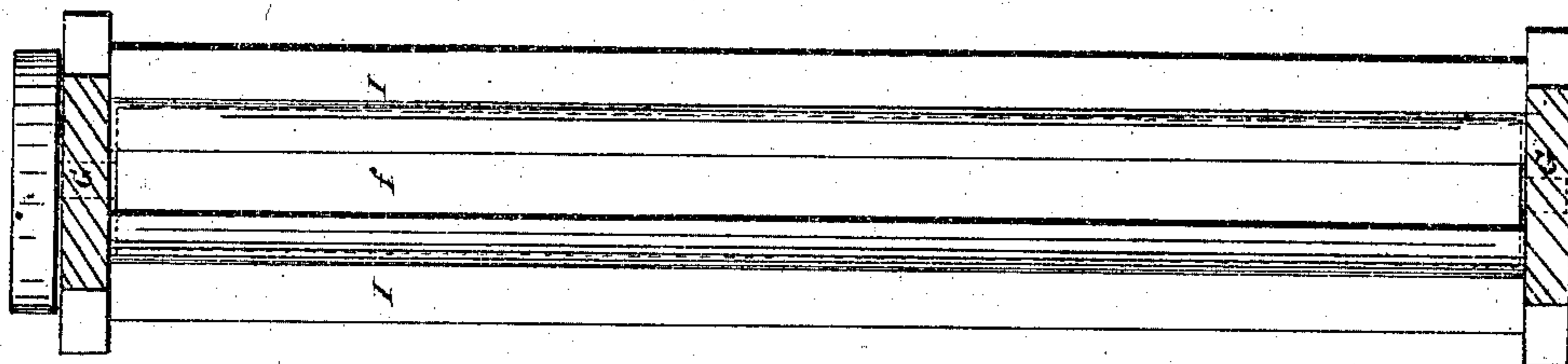
*A. L. Randall,  
Felting Machine.*

*3 Sheets. Sheet. 3*

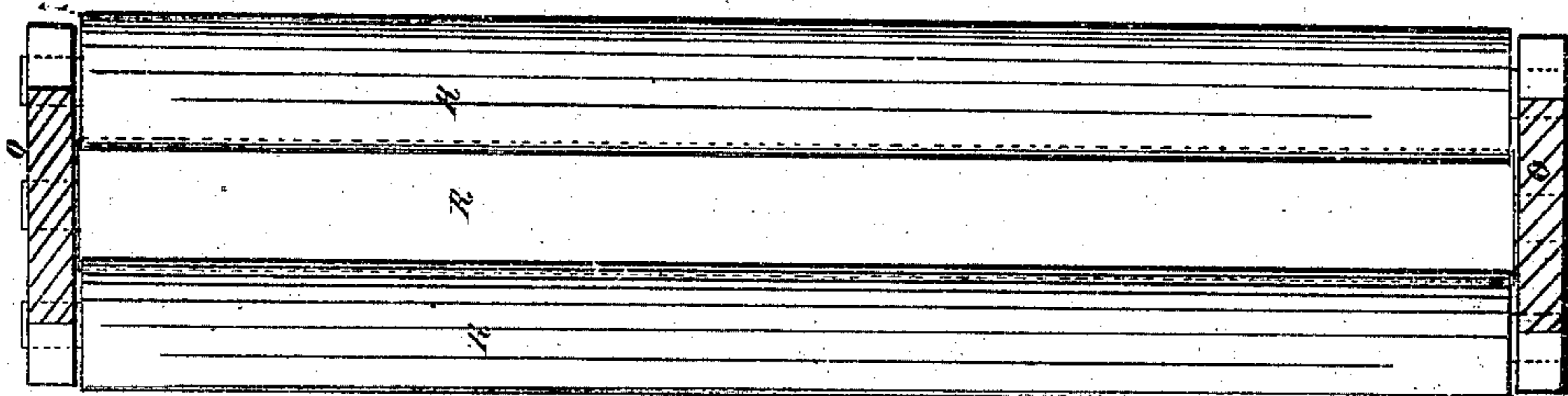
*No. 17,115.*

*Patented. April. 21. 1857.*

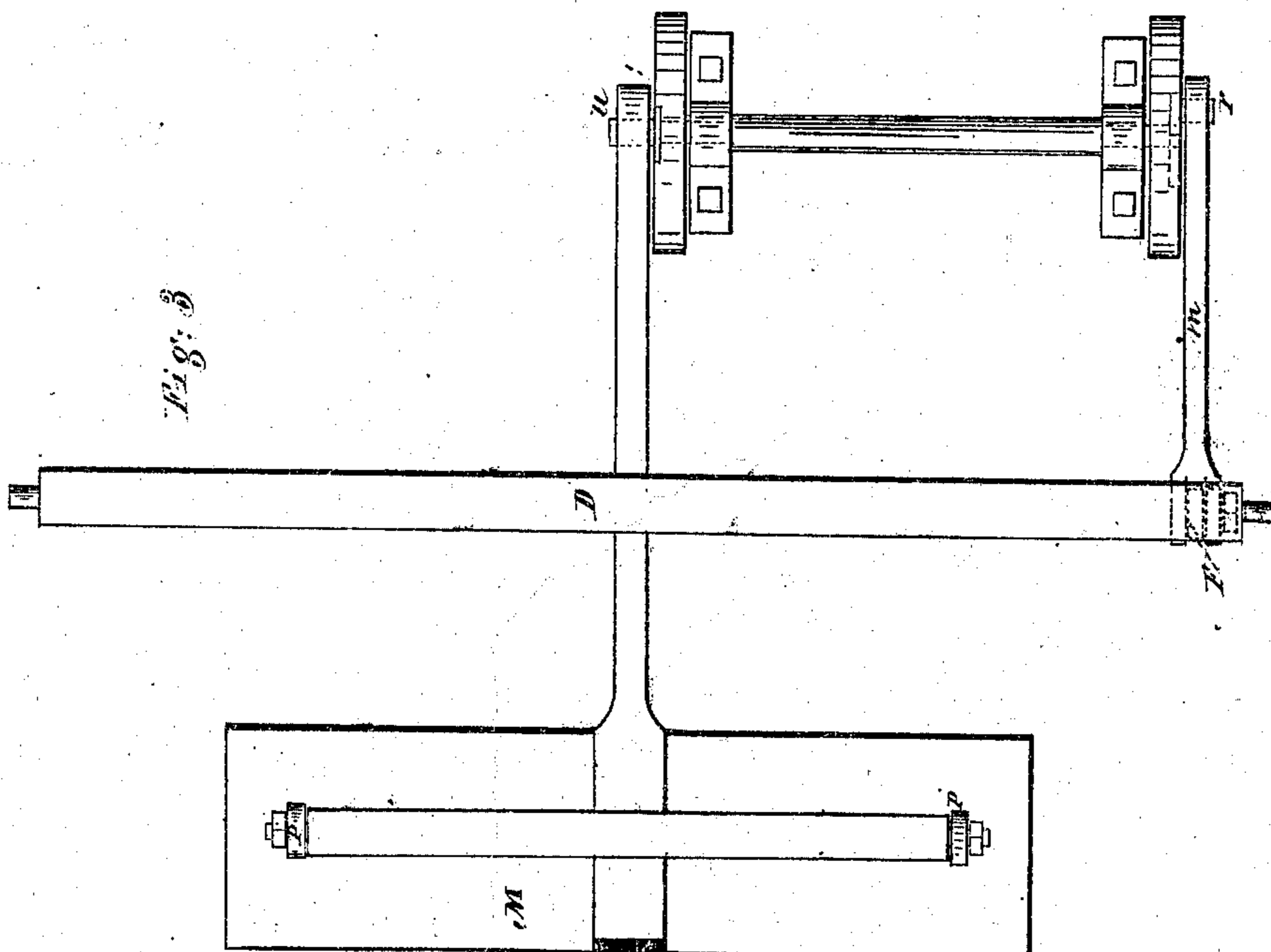
*Fig. 5.*



*Fig. 4.*



*Fig. 3.*



# UNITED STATES PATENT OFFICE.

HENRY L. RANDALL, OF ROXBURY, CONNECTICUT.

## MACHINE FOR FELTING HAT-BODIES.

Specification forming part of Letters Patent No. 17,115, dated April 21, 1857; Reissued April 15, 1862, No. 1,301.

*To all whom it may concern:*

Be it known that I, HENRY L. RANDALL, of Roxbury, county of Litchfield, and State of Connecticut, have invented a new and useful Machine for Felting or Sizing Hat-Bodies, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of the same.

