

J. Taggart.

Nail Cutting Mach.

No. 88,753.

Patented Apr. 6, 1869.

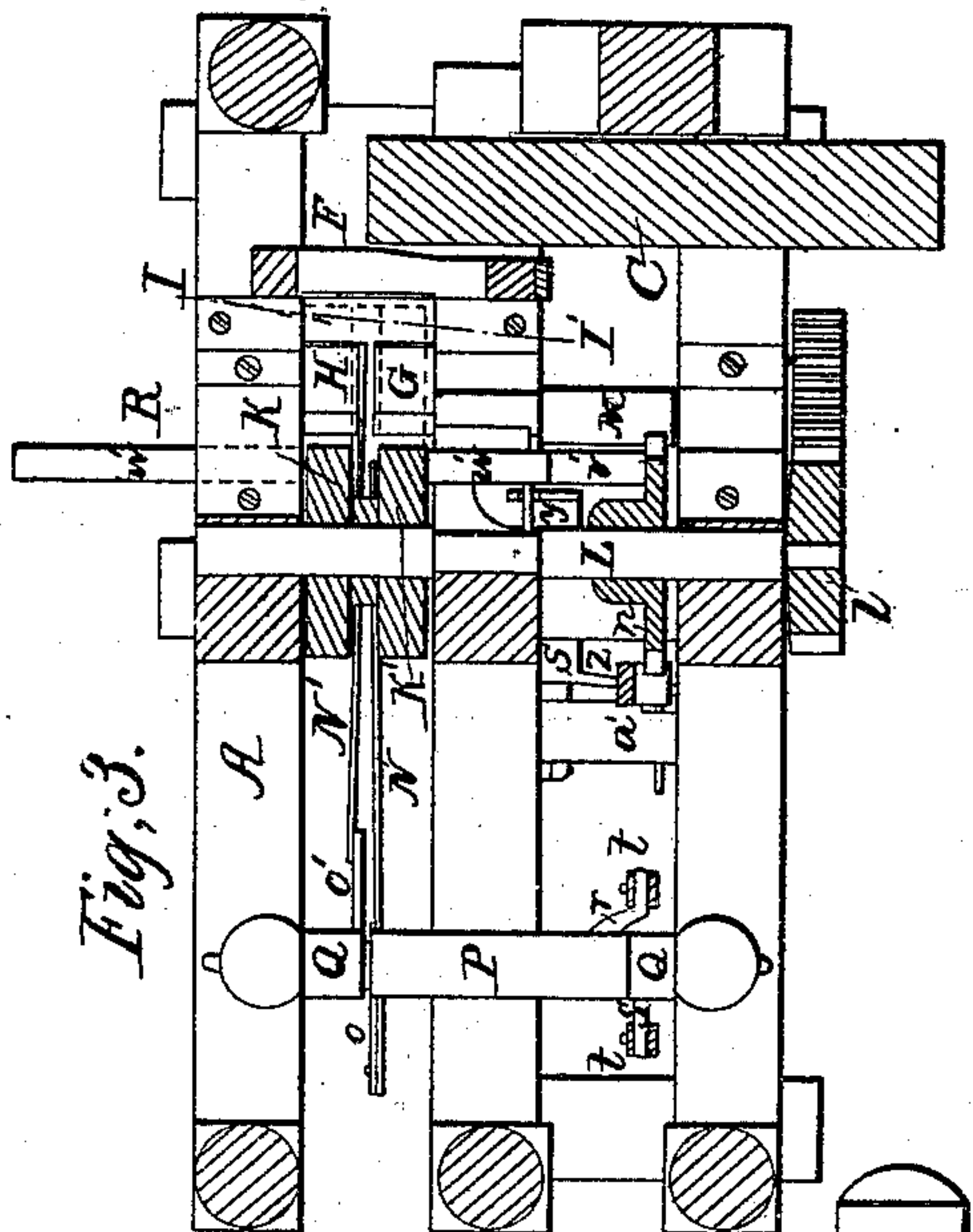


Fig. 3.

