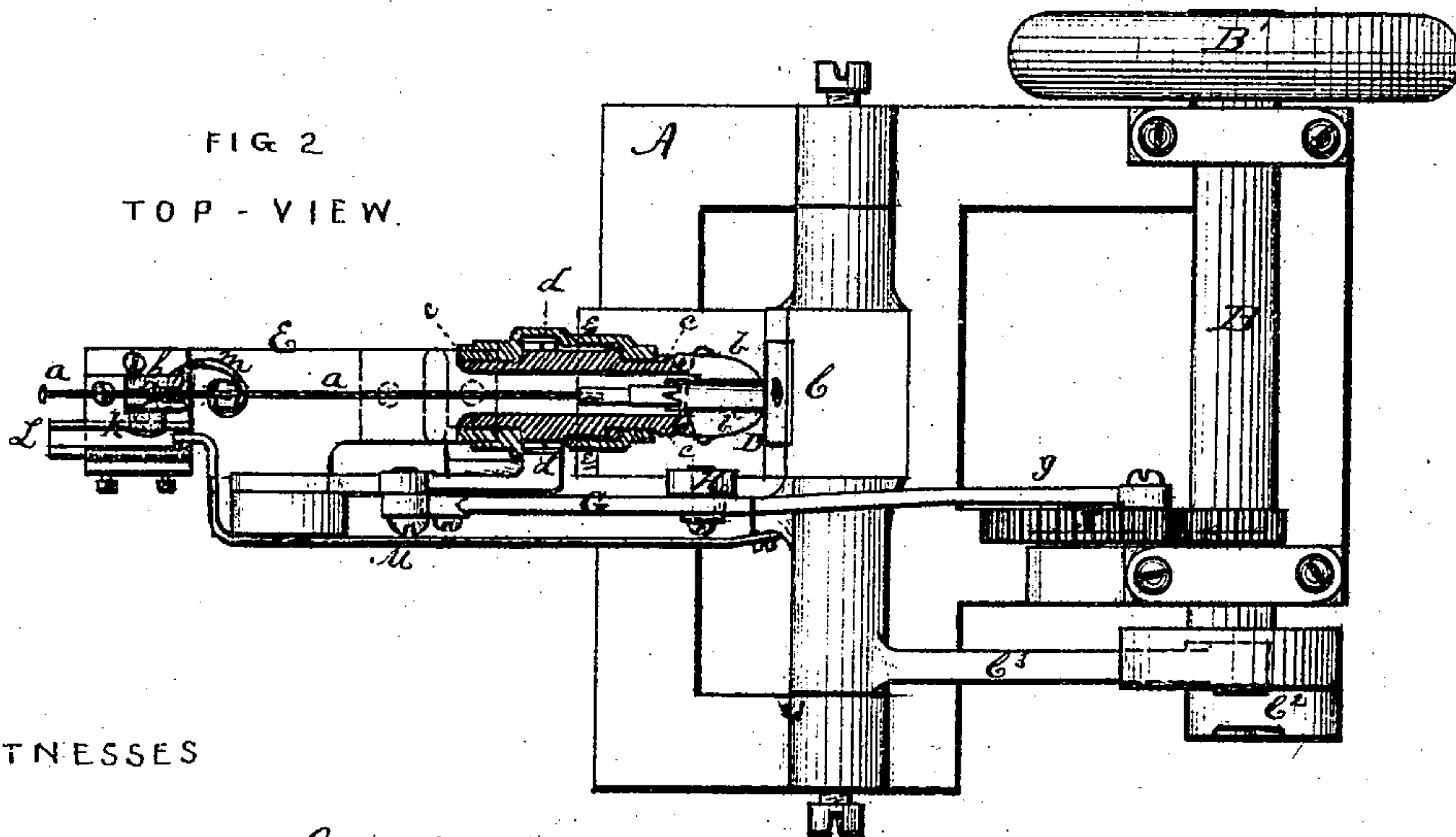
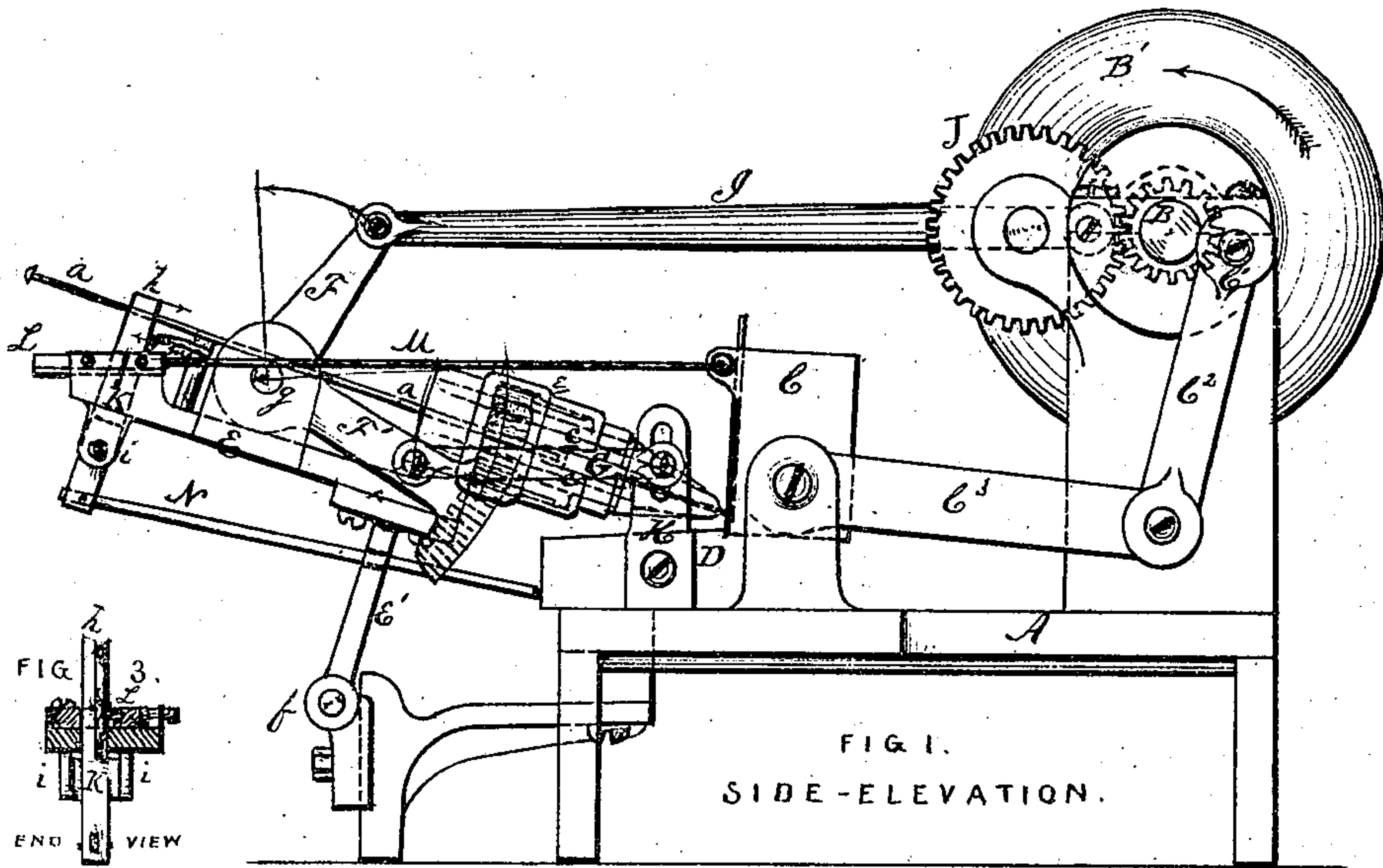


