

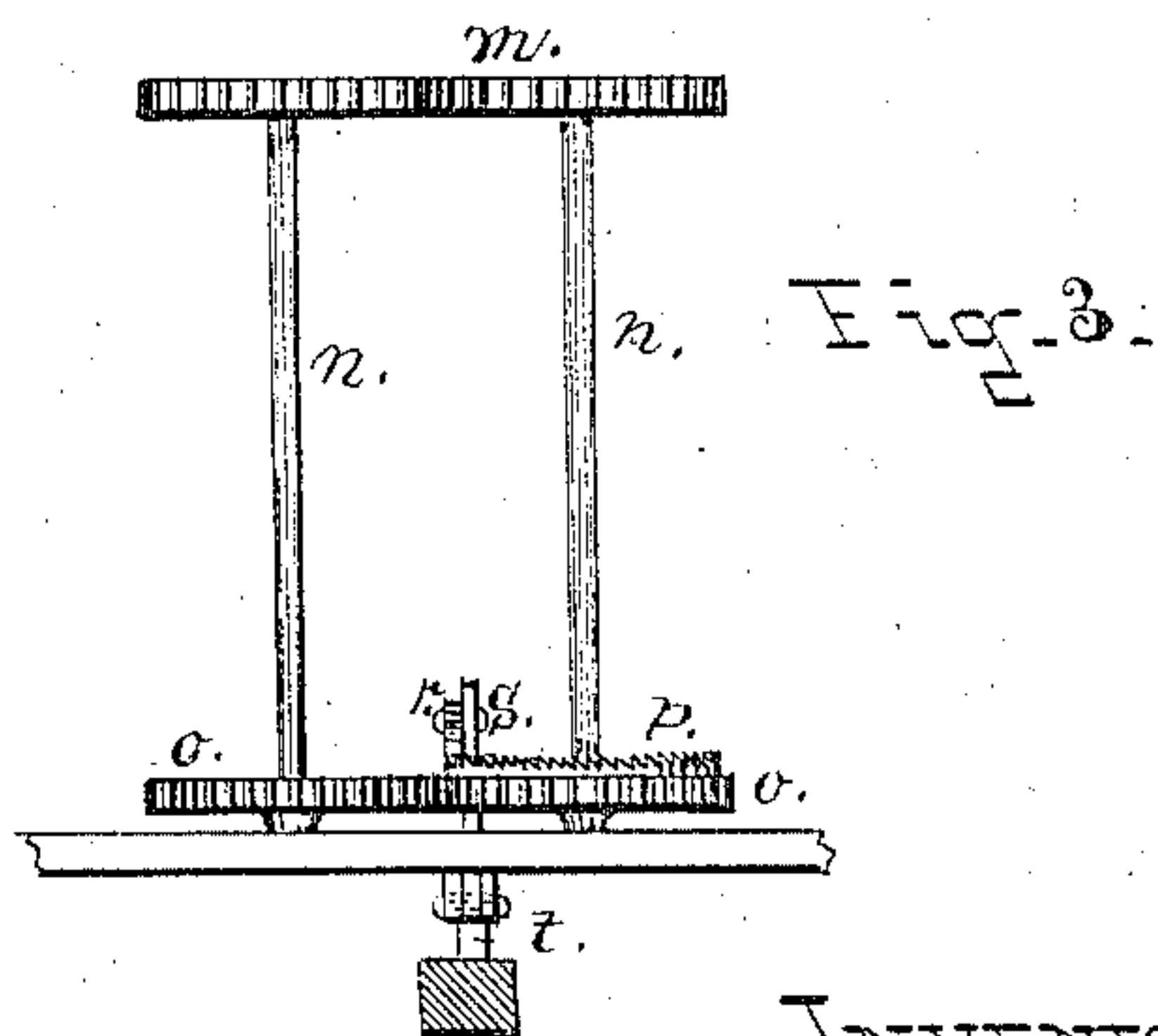