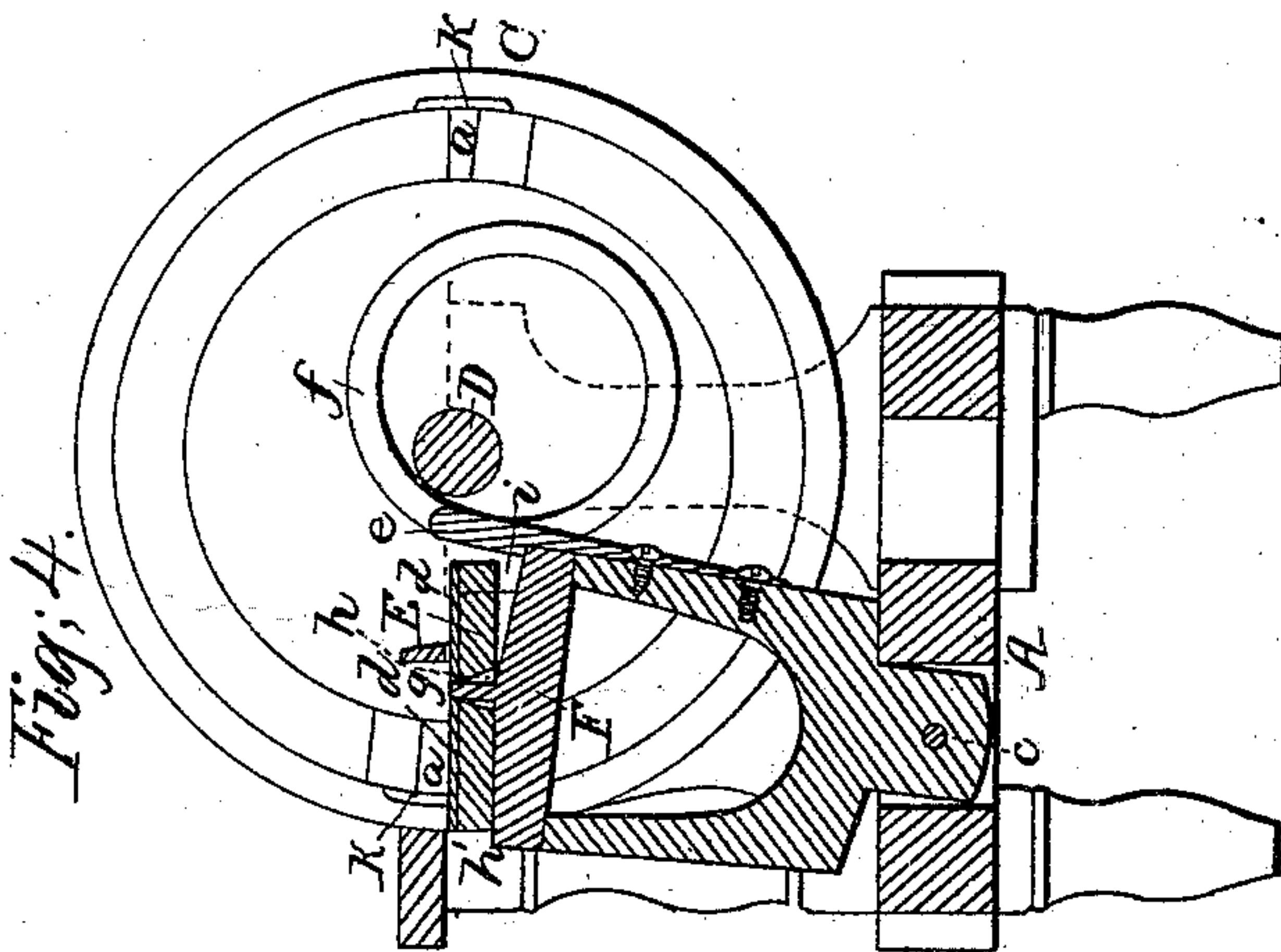


Fig. 4.