Figure 1, represents a side elevation. Fig. 2, is a vertical longitudinal section. Fig. 3 is a plan of the felting board detached showing the driving mechanism. Figs. 4 and 5 are plans of the adjustable stationary stocks detached.

To enable others skilled in the art to make and use my improved machine for felting hat bodies, I will proceed to describe the same in detail.

Like letters indicate like parts in all the figures.

A, in the annexed drawings represents a suitable frame to which the several parts of the mechanism are secured. To the upper rail (B) of this frame, is arranged a rock-shaft (D) from which shaft extend arms (E E and F); near the outer ends of the arms (E) are pivoted rods (P) extending downward, to the lower ends of which rods the felting board is secured in any convenient manner—the lower end of the arm (F) is attached to a connecting rod (m) through which a vibrating or swinging motion by means of an adjustable crank (r) is given, as shown in Figs. 1 and 2 and 3.

By suspending the felting board (M) from the arms (P) and giving an oscillating motion to the shaft (D) through the arm (F) the felting board secured thereto has an up and down or vertical motion, and by connecting the felting board to an adjustable crank (u), combined motions of up and down and back and forth are produced. The vertical or up and down motion, alternately brings the felting board into contact, and relieves it from the material being felted or sized, and the back and forth motion is to give the work.

The crank (r) by which the felting board is raised and lowered, should lead the crank (u), as seen in Fig. 3, so that when said crank (u) is at its extreme backward stroke, the crank (r) will have passed its dead point and so far advanced as to have raised the felting board off the roll that it may

pass over, in its forward motion, without coming in contact, and to lower the felting board, in its last half stroke, into contact with the roll (n) (to give work to the material incased therein) that said roll may always turn in the same direction, and continue to become more tightly rolled within its wrapper. By these combined motions it will be perceived that the material being felted receives a short, quick automatic manipulation which in practice is found to be the most equable way of sizing hat bodies. These adjustable cranks are for the purpose of adjusting the stroke of the felting board—when coarse material is to be sized or felted, a longer stroke and greater pressure is required, and as the quality and kinds of hats are constantly changing, varying from the coarsest to the finest materials, it is found necessary that the stroke of the felting board be varied to suit these different qualities and kinds. A long stroke is required for the coarsest, varying to the shortest for the finest material.

O, G, represent adjustable, stationary stocks, into which material to be felted or sized is placed; these stocks are raised and lowered by means of racks (v) and pinions (w) and hand wheels (x) to correspond with the varying sizes of the rolls, and are retained in any desired position by ratchet wheels and pawls (c).

The annexed drawings represent two arrangements of the beds of the stocks. The bed (R) consists of three rollers (but more may be used if desired) which are supported in suitable bearings in the adjustable frame (o), this stock is intended more particularly for fine fabrics, as there is less friction and resistance in working the material over these rollers, which turn with, or in the same direction of the roll, than in the stock (G) about to be described.

The stock (G) consists of two stationary concaves (I), and one or more rollers (f) placed between them; this form of stock is used chiefly in sizing coarse materials, because more resistance is offered by the stationary concaves and one or more rollers, than by a number of rollers, which is desirable in coarse hats in order to give solidity and equality to the work, and to size the body as rapidly as the material will permit.

A rotating motion is given to the rollers (R) in the stock (O) by a belt (h) from

pulley (*p*) on the main driving shaft—and motion to the roller (*f*) in the stock (*G*) is also given by corresponding pulleys and belt. The object of giving motion to these  
5 rollers which compose or in part compose the beds of the adjustable stocks, is to assist the felting boards in turning the roll of hat bodies or other material so that it shall not become flattened and remain in one position.  
10 Having thus fully described my improved machine for felting or sizing hat bodies, what I claim therein as new and desire to secure by Letters Patent is—

1. The rising and falling and forward and

back motions of the felting board by a system of levers arranged as described or their equivalent. 15

2. Rotating the bat or roll of material, being felted, around its own axis in the manner substantially described. 20

3. In combination with the felting board when operated as described, the adjustable stationary stocks or carriages for holding the roll or bat substantially as set forth.

HENRY L. RANDALL.

Witnesses:

S. W. WOOD,  
R. Y. OSGOOD.

[FIRST PRINTED 1912.]