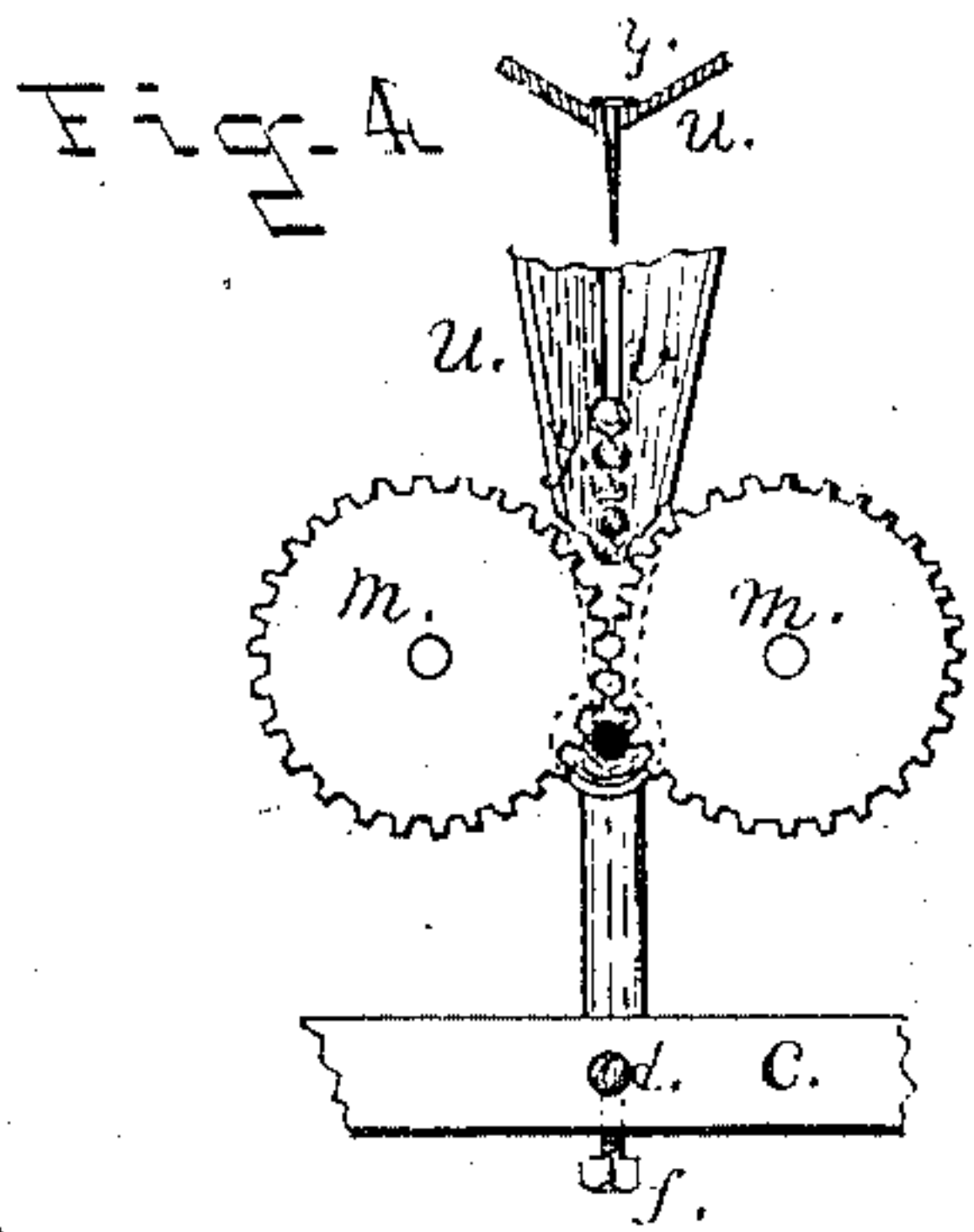
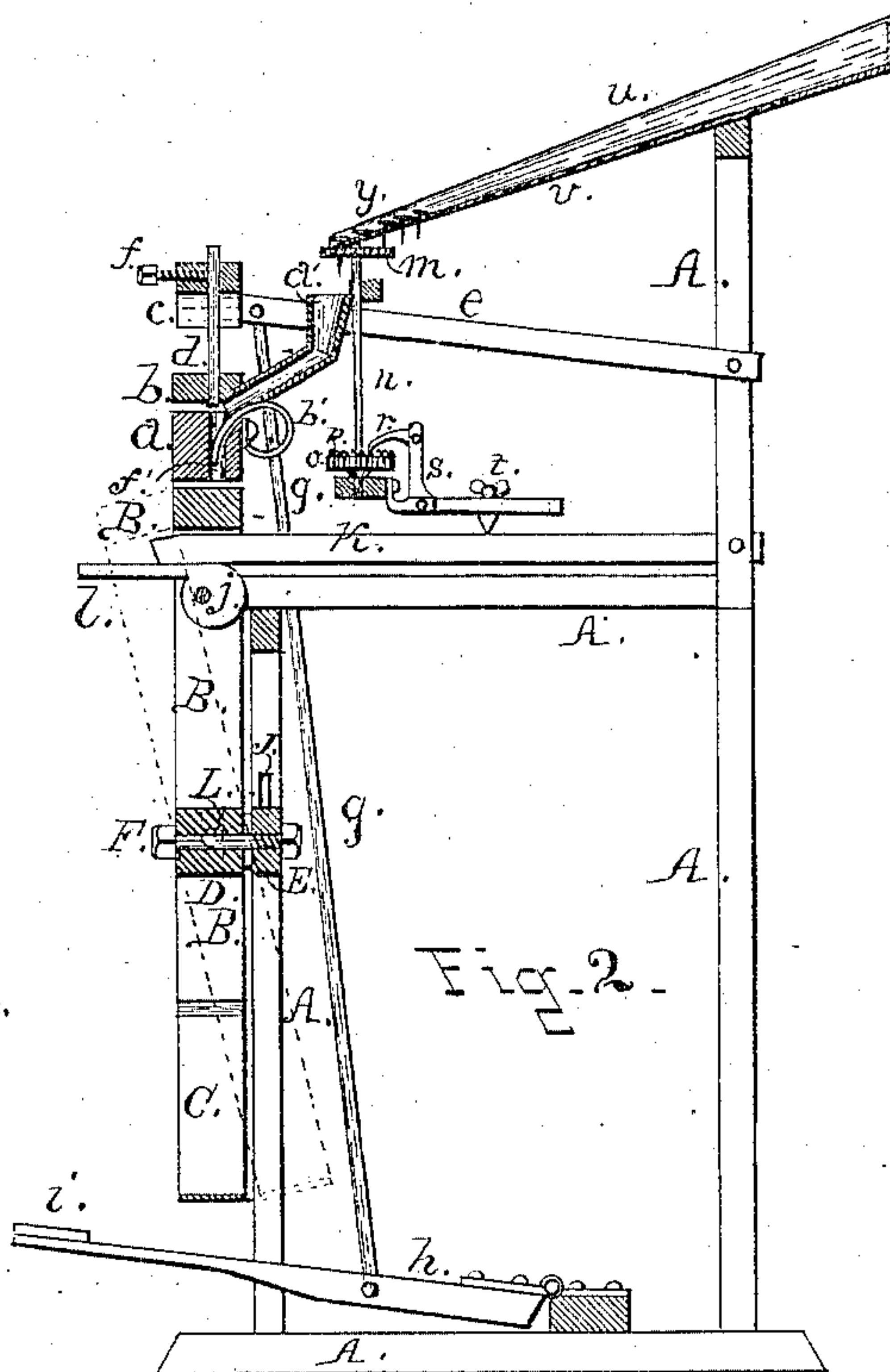