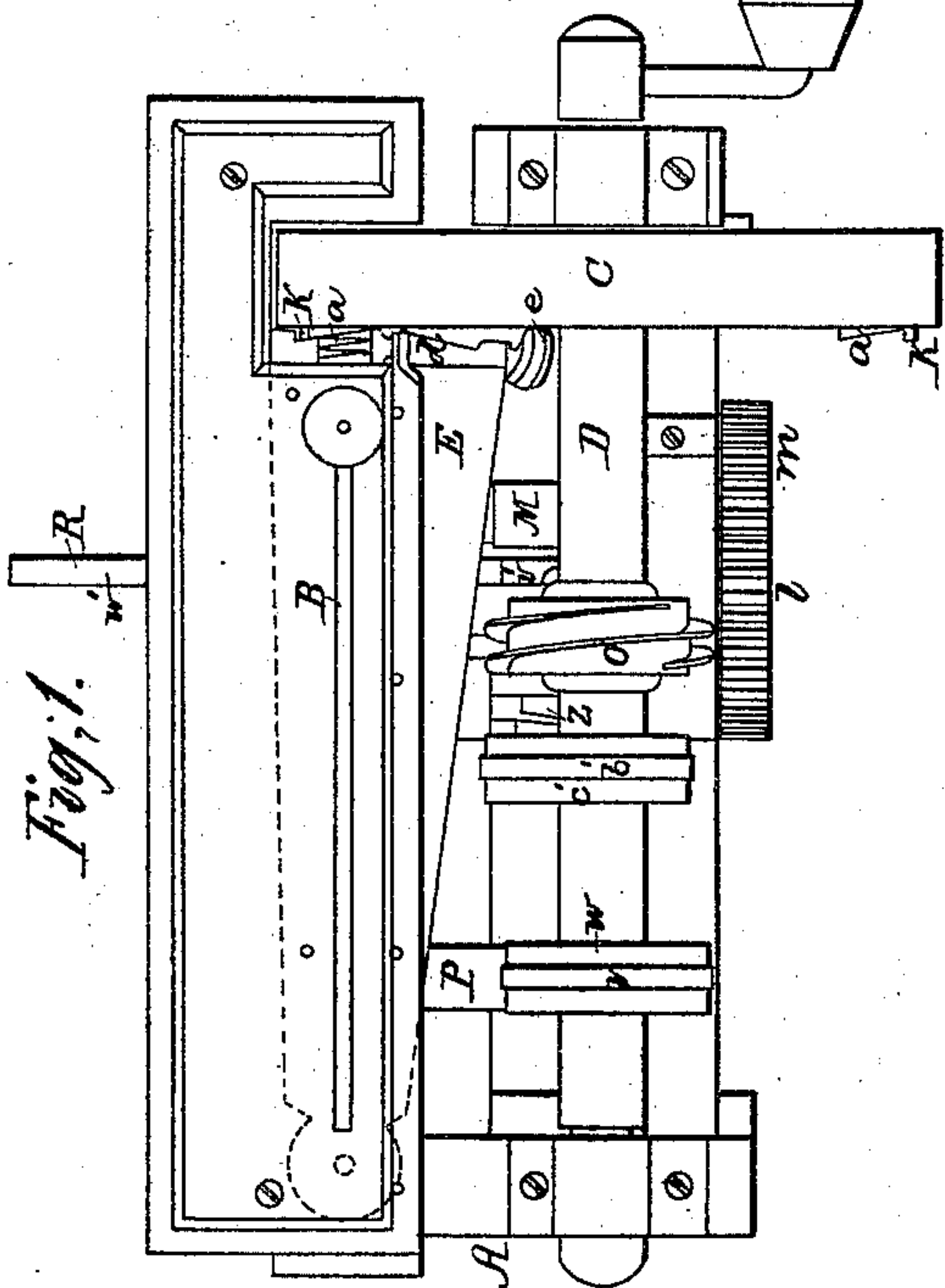


Fig. 1.

