

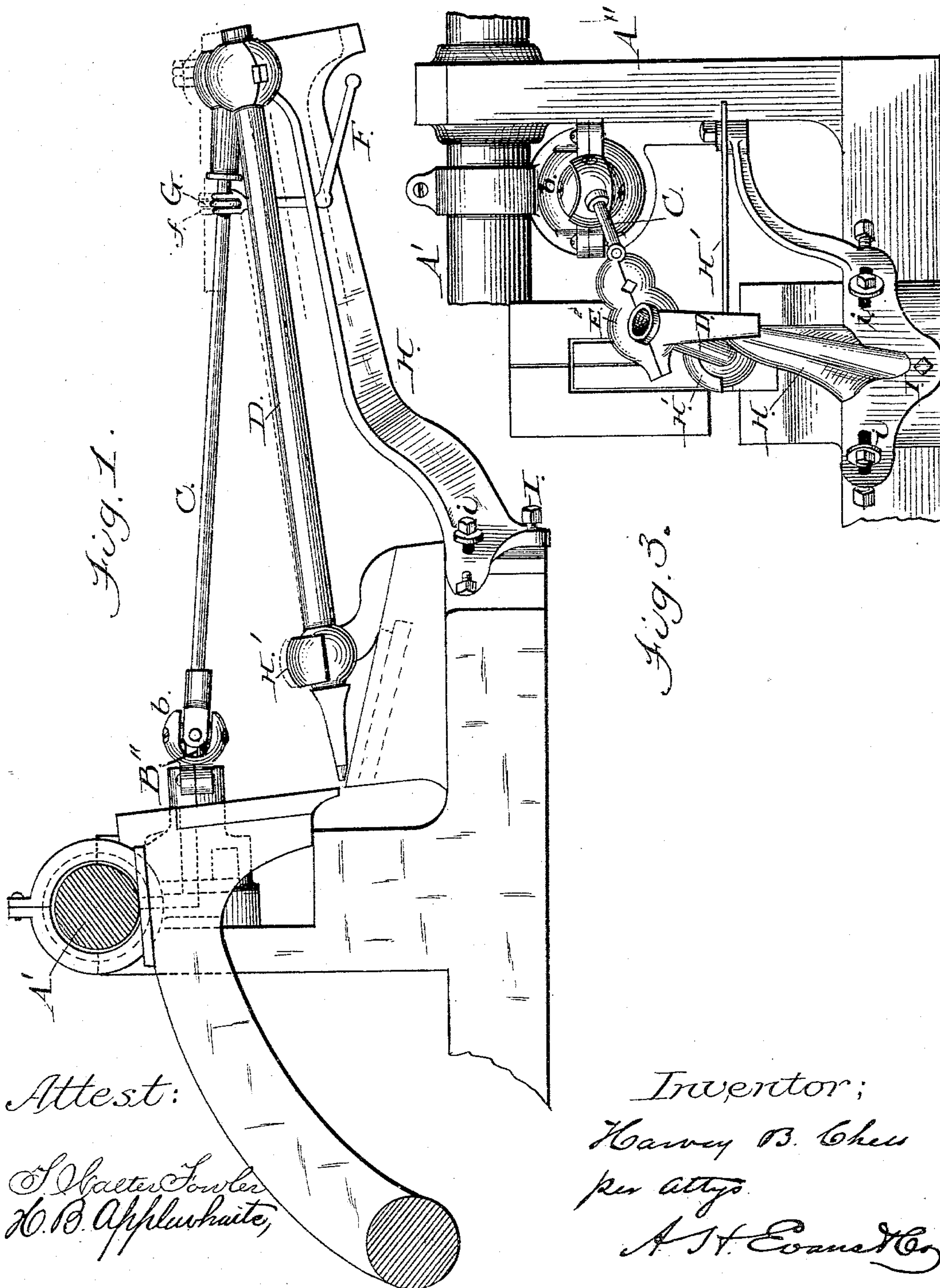
(No Model.)

2 Sheets—Sheet 1.

H. B. CHESS.
NAIL PLATE FEEDER.

No. 300,571.

Patented June 17, 1884.



Attest:

S. Walter Fowler
H. B. Applewhite,

Inventor;
Harvey B. Chess
per attys.
A. H. Evans & Co.