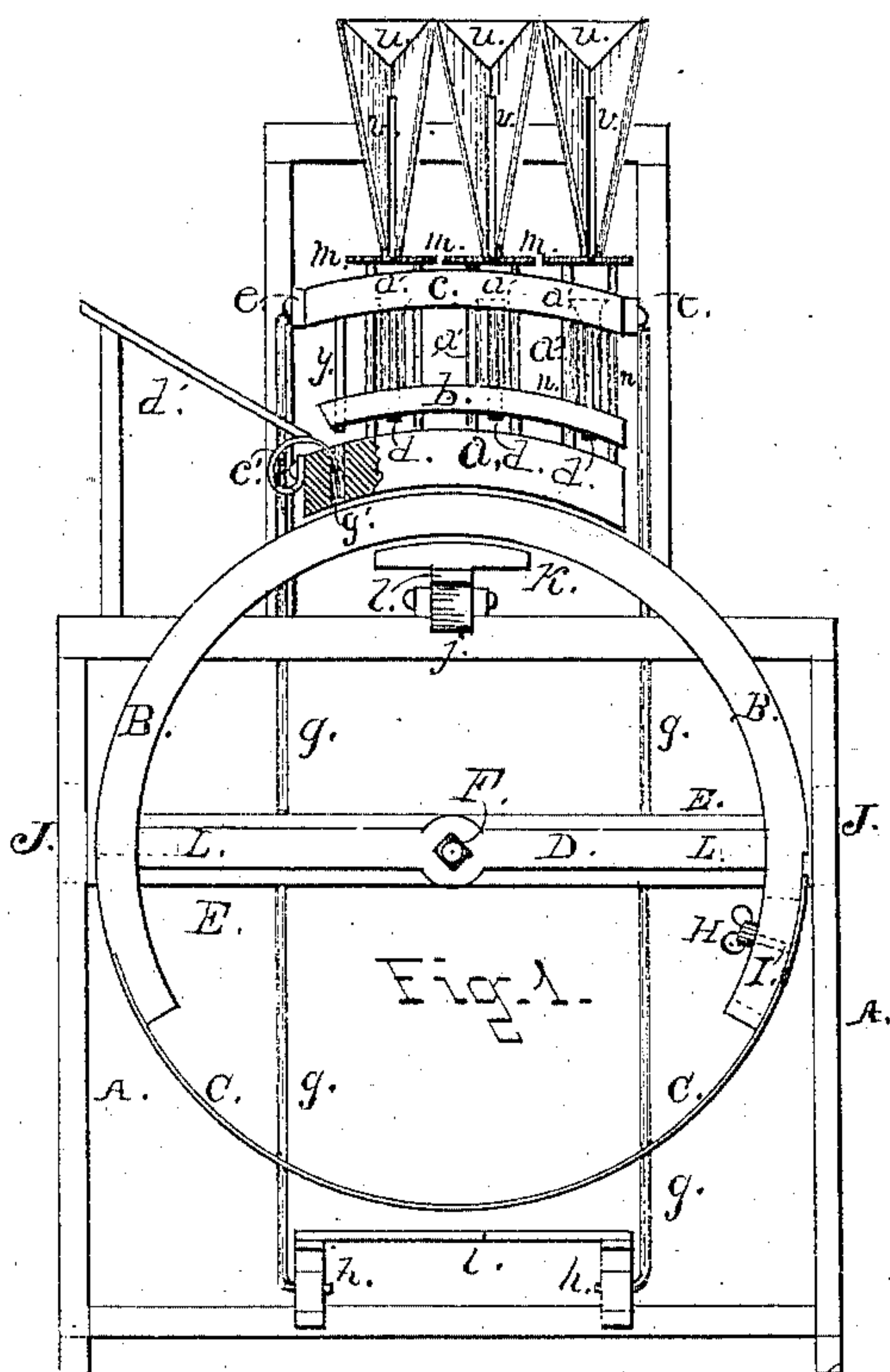
(No Model.)