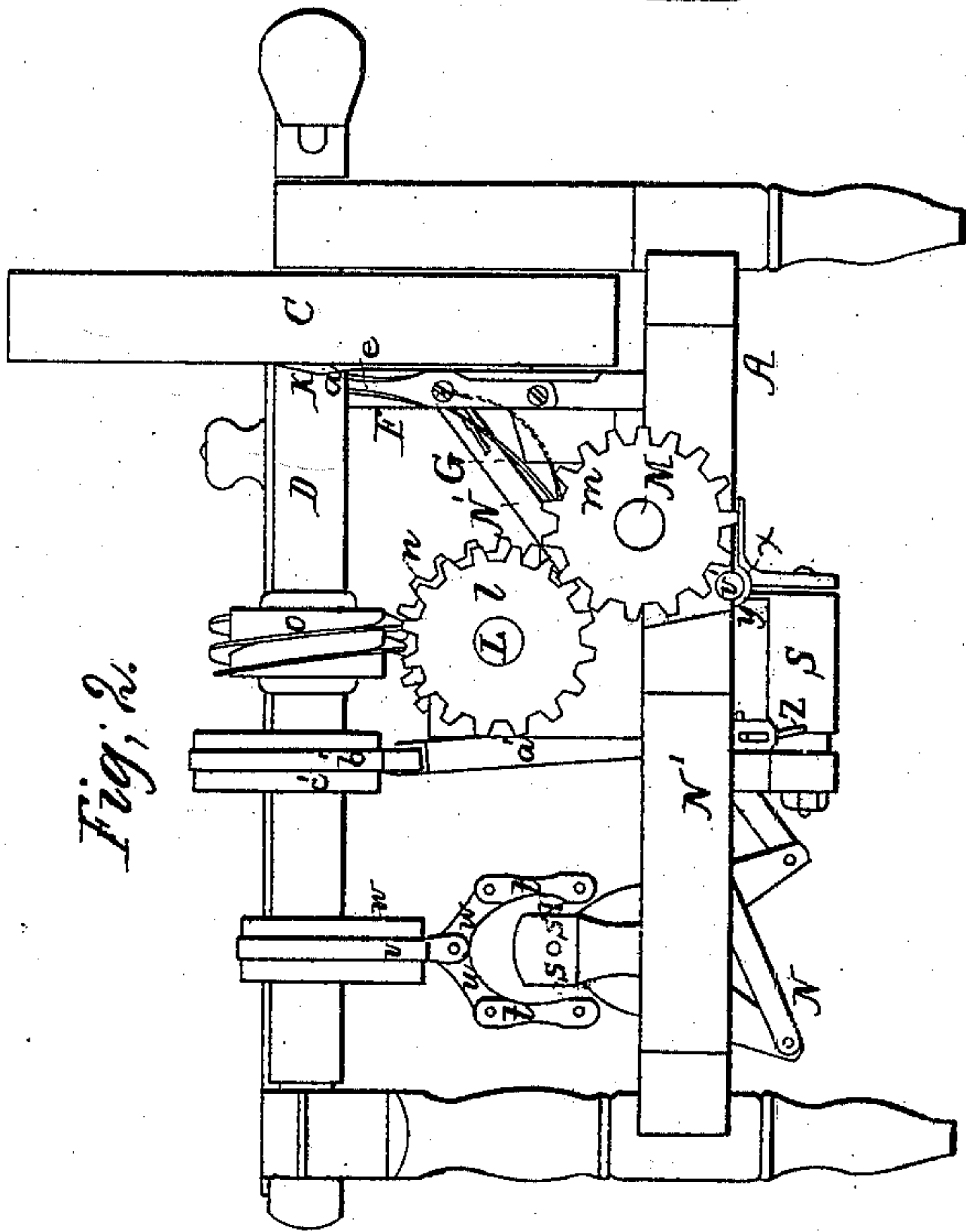


Fig. 2.

Witnesses.

S. K. Piper.
A. P. Cole, Jr.

Inventor.

