

(No Model.)

4 Sheets—Sheet 1.

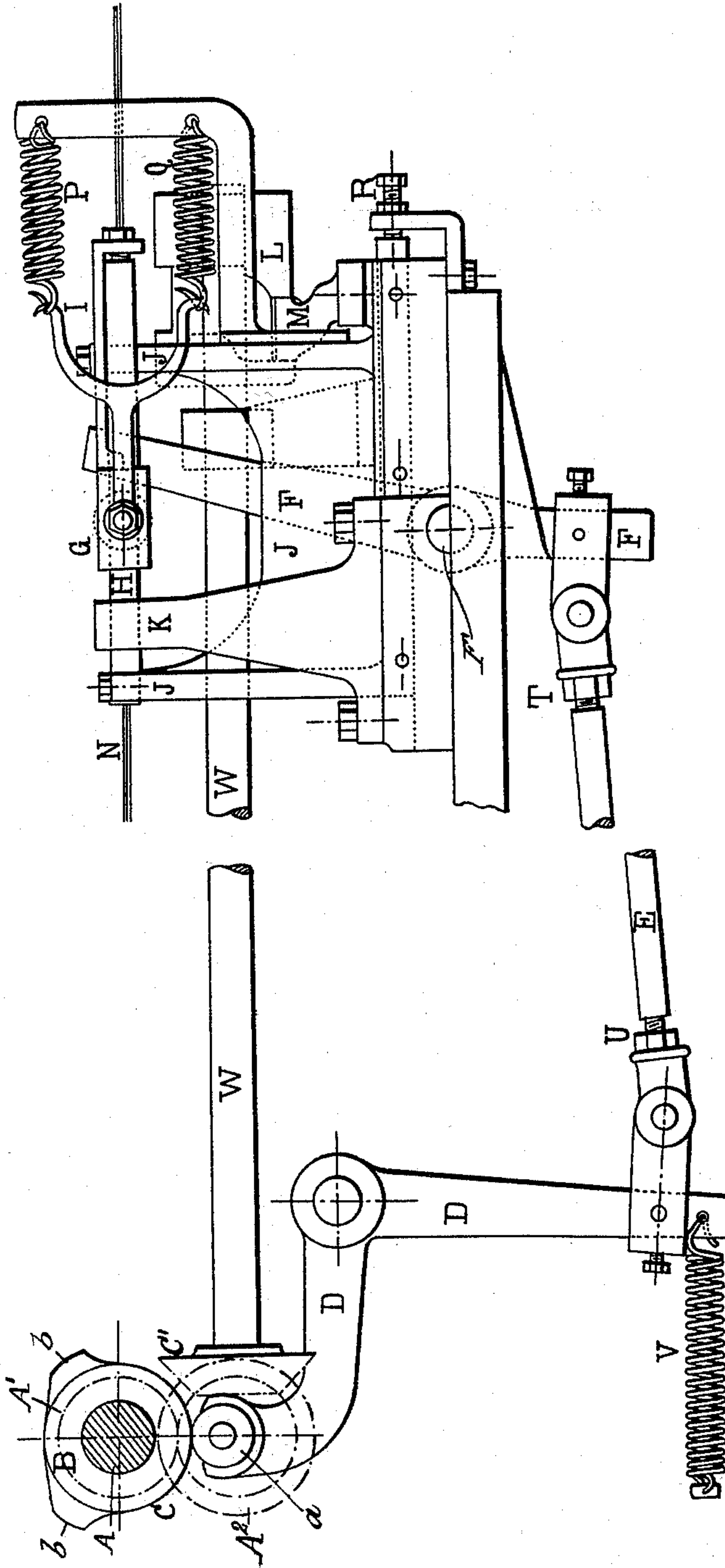
A. GUTTIN.

FEEDING MECHANISM FOR WIRE NAIL MAKING MACHINES.

No. 518,500.

Patented Apr. 17, 1894.

fig.1.



Witnesses

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By

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(No Model.)

