

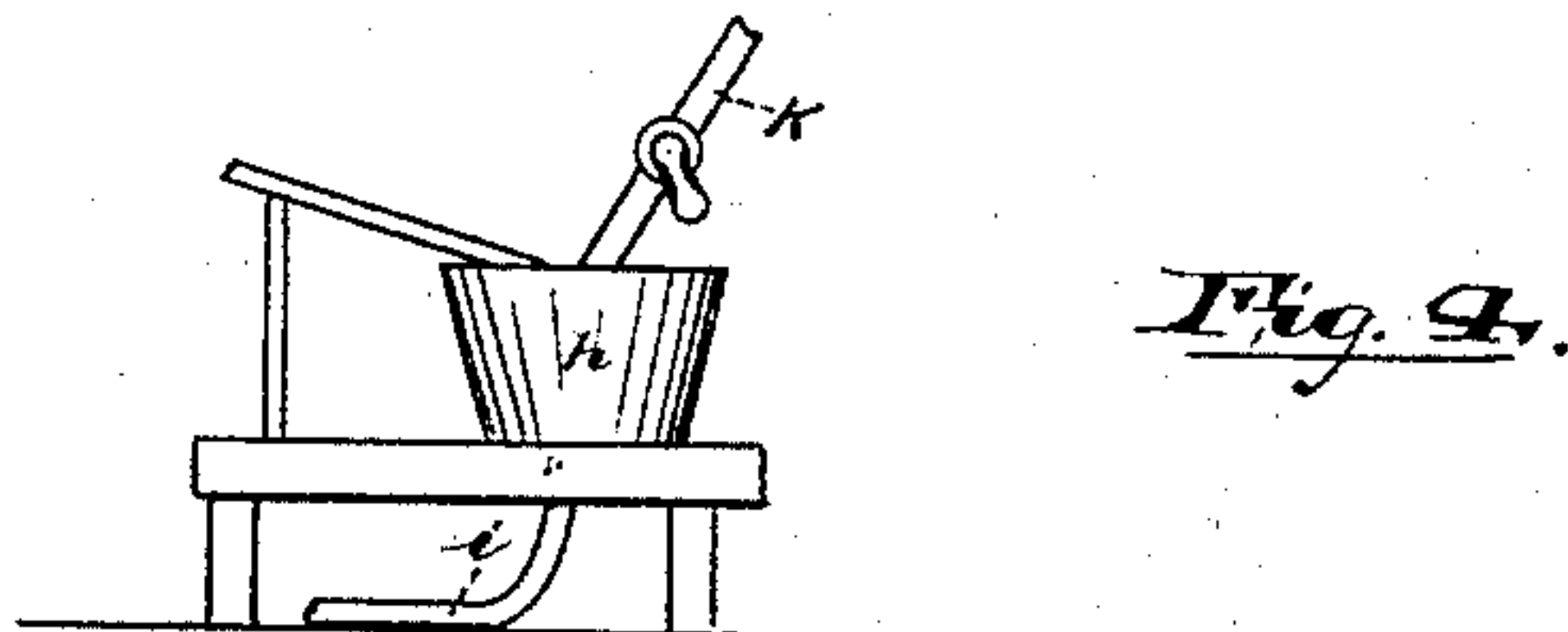
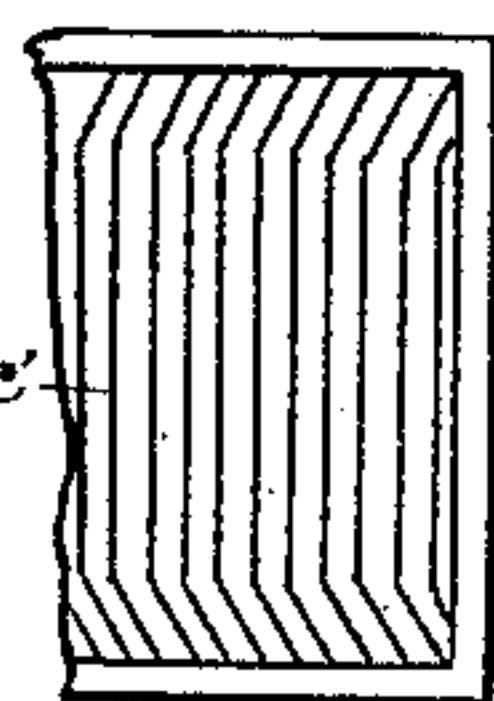