A. C. BATCHELLER.

HOOP NAILING MACHINE.

No. 313,645.

Patented Mar. 10, 1885.



ATTEST:
J. P. Thomas
A. J. Thomas

INVENTOR:
Andrew C. Batcheller.
By James C. Thomas
his Attorney -

UNITED STATES PATENT OFFICE.

ANDREW C. BATCHELLER, OF BAY CITY, MICHIGAN.

HOOP-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 313,645, dated March 10, 1885.

Application filed June 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, ANDREW C. BATCHELLER, a citizen of the United States, residing at Bay City, in Bay county and State of Michigan, have invented a new and useful Hoop-Nailing Machine, of which the following is a specification.

My invention consists, chiefly, in the arrangement of suitable nail and staple driving mechanism with proper means of feeding the nails and staples singly and automatically in proper position to be driven, in the arrangement of a form which may be easily adjusted to regulate the hoops to different required sizes, and in the proper arrangement and location of the said form and nail and staple feeding and driving mechanism and means of operating the said form, so that a hoop may be conveniently placed upon the form and the free ends thereof suitably clamped and firmly held together while being nailed or fastened.

The object of my invention is to provide a means of quickly and easily adjusting a hoop to different required sizes; second, to provide a means of holding the free ends of the said hoop while the same are being fastened; third, to provide an improved means of feeding the required nails or staples singly and automatically to the drivers in suitable position to be driven. I attain these objects by means of the mechanism hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the entire machine. Fig. 2 is a transverse vertical section of the same. Figs. 3 and 4 are detached parts, showing the nail-feeding mechanism.