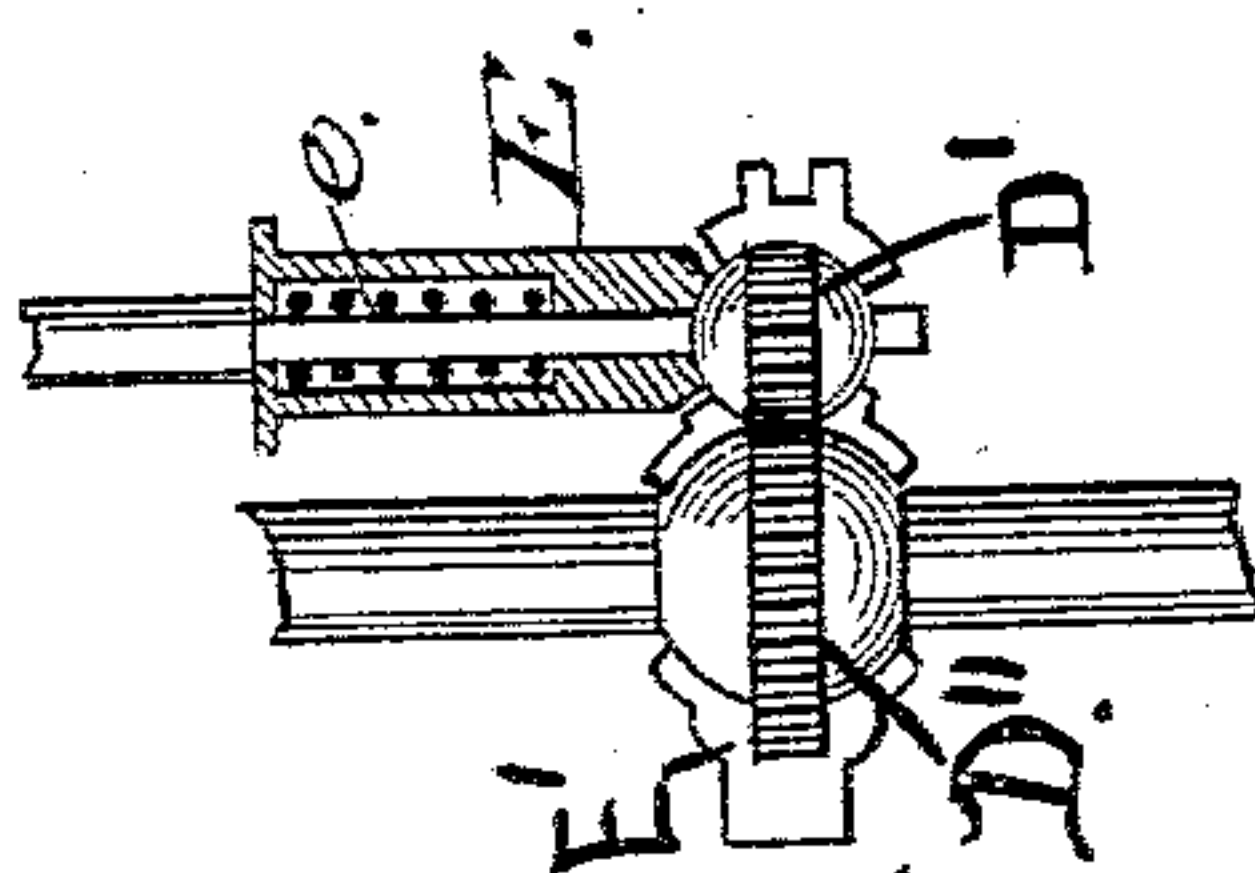
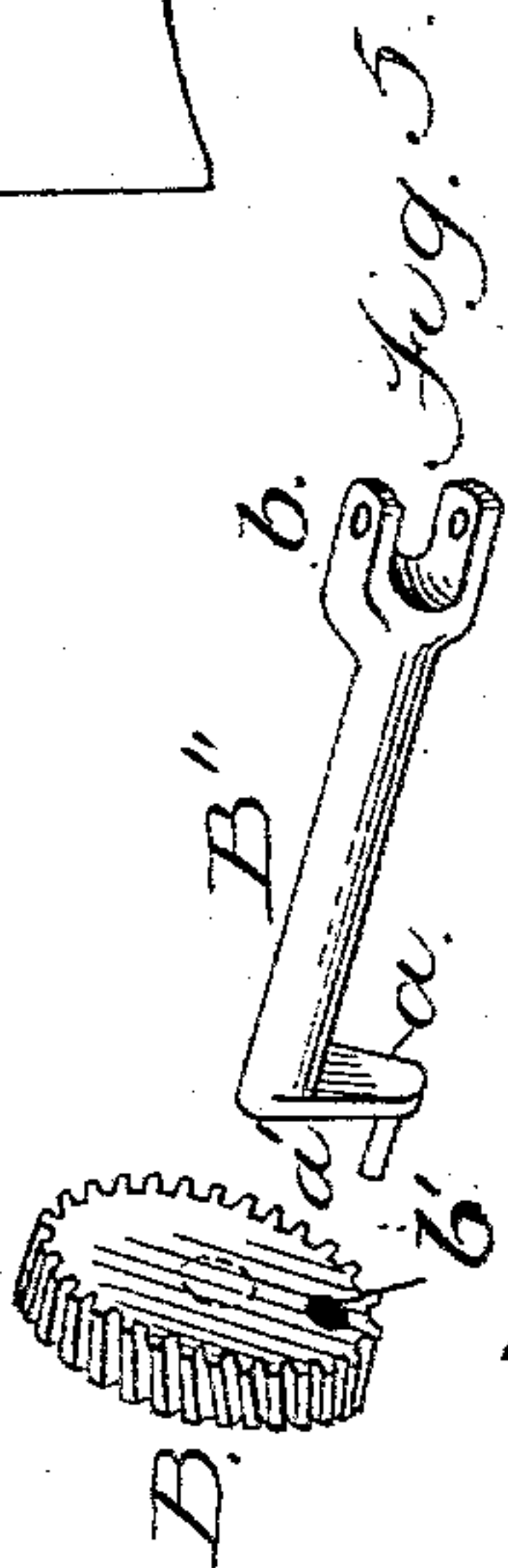