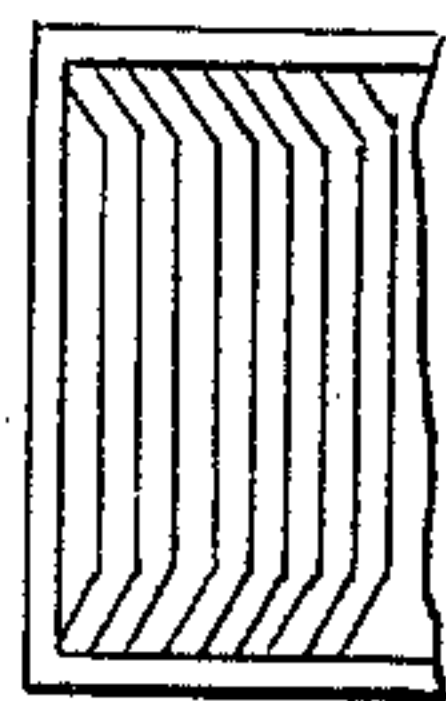
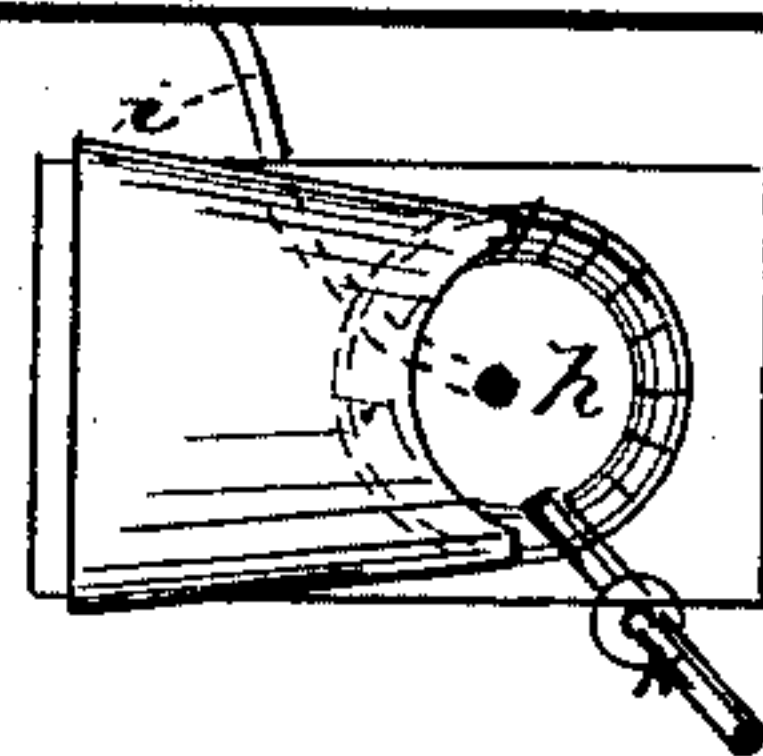