Similar letters refer to similar parts throughout the several views.

A represents the frame of the machine, the front legs of which are provided with the slots J, into which are secured the ends of the cross-piece E in such a manner that it may be raised in the slots J or allowed to rest on the bottom thereof.

Directly in front of the cross-piece E is placed the cross-piece D, and secured thereto by the bolt F, which is located midway between the ends of each, while to the outer ends of the cross-piece D is pivoted by the bolts L the circular form B. This circular form is constructed of such dimensions that its cir-

cumference is nearly the same size of the circumference of a barrel, and with its upper portion, B, of suitable dimensions to hold it rigidly in a circular shape, while the lower portion, C, is of lighter and thinner dimensions and of elastic material, (as steel,) and having one end firmly attached to one end of the part B, and the opposite end secured to the opposite end of the part B by the bolt I and thumb-nut H, the bolt I passing through a slot provided in the end of the part B, so that the size of the circumference of the form may be changed to conform to the size of the barrels designed to be hooped. The pivots L allow the top of the form to be tilted forward, as shown by the dotted lines in Fig. 2, and the bolt F allows the form to be rotated.

Directly beneath the upper part of the portion B, and having its back or opposite end pivoted to the frame A, is placed the rest or lever K, while directly beneath the rest K, and suitably pivoted to the frame A, is located the cam j, having the forward-projecting arm l, which, when borne downward, operates the cam j and raises the rest K and form B.

Above the form B is rigidly secured the press-block a, vertically through which are arranged the channels f', adapted to receive the nails which are to be driven into the hoop, and at the back side of the press-block a are placed the springs b', one end of the said springs being secured to the block, while the opposite end is passed into the channels f'.

Just above and rigidly secured equidistant from the press-block a is the guide-block b. This block b is provided directly over the channels f' with holes, through which pass the drivers d, the upper end of the drivers d being adjustably secured to the head c by the set-screw f. This head c is pivoted at each end to one end of the arms e, while the opposite ends of the arms e extend backward and are pivoted to the frame A. Pivoted to the arms e, at a point just back of the head c, are the connecting-rods g, which extend downward and are pivoted at their lower ends to the foot-levers h, which are connected together at their front ends by the foot-board i, and pivotally connected at their rear ends to the frame A.

At the back side of the press-block a are properly secured the conducting-spouts a', the

lower ends of which are arranged to communicate with the channels f' , and, extending backward and upward, are provided at their opposite ends with an enlarged or funnel-shaped end. Above these conducting-spouts a' , and with their lower and smaller ends directly over these spouts a' , are located the beveled inclined slides u . These slides u are constructed with a smooth surface and extend backward and rest on the upper part of the frame A, and are provided with the slot v , which extends nearly the entire length of the bottom of the slide, the outsides of the slide being higher than the center or slot v , which forms sloping sides, which causes the nails which are placed within at the upper or wider end to slide toward the center and into the slot v , and its incline causes them to slide toward its smaller or lower end, from whence they drop into the mouth of the conducting-spouts a' , first, however, being caught between the teeth of the wheels m , which are placed horizontally just beneath the lower or small end of the slide u in a suitable position, so that when nails are placed upon the upper end of the slide u they may slide downward and drop their points or small ends through the slot v , and the slot v being too narrow to allow the nails to pass through they are caught by the sides of the slot beneath the head and held in an upright position as they slide toward the small or lower end of the slide, where they are caught between the teeth of the feed-wheels m . These wheels m do not intermesh, but are arranged so that the points of the teeth of the one shall meet directly the points of the teeth of the other and leave a space between the teeth adapted to receive the shank or body of the nails hanging below the slide u and deliver them to the spouts a' , and are supported and actuated by the upright shafts n , provided near their lower ends with the gear-wheels o , which engage with each other, the one being provided with the ratchet-teeth p , into which engages the pawl r , which is pivoted to the upward-extending arm of the angle-lever S, which is pivoted at its angle to a suitable support, and has its backward-extending arm provided with a slot, through which is secured by a bolt and thumb-screw the stud t , which rests directly upon the rest or lever K, so that whenever the rest or lever K is raised by the cam j the angle-lever S, pawl r , and wheels o and m are actuated, and the wheels m are rotated the required distance to allow one nail to drop into the spout a' , and at the same time serve to hold back other nails which may be in the slide u .