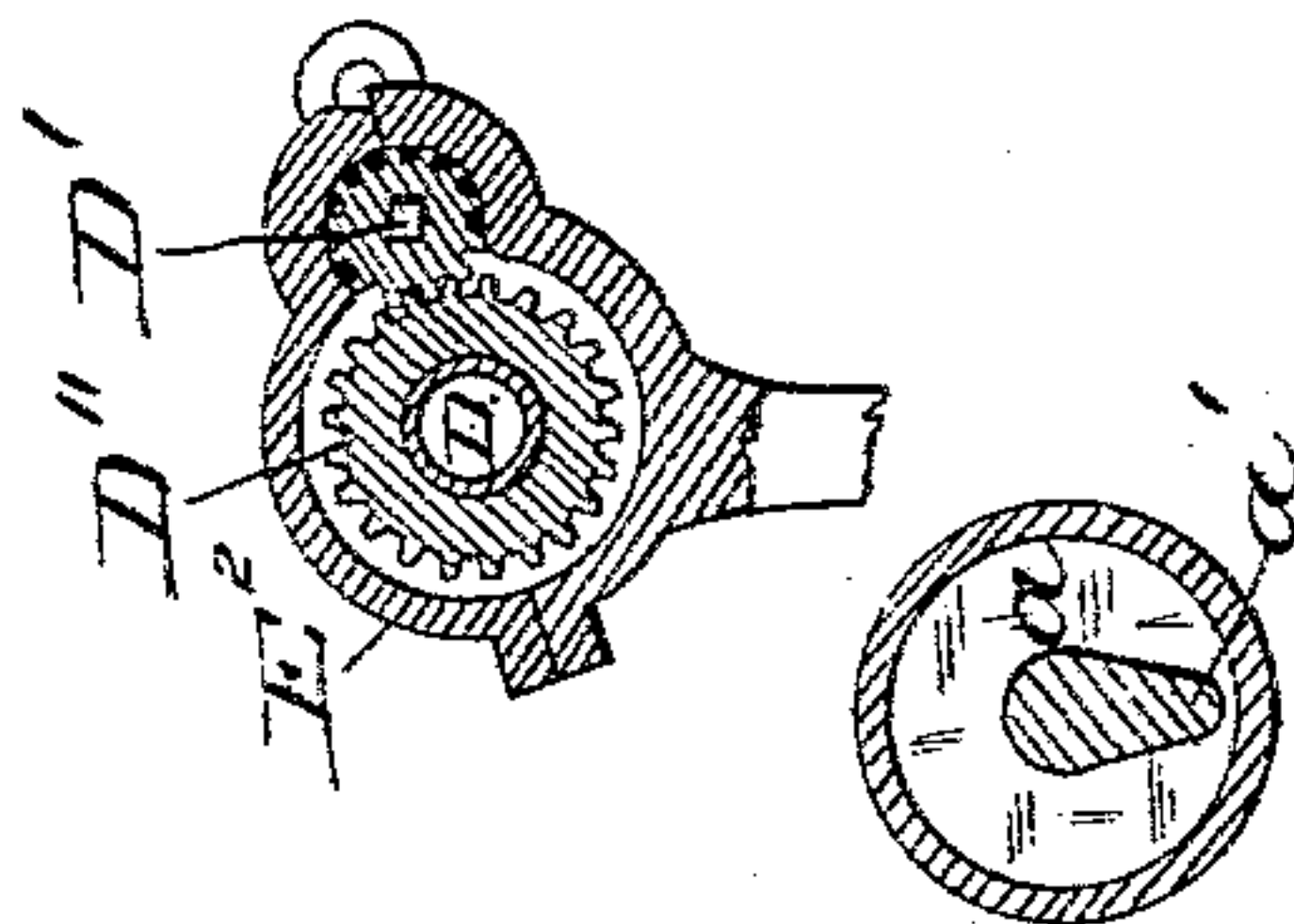
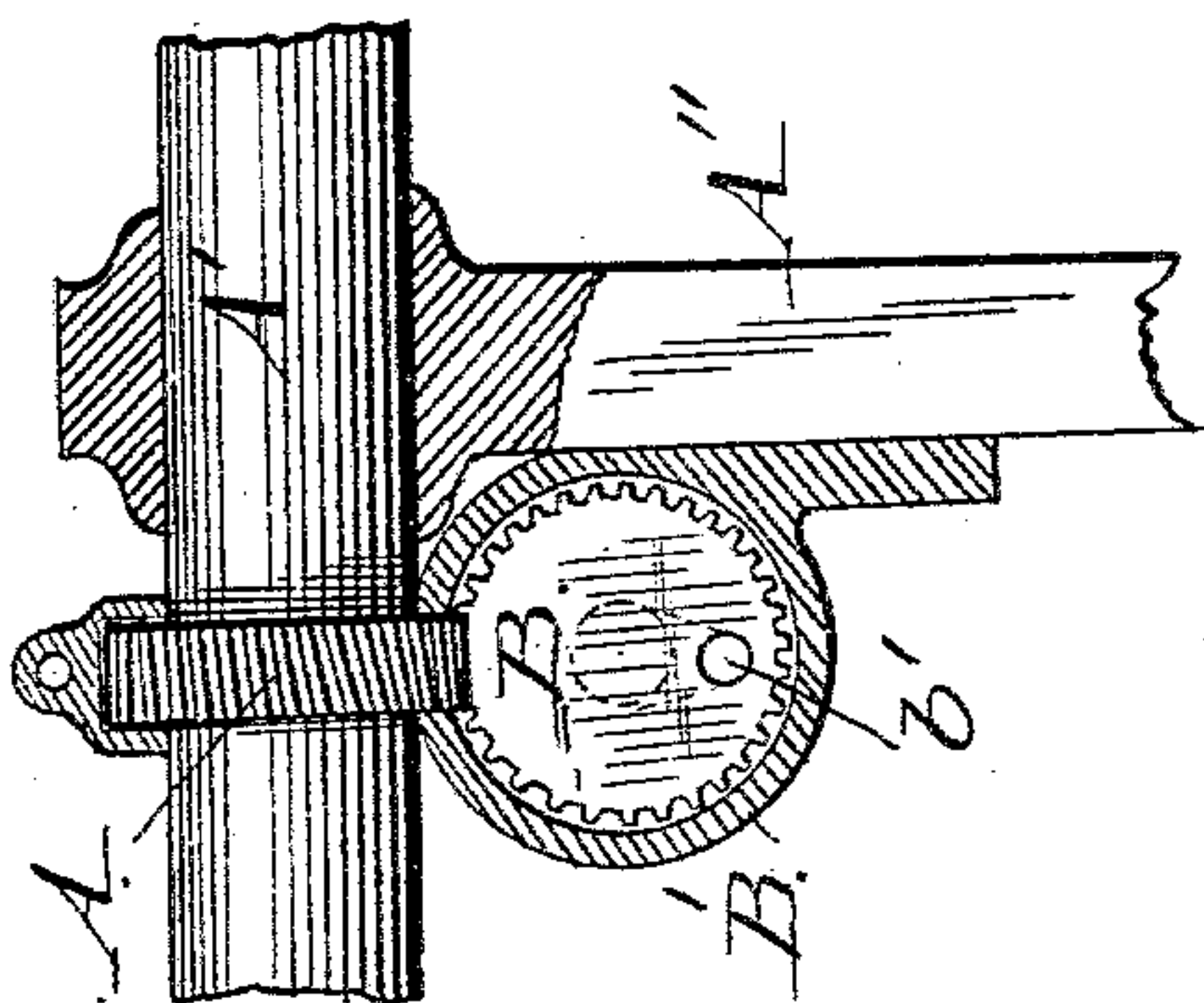