John Taggart.

by his attorney

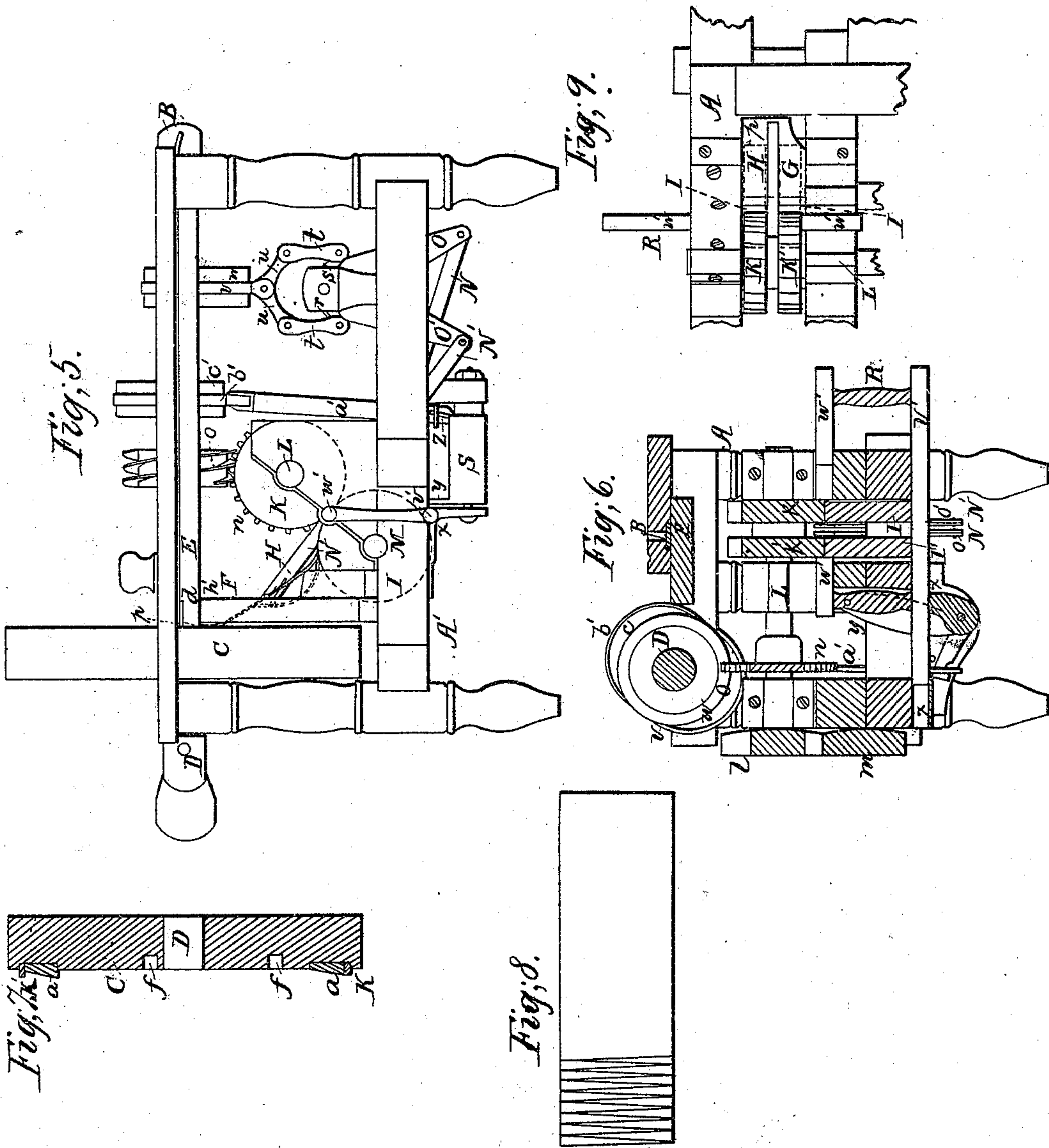
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United States Patent Office.

JOHN TAGGART, OF BOSTON, ASSIGNOR TO DAVID WHITON, OF BOSTON, AND BENJAMIN F. WING, OF WEST ROXBURY, MASSACHUSETTS.

Letters Patent No. 88,753, dated April 6, 1869.

IMPROVED MACHINE FOR MAKING WROUGHT NAILS.