Cut Nail Machine.

No. 98109.

Patented Dec. 21. 1869.



WITNESSES

Edward C. Ames

Cerville Beckha.

INVENTOR.

Levi Richards

United States Patent Office.

LEVI RICHARDS, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF, OLIVER A. WASHBURN, GEORGE S. PERKINS, AND FREDERICK S. ROSCOE, OF SAME PLACE.

Letters Patent No. 98,109, dated December 21, 1869.

IMPROVED CUT-NAIL MACHINE.

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

To all whom it may concern:

Be it known that I, LEVI RICHARDS, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improved Feeder for Nail-Cutting Machines; and I do hereby declare that the following specification, taken in connection with the drawings, making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a side elevation.

Figure 2 is a top view.

It is well understood, that in the operation of cutting nail-blanks from a plate, the shears are so set as to cut the plate upon a transverse line, slightly inclined from a right angle with reference to the longitudinal axis of the plate. This fact requires the plate to be turned over for each successive blank, in order that the wider end of the blank, when cut, shall be nearest the heading-dies.

Various mechanisms have been devised for feeding the plate to the machine, but all such with which I am acquainted are objectionable, on the score of complexity or unreliability.

My improvements contemplate the same results that have been before accomplished, by the employment of mechanical combinations of greater simplicity, and resulting in superior efficiency for the purpose intended.

Referring to the drawings—

A is the bed of the machine, of suitable construction, upon which the machinery is mounted.

B is the driving-shaft, with a balance-wheel, B', as is usual.

C is the vibrating shear or cutter, to which movement is given by the crank C', on the main shaft, acting through the link C² and lever-arm C³, or in any other preferred way.