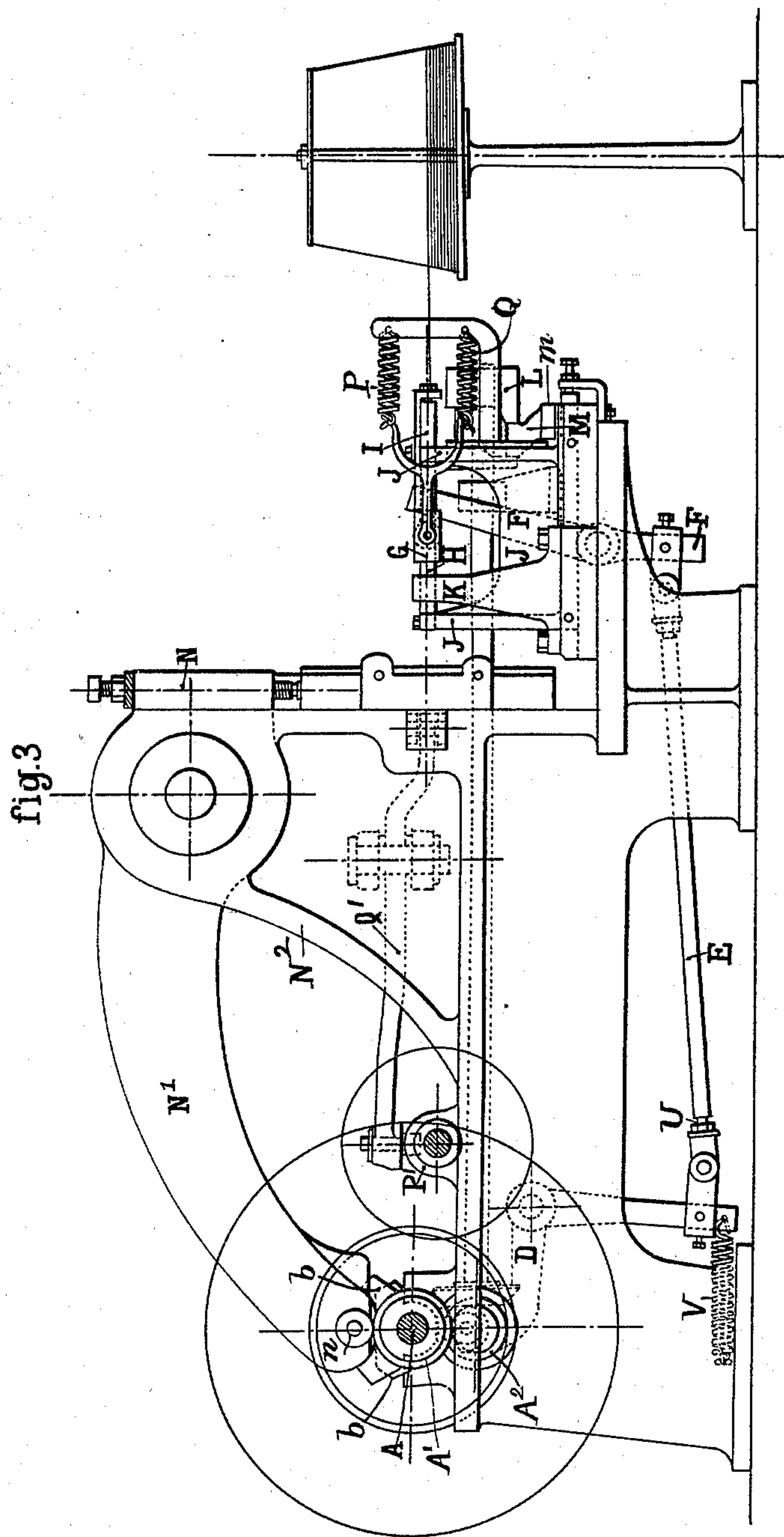
4 Sheets—Sheet 3.