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

To all persons to whom these presents may come:

Be it known that I, JOHN TAGGART, of Boston, of the county of Suffolk, and State of Massachusetts, have made a new and useful invention, having reference to Machinery for Making Nails; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view.

Figure 2, a front elevation.

Figure 3, a horizontal section.

Figure 4, a transverse section.

Figure 5, a rear elevation of a nail-cutting machine, provided with my invention.

The section represented in fig. 4 is taken through the vibrator, to be hereinafter described, and so as to exhibit it and the die-wheel or cutter-wheel of the machine.

Figure 6 is another vertical and transverse section of the machine, such being taken through the compound, or duplex header, to be hereinafter explained.

In such drawings, A denotes the frame of the machine, it being properly formed or constructed for supporting the operative parts.

The nail-plate, or strip of metal to be cut up into nails, is to be introduced into the machine, or to the cutting-dies thereof, by or through a channel or strip-guide, B, arranged to stand at right angles to the inner surface of a large disk or wheel, C, which is mounted on a horizontal or driving-shaft, D, the whole being arranged in the frame in manner as represented.

There is fixed within the said wheel, within suitable sockets, and so as to project from its inner face, two cutters, or dies, *a a*, they being inclined to the face of the wheel, in manner as represented in Figure 7, which is a transverse section of the wheel, taken through the cutting-ends, or edges of such two cutters.

Furthermore, there operates with such wheel-cutters and strip-guide channels, a reciprocating duplex die-plate, E, which is arranged beneath the strip-guide channel.

This die-plate E, at or near its rear end, is pivoted to the frame, and, near its front end, rests upon a vibrator, F, which stands vertically in the frame A, and is pivoted thereto, or, in other words, is supported on a centre-pin at *c*. (See fig. 4.) The vibrator supports the die-plate E, and, by moving with it, saves the friction and wear which would result were the die-plate to rest on an immovable surface.

At its inner end, the die-plate has two cutters, or dies, *d d*, which, arranged in manner as represented, are to operate with the two cutters, *a a*, of the wheel, one die, *d*, being to act with one of the cutters *a*, and the other die, *d*, being to operate with the other, so as to cut nail-blanks or wedges from a plate, in manner as indicated in Figure 8.

In order to impart to the die-plate its proper move-

ments with the cutter-wheel, such die-plate has an arm, *e*, extended from it, and into a cam, or eccentric groove, *f*, made in the face of the cutter-wheel.

Furthermore, a tooth, *g*, projects from the middle of the top of the vibrator F, and into a recess, *h*, made in the die-plate. Thus, during each revolution of the cutter-wheel, the die-plate will be moved into place with respect to one cutter of the wheel, and next into place with respect to the other of the said cutters, as it may be carried around so as to act on the nail-plate.

The upper edge of the vibrator consists of two planes, *h' i*, making an obtuse angle with each other, the vertex of which is at the middle of the vibrator, the same being so as to cause the die-plate, at the extreme of each of its movements, to rest flatly on one of these planes, whereby it will be supported to better advantage than were the top of the vibrator to be arched or curved.

There is combined with the said mechanism for cutting the nail-blanks from a plate, a mechanism for straightening and heading each of the said blanks, and discharging it from the machine, all of which may be thus described.

At or near the outer end of each cutter *a* of the wheel C, there is a cam, *k*, extended from the face of the wheel.

These cams are to force away from the wheel two elastic rests, G H, which, at their upper ends, bear against the inner face of the wheel.

At their lower ends, these two rests project over the peripheries of the lower rollers I I', of two sets I K, I' K', of griping-rollers, arranged as represented, and particularly in Figure 9, which is a top view of the griping-rollers and the elastic rests G H.

The upper two (K K') of the griping-rollers are fixed on a horizontal shaft, L, the lower two, I I', being also fixed on another such shaft, M, and the two shafts are geared together, as shown at *l m*.

A worm-gear, *n*, on the shaft L, engages with a worm, O, fixed on the driving-shaft D; consequently, when the driving-shaft is in revolution, the two sets of griping-rollers will be revolved.