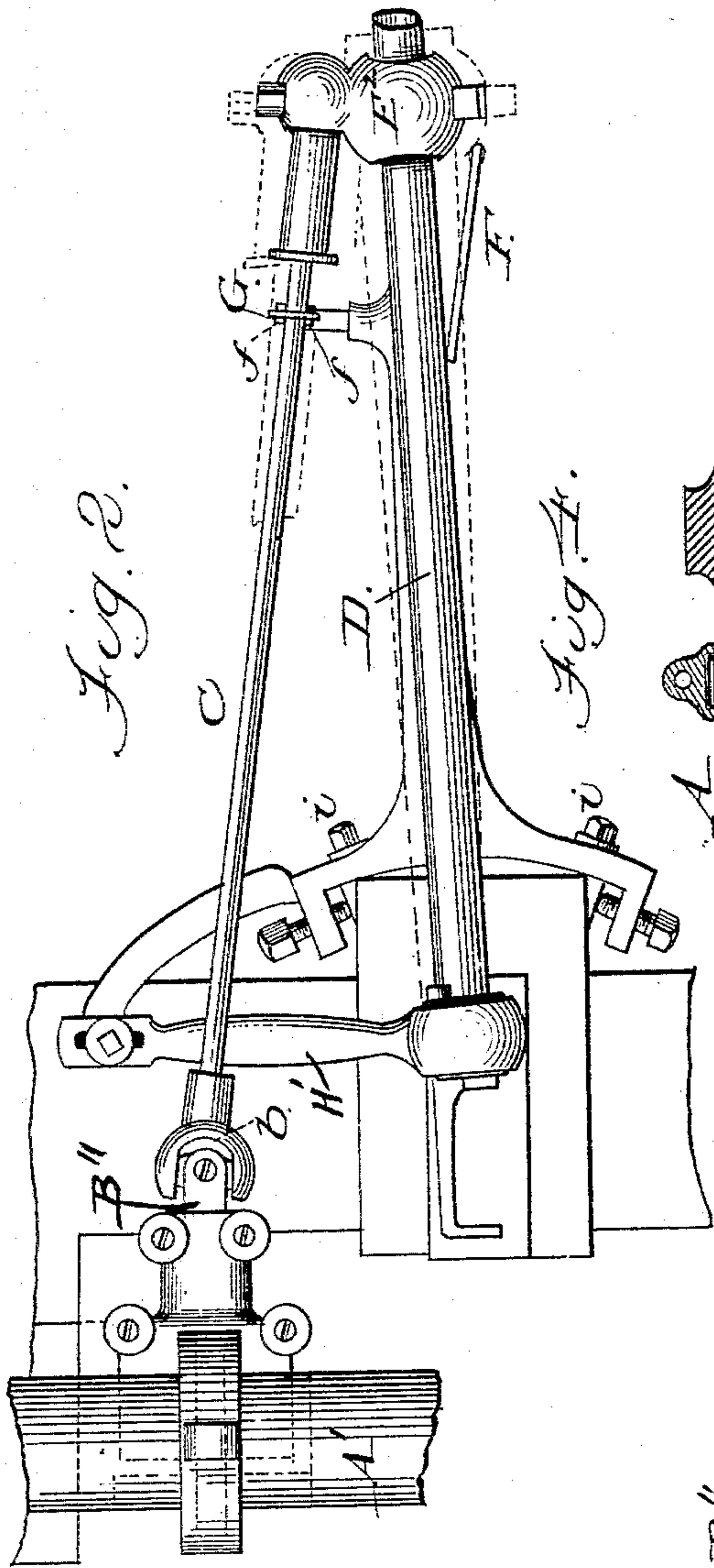
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UNITED STATES PATENT OFFICE.