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WITNESSES:

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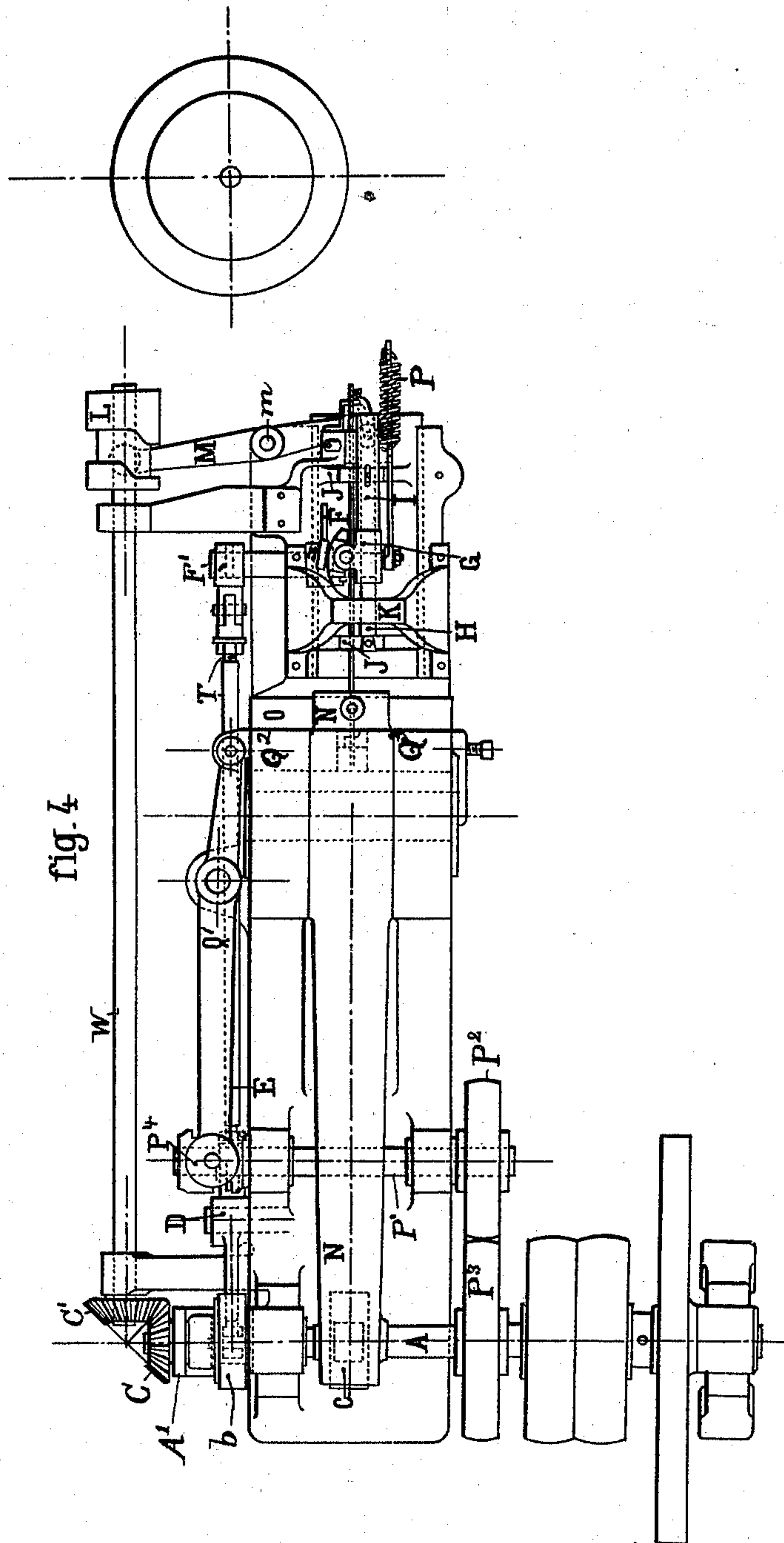
4 Sheets—Sheet 4.