To operate the machine, nails are placed on the upper end of the slides u , and they, sliding to the center and into the slot v , are conveyed in a vertical position to and are caught between the teeth of the wheels m and held ready to drop into the spouts a' . The form B being tilted outward, a blank hoop is placed thereon, having the lapped ends in

such a position as to come, when the form is tilted back, directly beneath the press-block a . Then the arm l is borne downward, and the cam j raises the rest K beneath the upper part of the form B and lifts the form B and presses the lapped ends of the hoop firmly beneath the press-block a , and this movement at the same time actuates the angle-lever S and pawl r , which serves to rotate the wheels m sufficiently to allow a nail, y , to drop into the spout a' , by which it is conveyed point foremost to the channel f' , where it is caught by the spring b' and held ready to be driven into the hoop. The foot-lever then is pressed downward, which actuates the head c and drivers d , and forces the nails into the hoop, and at the same time clinches the nails against the hard material of the form B.

At one end of the press-block a is arranged a channel, g' , for a staple, which is usually driven into the lapped part of the hoop a short distance from the overlapping end thereof above and in direct line with the channel g' ; and passing through the guide-block b , and having its upper end, adjustably secured to the head c , is the driver y , and connected with the press-block a at one end, and having the opposite end curved and passed into the channel g' , is placed the spring c' , and properly supported in an inclined position is arranged the guideway d' , which is adapted to receive the staples hung across its top side, with the points of the staples hanging below, so that they may be carried points downward into the channel g' , where they are held by the retaining-spring c' in a proper position to be driven by the downward movement of the driver y into the hoop at the same time the nails are driven, the retaining-springs allowing the staple or nails to pass by when propelled by the drivers.

Having hereby fully described my improvement, what I claim, and desire to secure by Letters Patent, is—

1. In a hoop-nailing machine, an adjustable circular form consisting of a portion, B, of a circle, constructed of suitable size to retain rigidly its circular shape, and adjustably connected with a thinner and flexible portion, C, substantially as shown, and for the purpose specified.

2. The combination of a stationary press-block, a , having, as described, the nail-channels f' and staple-channel g' , and means, substantially as described, of driving nails or staples through the same into the lapped ends of the hoop, with a circular form located vertically below the said press-block, and properly arranged, as described, to allow its upper portion to be tilted forward from beneath the said press-block to admit of the easy adjustment of the hoop thereon, substantially as described, and for the purpose specified.

3. In a hoop-nailing machine, the combination of the circular form B, and the cross-piece D, and the bolts L, which pivotally connect

the form B to the said cross-piece D, with the bolt F and frame A, substantially as and for the purpose set forth.

4. In a hoop-nailing machine, the stationary press-block *a*, provided with the nail-guiding channels *f'*, the stationary guide-block *b*, the vertically-reciprocating drivers *d* and head *c*, and mechanism, substantially as described, for operating the same, in combination with the adjustable form B, the rest K, and cam *j*, having the arm *l*, substantially as described, and for the purpose set forth.

5. In a hoop-nailing machine, the combination, with the form B, pivoted in a vertical position to the front part of the frame A, of a rest or lever, K, having its front end placed beneath the upper part of the form, and its opposite or rear end pivoted to the back part of the frame A, and the cam *j*, placed beneath the front part of the rest K and provided with the arm *l*, substantially as and for the purpose specified.

6. In a hoop-nailing machine, the combina-

tion of the press-block *a*, provided with the channels *g'* and *f'*, for guiding the staples and nails to be driven, with the curved retaining-spring *b'*, having one end rigidly attached to the outside of the said press-block, and the opposite end passed into the said channels, and adapted to retain the nails or staples in a proper position to be driven, substantially as shown and set forth.

7. In a hoop-nailing machine, the combination of the slide *u*, provided with the slot *v*, with the toothed wheels *m*, located horizontally just below the lower end of the slide *u*, in such a position as to receive a nail in the space between the projecting teeth of the wheels *m* as they rotate, and the mechanism for rotating the wheels, substantially as described and shown.

ANDREW C. BATCHELLER.

Witnesses:

G. H. FRANCIS,
J. E. THOMAS.