HARVEY B. CHESS, OF PITTSBURG, PENNSYLVANIA.

NAIL-PLATE FEEDER.

SPECIFICATION forming part of Letters Patent No. 300,571, dated June 17, 1884.

Application filed November 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, HARVEY B. CHESS, of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Feeders for Nail and Tack Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—
Figure 1 is a side elevation of my improved feeder attached to a machine. Fig. 2 is a plan view of the same. Fig. 3 is a front elevation of the same. Fig. 4 shows the spiral gearing with the cap removed. Fig. 5 shows details of construction.

My present invention has reference to a device for feeding the plates in a tack or nail machine; and it consists in the several combinations of devices hereinafter explained and claimed.

To enable others skilled in the art to make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

In the drawings, A represents a spiral gear fixed on the shaft A' and inside of the right-hand post or upright A". This spiral gear engages with and drives the spiral gear, B of equal size, mounted upon a shaft journaled in the box, and running in a perpendicular plane at right angles, or nearly so, to the gear A, and is inclosed in the said box B', attached underneath and to the front of the shaft and to the upright. The cover of this box has a shaft, B'', passing through it and toward the front and concentric with the axis of the driven wheel-gear B. Provision is made for limited sliding movement of this shaft. Its rear end carries a crank, a, and wrist-pin a', and its front end a portion, b, of a universal joint. (See Fig. 5.) In one position longitudinally of the shaft B'' the wrist-pin a' engages or enters a hole or recess, b', in the spiral gear B, and is thus rotated. In the other position of the shaft B'' the wrist-pin is so far drawn out by the lever F that the wrist-pin does not enter or engage with the gear B, and consequently the shaft B'' is not driven. The second portion of the universal joint b is attached to a slight shaft, C, which extends to the outer

bearing of the barrel D, where it is squared or provided with a feather, and on this squared or feather part is mounted the ball-pinion D', through which the shaft C has a free sliding movement. The spiral spring e is centered in the sleeve E, the function of which spring is to throw the shaft toward the machine and the wrist-pin into engagement with the gear B, running in box B'. This ball-pinion is formed by having the usual teeth of the pinion sunken in the surface of the sphere, and is held in spherical bearings in proper relation to another ball-gear, D'', double the size of the former, mounted rigidly on the feeding-barrel D. This last-mentioned ball has its gear-teeth projecting from its surface, a recess being provided for this purpose, and the bearing E' being made of spherical form. Both these pinions are held in place by one cap, E'', which is hinged and secured by any proper latch device.

When it is desired to stop rotation of the barrel, the bell-crank lever F, Fig. 1, is depressed, and its fork f, pressing on the collar G of the shaft, disengages the shaft from the gear-wheel B by withdrawing the wrist-pin from its contact with the recess b' when the shaft ceases to revolve. Removing the pressure from the lever, the spiral spring e in the sleeve E throws the shaft toward the machine, and when the spiral gear B in its rotation brings the hole or recess b' opposite the wrist-pin or driver a' the latter enters the recess, and the rotation of the parts is resumed. Instead of the axis of the shaft B'' being concentric to the driving-gear B, as before stated, I may have it eccentric by cutting the recess into an oblong form or a slot having a radial direction, and then get an irregular or slow and fast movement of the driving-shaft, and transmit this irregular movement to the feeding-barrel, and when properly adjusted as to "time" it gives a longer period of rest at the time of cutting, and a more rapid movement through the next semi-revolution. In both arrangements regard must be had to eventual position of the nose-piece at the time of cutting off the blank.