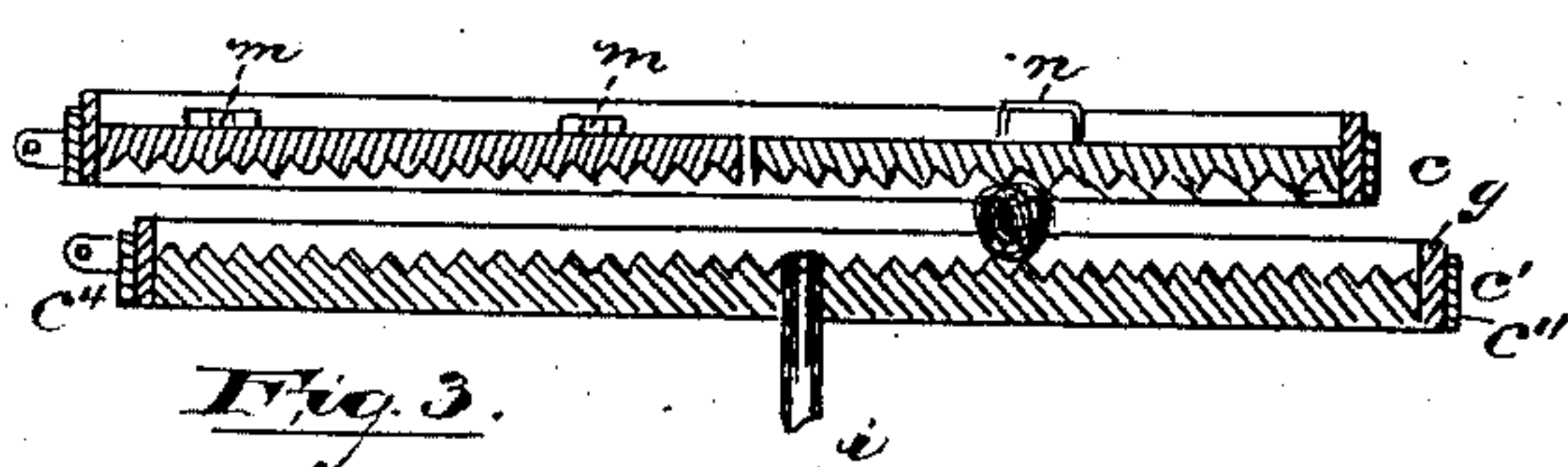