D is the stationary cutter.

The nail-plate, of proper length and width, is held by a pair of tongs, attached to the end of a long rod, *a*; and such plate, it is to be supposed, is inserted between the holding-spring jaws *b b'*, as in other machines of this kind.

The thing to be accomplished is to give a semi-revolution to the barrel *c*, to which the jaws *b b'*, holding the nail-plate, belong, for each vibration of the upper cutter C, and this semi-revolution must be in alternate opposite directions, and each rotatory movement must be accompanied with a specified forward movement of the nail-plate, and both said movements must be in advance of the time that the planes of the two cutting-jaws, by the vibration of the upper jaw, intersect.

It is to be understood that no importance is attached to the construction of the devices which hold the nail-plate in proper position to be presented to

the cutters. Those shown in the drawing are in common use.

Attached to the barrel *c* is a segment of a toothed wheel, *d*, and so much of the outer sleeve *e*, which forms the case for the parts above mentioned, is cut away upon one side as will give space for the teeth of a rack, presently to be mentioned, to engage with such segment-gear *d*.

The sleeve *e*, and consequently all its appendages, are mounted upon a narrow platform, E, supported by a standard, E', whose foot is hinged to a part of the frame at *f*. This platform, as will be seen, has a slight rocking movement upon its pivot-support incidental to the combination of which it forms a part, and which is important with reference to its effect in causing the nail-plate to retreat for a short distance while the upper cutter is rising, and, at the same time, enable the jaws *b b'* to occupy a higher plane than that in which they were when presenting the nail-plate, in order to admit of their turning without interfering with the lower cutter-block.

The devices which effect this rocking movement referred to are, the bell-crank lever F, which is pivoted to the platform at *g*, and has a rack upon the inner face of its horizontal arm F', the teeth of which engage with the teeth of the gear *d* upon the barrel *c*, before referred to; the link G, pivoted at one end to the bell-crank arm F', and at the other end to a fixed standard, H, upon the frame A; and the link I, pivoted at one end to the upper arm of the bell-crank F, and at the other end to the wrist-pin of a crank upon the face of the gear J, driven by the main shaft; the effect of which devices as combined is not only to give a half revolution to the nail-plate in alternate opposite directions, in advance of the downward movements of the upper cutter, but also the act of bringing the axes of the arm F' and link G into coincidence, forces the platform E to be tilted backward, whereby the jaws *b b'* are made to retreat from the upper cutter, and, at the same time, be raised above the plane of the lower cutter, preparatory to being rotated.

The nail-plate rod *a* is fed forward a prescribed distance, at each revolution of the main shaft, by means of a pair of gripping-jaws *h*, which are affixed to the upper end of the lever K, whose fulcrum is at *i*. In this instance, one of the jaws is stationary, and the other is movable, and the latter is forced to gripe the rod, at the proper time, by a projection, *k*, fig. 2, upon the side of the movable jaw, against which a cam-face or wedge acts, such cam-face being located upon the side of the sliding-piece L, which, through the link M, connected to the vibrating jaw C, has a constant reciprocating movement.

The lower arm of the lever K has a stop-rod, N, pivoted to the same, the end of which abuts against

the frame A, the effect of which, in combination with the rocking movement of the platform, as it tilts forward, is to cause the portion of the lever K above the pivot-pin to be thrust forward, whereby the nail-plate is projected the prescribed distance to enable a blank to be cut from its end.

Upon the return vibration of the platform, a spring, *m* acts to put the lever K in position for its jaws to take, when again compressed, a new hold.

Other arrangements for operating the gripping-jaws may be employed, as, for example, in place of the wedge or cam-face upon the slider L, a sliding collar or stricture can be applied to the grippers, operated by the vibration of the upper cutter, in a way which will be readily understood by constructors of this kind of machinery.

The effect of the several devices which I have described, the forms of which may be varied without changing their functions, when arranged in the combination in which my invention resides, is to greatly simplify the construction and operation of this class of machines.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The mechanism, substantially as herein described, through the media of which to impart the proper motions to the jaws *b b'* and barrel *c* of a nail-plate feeder, which consists of the following elements or organism in combination; first, a rocking platform, E, upon which the devices to hold the nail-plate are mounted; second, a vibrating rack, F', giving a rotary movement to the barrel *c*; and third, the link G, all performing the functions herein set forth.

2. In combination with the rocking platform E, lever K, and stop-rod N, the gripping-jaws *h*, operated by a cam or wedge L, for the purpose of producing a positive intermittent forward movement of the nail-plate to the cutting-machinery, substantially as described.

LEVI RICHARDS.

Witnesses:

EDWARD C. AMES,
ORVILLE PECKHAM.