

No. 637,381.

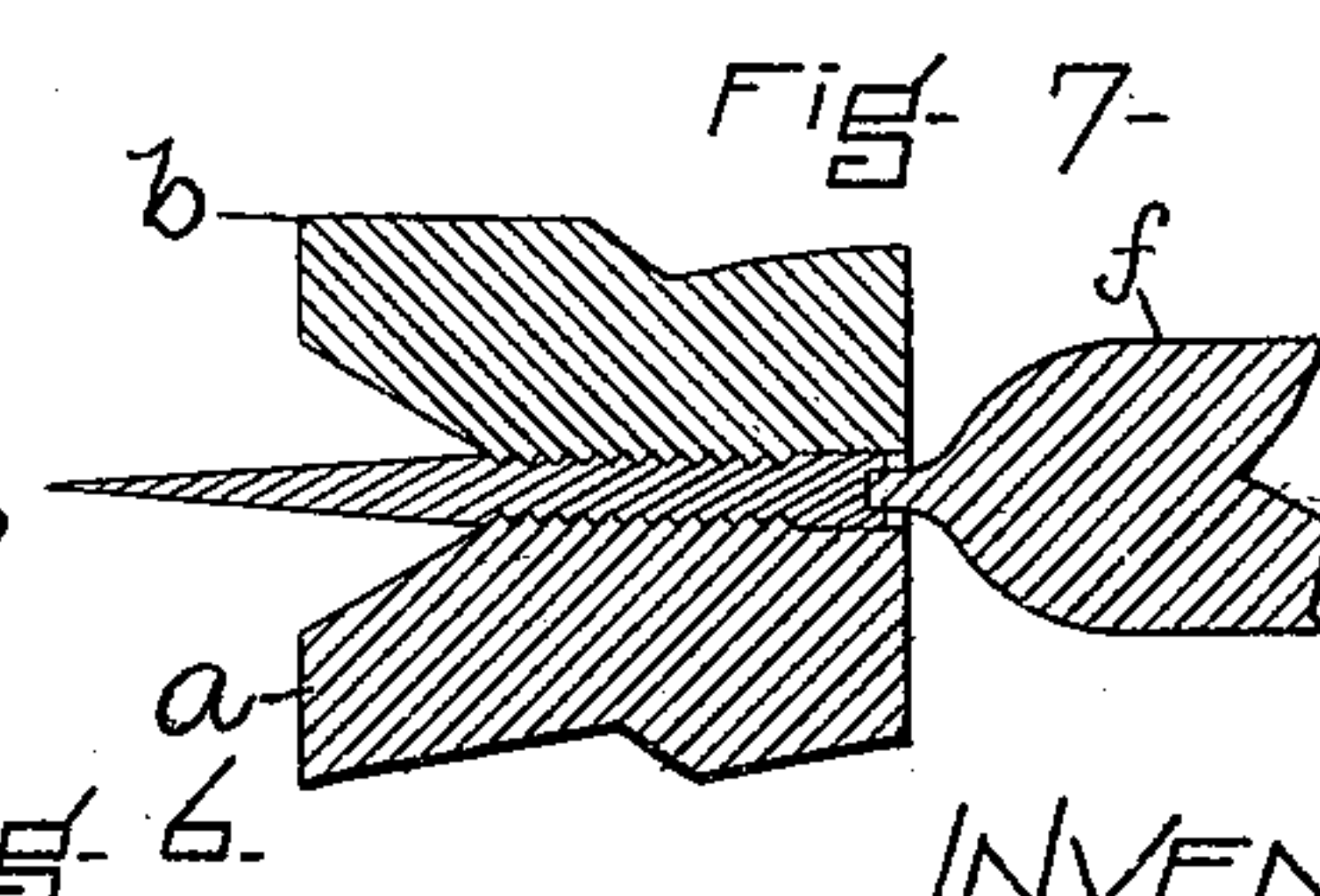