On each nail being severed from the nail-strip, such nail will be driven down upon the top of that spring-rest which is immediately beneath the dies by which the nail may have been severed from the strip, the nail falling on the top of the rest, and against a lip, *p*, extended up from such top.

Next, one of two nipper-carriers, N N', will be advanced up to, and will seize the nail and remove it from the elastic rest, and take it down between one set of the griping-rollers, between which it will be grasped during the process of heading it.

These nipper-carriers (shown at N N') play between the two spring-rests, and in a space between the two pairs of griping-rollers, at their rear ends, such carriers are jointed to two arms O O', which extend from two concentric shafts P Q.

Two other, or shorter arms, *r s*, are projected from the concentric shafts, one arm going from one, and the other arm from the other of such shafts, in manner as represented.

These arms, by links *t t*, are connected with two arms, *u u*, extending from the yoke *v* of an eccentric, *w*, fixed on the driving-shaft. Thus, the driving-shaft, while in revolution, will be caused to put each of the two nipper-carriers in movement, both to and from the cutter-wheel.

Each nipper-carrier is to be supposed to be furnished at its front end with jaws, or a means of grasping the nail, in order that it may be drawn down by the carrier, and deposited in the bite of the griping-rollers, and with a small portion of it projecting from them, in order that such portion may be upset by the header, and converted by it into a head to the nail.

The duplex or compound header, shown at *R*, in fig. 6, consists of a slide-rod, *v'*, and two hammers, *w' w'*, projecting therefrom, and arranged, with respect to the griping-rollers, in manner as represented.

It is supported in guides, or boxes *x x*, and is jointed at one arm, *y*, of a bent lever, *S*.

The other arm, *z*, of the said lever is jointed to the pitman *a'* of a yoke, *b'*, of an eccentric, *c'*, which is fixed on the driving-shaft. While in revolution, the driving-shaft, by means of the eccentric, its yoke pitman, and the said bent lever, will cause the header to have a reciprocating rectilinear motion, so as alternately to carry each hammer of the header toward and away from the next adjacent pair of griping-rollers.

Each nail, after having been severed from the strip of metal, will be thrown down upon one of the spring-rests, which in due time will be moved out of the way of the next descending cutter of the wheel. The nail will next be seized by one of the carriers, and by it will be conveyed down between a pair of the griping-rollers, and, while griped by them, will be headed. Finally, by the motions of such rollers, the nail will be discharged from the machine. These rollers will also operate to straighten the nail.

The nail-strip is to be forced toward and kept against the inner face of the cutter-wheel while it may be in operation, such being accomplished either by manual power, or by suitable mechanism, applied to the strip-guide groove.

The rapidity with which the wheel may be revolved will cause the machine to operate to great advantage in cutting nails from a strip. There is no turning over of the strip, as in ordinary nail-machines.

The vibratory die-plate, the cutter-wheel, and the cutters of the two, arranged to operate together, as set forth, enable the strip to be fed forward without being revolved or turned, preparatory to the cutting of each successive nail from it.

In the said machine, I claim—

The combination of the vibrator *F*, as described, with the die-plate *E*, its cutters *d d*, and the cutter-wheel *C*, and its cutters, arranged as explained.

Also, the combination of each or both the spring-rests *G H*, and the operative cam or cams *k* thereof, with the cutter-wheel *C*, and the reciprocating die-plate *E*, provided with cutters and operative mechanism, as set forth.

Also, the combination and arrangement of the cutter-wheel *C*, the die-plate *E*, the elastic or spring-rests *G H*, the cams *k k*, the pairs of griping-rollers *I I'*, *K K'*, and the duplex header *R*.

Also, the combination and arrangement of the carriers *N N'*, the pairs of griping-rollers *I I'*, *K K'*, the spring-rests *G H*, the die-plate *E*, and the cutter-wheel *C*, the whole being provided with operative mechanism, substantially as described.

Also, the combination applied to the driving-shaft and the carriers, and employed for operating the latter, such consisting of the eccentric *w*, its yoke *v* and arms *u u*, the links *t t*, the concentric shafts *P Q*, and their arms *O O'*, *r s*.

JOHN TAGGART.

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.