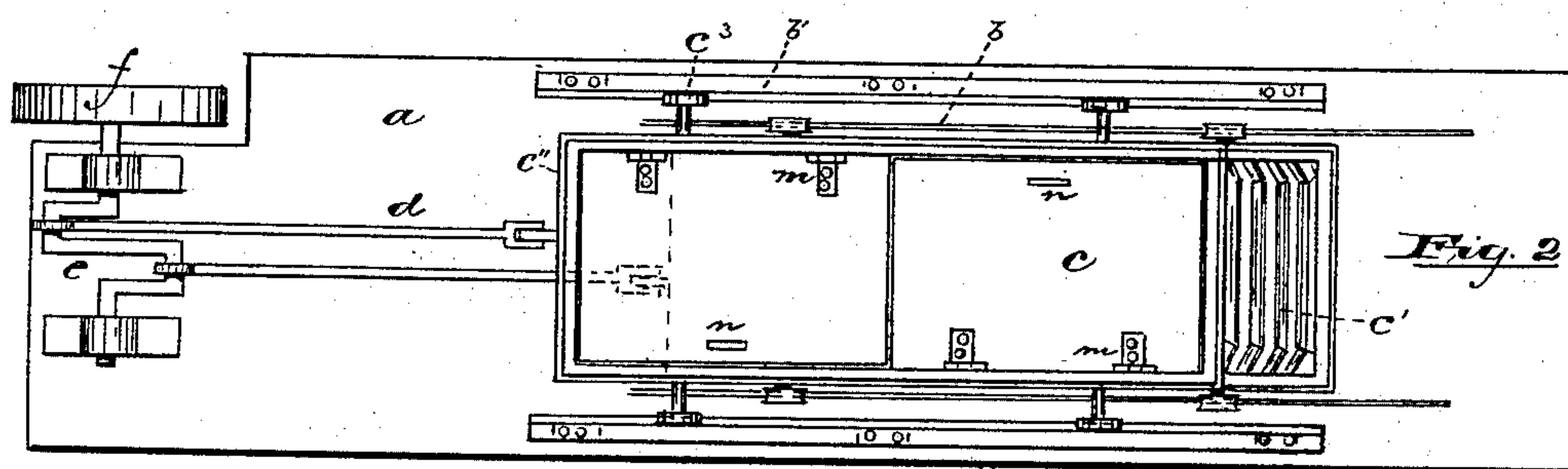
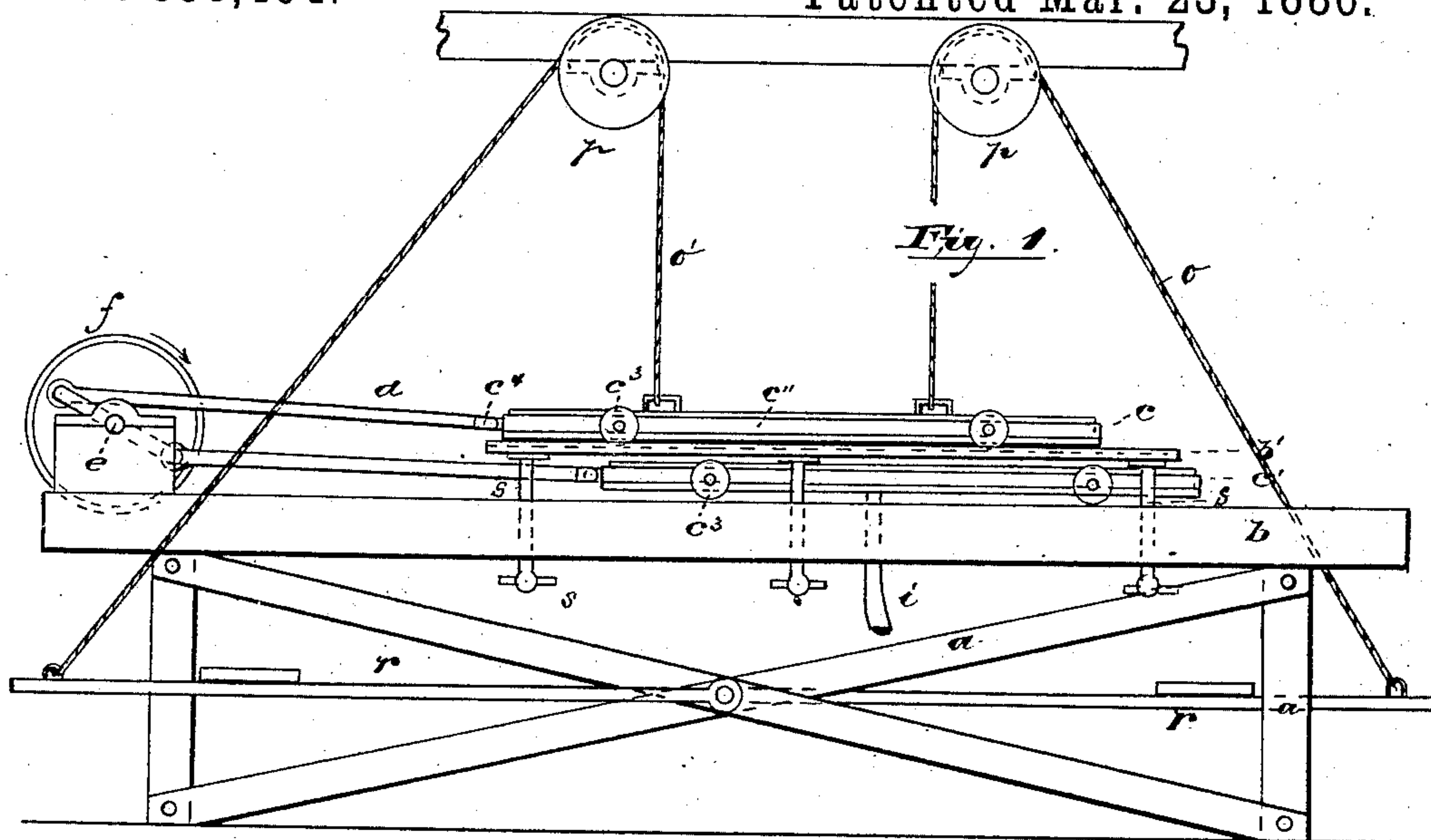
(No Model.)