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Patented Apr. 17, 1894.



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UNITED STATES PATENT OFFICE.

ALPHONSE GUTTIN, OF PARIS, FRANCE.

FEEDING MECHANISM FOR WIRE-NAIL-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 518,500, dated April 17, 1894.

Application filed December 2, 1892. Serial No. 453,851. (No model.) Patented in France May 9, 1892, No. 221,468, and in England November 9, 1892, No. 20,222.

To all whom it may concern:

Be it known that I, ALPHONSE GUTTIN, a citizen of France, and a resident of Paris, in the Department of the Seine, have invented
5 a new and useful Improvement in Feeding Mechanism for Wire-Nail-Making Machines, (for which I have obtained a patent in Great Britain, dated November 9, 1892, No. 20,222, and a patent in France, dated May 9, 1892,
10 No. 221,468,) of which the following is a specification.

This invention relates to apparatus or mechanism for feeding or propelling the wire in nail making and other like machinery and is
15 more especially designed for use in connection with machinery employed in the manufacture of nails of the class known as horse-shoe nails. In forging nails of this description the wire requires to receive two blows
20 with which two separate feed motions of the wire must correspond but the mechanism operating to form the nails forms no part of the present invention and may be of any known or suitable construction. The invention is
25 altogether independent of this mechanism and relates to an apparatus which imparts to the wire two feed movements which may be of unequal length and enables these two unequal feed movements to be repeated as often
30 as required. The apparatus may be employed in any machinery in which it is necessary to intermittently propel or feed forward a wire with forward movements alternately of unequal amplitude means being also provided
35 for regulating the amplitude of the said movements. And in order that the said invention may be fully understood I shall now proceed more particularly to describe the same and for that purpose shall refer to the several figures on the annexed sheet of drawings the
40 same letters of reference indicating corresponding parts in all the figures.

Figure 1 of the accompanying drawings represents in elevation an example of an apparatus constructed according to this invention and Fig. 2 represents the apparatus in plan. Fig. 3, is a side elevation of the machine. Fig. 4, is a plan view of the same.

Motion is imparted to this apparatus by a
50 driving shaft at A Fig. 2 which is provided with a spur-gear A', meshing with a spur-

pinion A². Upon the driving-shaft A is keyed a cam B having two offsets or projections, b b, and a bevel gear wheel C keyed upon the driving-shaft A and meshing with a similar
55 bevel-gear C' (Fig. 2,) upon a shaft W, lying at right angles to the driving-shaft A. A bell crank lever D constantly acted upon by a spring V tending to press its upper arm which is provided with a friction roll or rider
60 a, which has journal-support upon the end of said upper arm against the cam B is displaced from its normal position of equilibrium by the passage of the offsets on the cam being
65 moved twice in each complete revolution of the shaft A. The lever D transmits motion to a connecting rod E and thereby causes a lever F to oscillate upon its center or
70 rock shaft F'. This movement of the lever F causes the upper extremity of the said lever to act upon and rock a short arm or lever S (see Fig. 2) pivotally attached to a carriage
75 G and causes a jaw O on the said lever S to nip the wire (indicated at N) between it and a corresponding jaw on the carriage G. The continued movement of the lever F causes
80 the carriage G and wire N to move forward until the front end H of the carriage comes in contact with the stationary guide or stop K. The distance between the end H and the stop K regulates the amplitude of this movement of the wire. The carriage is afterward
85 moved back by the action of springs P Q and the stress of the spring V causes the lever F, rod E and lever D to return to their original position after the passage of the first offset
90 on the cam B, the lever D being maintained in contact with the cylindrical part of the said cam. At this period a shaft W rotated by the gearing C. causes a lever M to oscillate on its center or fulcrum m. This movement is produced by a grooved cam L fixed
95 on the shaft W and causes the support of the carriage G to move to the left hand in the drawings the said support being formed by a horizontal shoe or slide I provided with two
100 vertical arms or uprights J. The jaw O being open when this movement takes place the wire is not moved forward but the distance between the end H of the carriage G and the fixed stop K is diminished by an amount
equal to the forward movement of the sup-