The rest H is attached to the front of the bed of the machine by screws through its base,

and this base forms the arc of a circle whose axis is on a vertical line with the extremity of the fixed guard, and the place of attachment is such that should it be deemed necessary to change the line of feeding the barrel-axis is made to revolve about the extremity of the fixed guard, or where the iron going into the machine impinges on the former. This permits a lateral adjustment of the barrel without readjustment of the bearing-down spring H'. The "rest" is moved and held in position by set-screws *i i*. Again, it being sometimes desirable to change the direction of the feeder, perpendicularly considered, I have provided means for this by a set-screw, I, at the lower edge of the curved base. By forcing in the screw I the outer end of the rest is elevated, and withdrawing the screw, the same is depressed. These several lateral and vertical adjustments are permitted by the flexibility and construction of the bearings, and are accomplished without any derangement of the time while the nose-piece of the machine is in motion.

It is evident that, in lieu of the universal joint *b*, a flexible shaft could be used without departing from the spirit of my invention and with good result; and it is also evident that, although I have described the gears A and B as spiral gears, these may be miter or bevel wheels, if preferred, without departing from the spirit of my invention.

The operation of my invention is as follows: The shaft A', being caused to revolve by reason of its being connected to suitable driving mechanism, carries with it the gears A and B, which, as before stated, are inclosed within suitable boxes. The spring *e* contained in the barrel E being released moves the shaft C toward the driving-shaft A', and the continued revolution of the drive-shaft and gear B brings the recess *b'* in line with the wrist-pin *a'*, when the spring *e* immediately throws these parts into connection, as well as the pinions D' D'' on the outer end of the shaft C and barrel D, respectively, the inner end of the latter, which is provided with the nose-piece, being held down by means of a spring, H'. Now, it is obvious that by the devices just referred to, communicating motion to the pinions D' D'', as before stated, the barrel D, through which the nail-plate is fed by hand, is kept revolving as long as the

wrist-pin engages the recess in the gear B, the inner end of the barrel D being loosely held upon the bed by the spring H' above referred to. To throw the several parts out of gear the operator simply depresses the bell-crank lever F, when the shaft C is moved outward, thereby disengaging the pinions D' D'', at the same time withdrawing the wrist-pin from its recess in the gear-wheel B and stopping the revolution of the barrel D, although the drive-shaft A' and gear-wheel B may still be kept in motion. To again throw the parts into motion the operator simply releases the lever F, with the result as above stated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The shaft A', provided with a spiral gear, A, the spiral gear B, provided with the hole *b'*, and box B', in combination with the shaft B'', passing through the box, and carrying on its rear end a crank, *a*, and wrist-pin *a'*, and on its front end a portion, *b*, of a universal joint, all constructed to operate substantially as and for the purpose herein specified.

2. The shaft A', provided with spiral gear A, the spiral gear B, and shaft B'', in combination with the shaft C, provided with a ball-pinion, D', sleeve E, and spring *e*, all constructed to operate substantially as and for the purposes herein specified.

3. The shaft C, provided with a ball-pinion, D', supported in spherical bearings, in combination with a ball-gear, D'', rigidly mounted on the feeder-barrel, and the feeder-barrel D, all constructed to operate substantially as and for the purpose set forth.

4. The shaft C, provided with a collar, G, the sleeve E, and spring *e*, in combination with the shaft B'' and bell-crank lever F, substantially as and for the purpose set forth.

5. The driving-shaft A', the shaft B'', and the shaft C, in combination with gears A, B, D', and D'', whereby the feeder-barrel is adapted to be driven by power directly from the driving-shaft, substantially as herein shown and described.

HARVEY B. CHESS.

Witnesses:

WM. N. EASTON,
THOMAS J. ROGERS.