F. BAUER.

HAT SIZING OR FELTING MACHINE.

No. 338,464.

Patented Mar. 23, 1886.



Attest:

Inventor

Frank F. Campbell.
B. L. McCully.

Friedrich Bauer,
by Draste & Co
attys.

UNITED STATES PATENT OFFICE.

FRIEDRICH BAUER, OF ORANGE, NEW JERSEY.

HAT SIZING OR FELTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 338,464, dated March 23, 1886.

Application filed April 30, 1885. Serial No. 163,947. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH BAUER, a citizen of the United States, residing at Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hat Sizing or Felting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to reduce the cost of construction, provide a device adapted to effectually size or felt the hat in a more limited time and in a more perfect imitation of the work obtained from hand-labor.

The invention consists in the arrangements and combinations of parts, substantially as will be hereinafter embodied in the clauses of the claims.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation, and Fig. 2 a plan, of the device; Fig. 3, a longitudinal sectional view of the felting-surfaces; Fig. 4, a detail side elevation of the "kettle" employed in "crozing" the hat-roll; and Figs. 5 and 6 are plans showing in detail the arrangements of the ribs on the upper and lower felting beds or surfaces, respectively.

In said drawings, *a* indicates a suitable bed or frame, having tracks or ways *b b'*, the first of which is a fixed bearing and the latter an adjustable bearing adapted to raise or lower the bed or felting-surface *c*, working thereon, from or to the co-operating surface *c'*, operating on the said fixed bearing. The said co-operating beds are preferably of wood or metal, although other substances, such as rubber, may be employed, and are preferably held horizontally parallel with one another, as shown. When of wood, the felting-beds are preferably bound and held by an iron band or frame, *c''*, which carries rollers *c³*, upon which the beds move, and a draw-head, *c⁴*, the former being at the sides of the said frame, and the latter at one end thereof.

The felting-beds are operated by means of

a double crank shaft, *e*, which in turn is operated by a pulley, *f*, or other suitable mechanism. The crank connects with the draw-heads by means of the connecting rods *d d*, and by means of said double crank, the individual pins of which extend in opposite directions from the line of the driving-shaft, as indicated, the upper and lower beds are each given a reciprocating motion, the motions being in opposite directions at a given time, so that the hat-roll is acted upon at top and bottom, and given a revolving motion without changing its position with respect to the bed *a*, or the operator standing beside the same. The lower felting bed or surface is provided with a raised rim or margin, *g*, Fig. 3, whereby said bed is enabled to hold a shallow sheet or quantity of hot water, which is supplied from the kettle *h* or any other source by means of a pipe or hose, *i*, passing up under said bed, as shown. The water in the kettle is or may be heated by the exhaust-steam pipe *k*, in any appropriate manner. The upper felting-surfaces are preferably composed of hinged sections opening from opposite sides of the device, *m* indicating the hinges, and *n* suitable handles, hooks, or loops to receive cords *o'*, which pass over pulleys *p* and connect with levers or treadles *r*, by which the sections may be raised by foot-power.

By means of the peculiar arrangement of the sections, two or more men may with advantage work together on the one felting-bed. The faces of the felting-beds are corrugated or ribbed, as illustrated in Figs. 3 and 5, the ends of the ribs turned at an angle to the center portion, as shown, and the turned portions of the ribs of the upper bed running in a direction transverse to those of the lower bed. By this means the hat-rolls are prevented from working laterally, so as to come into contact with the marginal projection and be damaged thereby. The upper bed, or the track, way, or bearing therefor, is preferably adjusted by setting or adjusting screws *s s*, or by other appropriate means, whereby the beds may be brought together or separated to enable the machine to operate with advantage on different grades of goods, or in the several stages of the felting process.

Instead of being carried by rollers, the beds

may simply slide on their bearings, and in lieu of ribs or ridges, I may provide the felting-surfaces with any other proper form of felting protuberances.

5 Instead of cranks, arranged as shown, eccentrics, cams, or other suitable mechanism may be employed to secure the desired movements.

What I claim as new is—

10 1. An improved felting or sizing machine, combining therein an upper and lower felting bed, the latter of which is provided with a raised margin or edge, to enable said bed to hold water, and means for operating the upper
15 of said beds, substantially as set forth.

2. A horizontal felting-bed and a co-operating bed, comprising a plurality of hinged sections adapted to be separately raised to remove the hat, substantially as set forth.

20 3. In combination, upper and lower reciprocating felting-beds working oppositely in parallel planes and provided with corrugated or ribbed felting-surfaces, the opposite ends of the ribs being turned at an angle to the

center portions thereof on the plane beds, substantially as and for the purposes set forth. 25

4. In combination, the upper and the lower reciprocating felting-beds and adjusting mechanism, whereby the said beds may be separated or brought together while the hats are
30 under the influence of the two oppositely-moving surfaces, substantially as set forth.

5. In combination, the lower bed provided with a raised margin and a pipe, *i*, and an upper reciprocating surface, substantially as
35 shown and described.

6. In combination, two oppositely reciprocating felting-surfaces, one of which works on adjustable tracks or ways whereby it may be raised or lowered to or from the other, sub-
40 stantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of April, 1885.

FRIEDRICH BAUER.

Witnesses:

CHARLES H. PELL,

FREDK. F. CAMPBELL.