port I J supporting the carriage G. Consequently when the second offset on the cam comes into action as hereinbefore explained and feeds forward the wire N the amplitude of this second forward movement is less than that of the preceding movement. Continuous rotary motion being imparted to the shaft A the wire is consequently fed forward intermittently with alternately long and short movements which can be regulated by adjusting screws provided on the connecting rod E at U and T and by means of a set screw R regulating the movement of the support I J. In working this apparatus the wire N being drawn from a reel or bobbin is passed between the jaws on the lever S and carriage G and rotary motion is imparted to the shaft A. One of the offsets on the cam B comes in contact with the lever D and the connecting rod E causes the lever F to oscillate upon its fulcrum thereby first closing the jaw O upon the wire and secondly moving forward the carriage G and wire N until the carriage comes in contact with the stop K. The offset on the cam then leaves the lever D and the parts are returned to their original position (indicated in Fig. 1) by the action of the springs V, P and Q. The cam groove L then acts upon the lever M which vibrates and moves forward the support I J of the carriage G so as to diminish the distance between the latter and the stop K. The second offset on the cam B then acts upon the lever D in a similar manner to the first offset and a second forward movement of the wire takes place.

Upon a bracket N², on the machine frame, is fulcrumed a lever N', one end of which is provided with a friction-roll *n*, which rests upon the cam B and receives the thrust of the cam-projections *b*, *b*. The other extremity of said lever produces the series of pressures by which the faces of the nail are formed.

Upon a shaft P' (Fig. 4) is mounted a gear P², meshing with a gear P³ on the power shaft A. At the end of said shaft is mounted a cam P⁴, which engages the end of a lever Q', the other end of the latter being connected to a slide Q², carrying the movable knife, or cutter, for severing the nails. The rigid support Q³ carries the fixed cutter. The amplitude of this second movement is less than that of the first owing to the distance between the carriage G and stop K being reduced. This cam groove L then returns the lever M to the position indicated in the drawings in Figs. 1 and 2 the shaft A having described

one complete revolution and the same series of movement is repeated at each revolution of the said shaft.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is—

1. In an apparatus for feeding wire in nail-making and other like machinery, in which two unequal forward or feed movements are imparted to the wire at each revolution of the drive-shaft, the combination with the driving-shaft, of a cam mounted thereon, a bell-crank vibrated by said cam, a lever vibrated by said bell-crank, a movable carriage provided with a fulcrum for said lever, a jaw operated by the lever to clamp the wire upon a jaw on the carriage, and means for varying the amplitude of the movements of said carriage, substantially as described.

2. In an apparatus for feeding wire, the combination with a driving-shaft and with a driven shaft at right angles thereto, of bevel gearing connecting the same, a cam on the driving-shaft, a bell-crank lever vibrated by said cam, a lever vibrated by said bell-crank, a feed-carriage having a jaw to engage the wire, a jaw-actuating lever fulcrumed on said carriage, and connected to the bell-crank lever, and stops for limiting the feed-movement, of the carriage and for varying the amplitude thereof, substantially as described.

3. In an apparatus for feeding wire, the combination with a driving shaft and with a driven shaft at right angles thereto, a bevel gearing connecting the same, a cam on the driving shaft, a bell-crank lever reciprocated by said cam, a lever vibrated by said bell-crank, a feed-carriage having a jaw to engage the wire a jaw-actuating lever fulcrumed on said carriage, and connected to the bell-crank lever, and a lever fulcrumed upon the support for the feed-carriage, one end of said lever having engagement with a cam-groove formed in a device mounted on the driven shaft, and its other end having an adjustable connection with the movable supports of the feed-carriage, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALPHONSE GUTTIN.

Witnesses:

G. DELONE,
V. FORD.