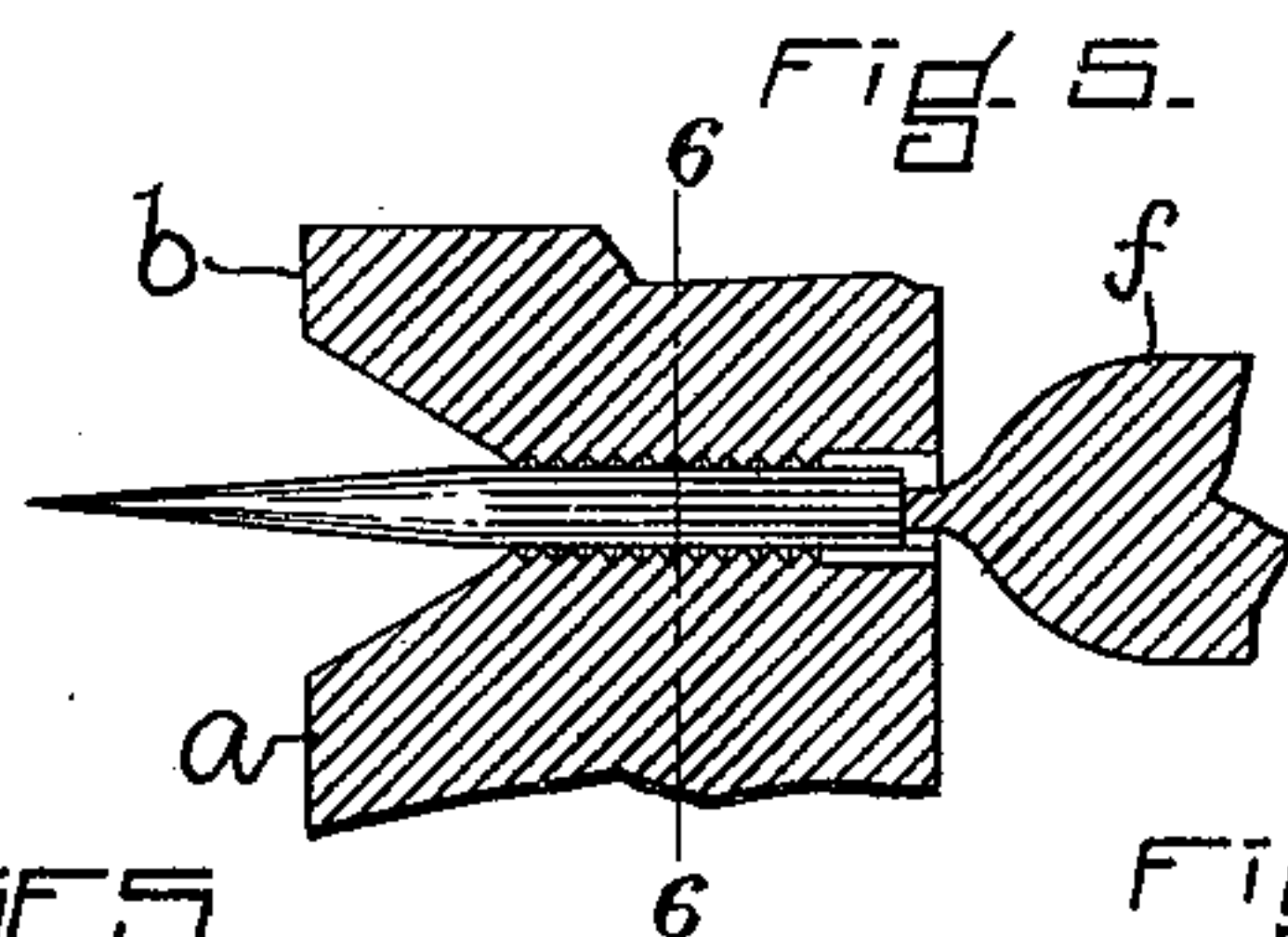
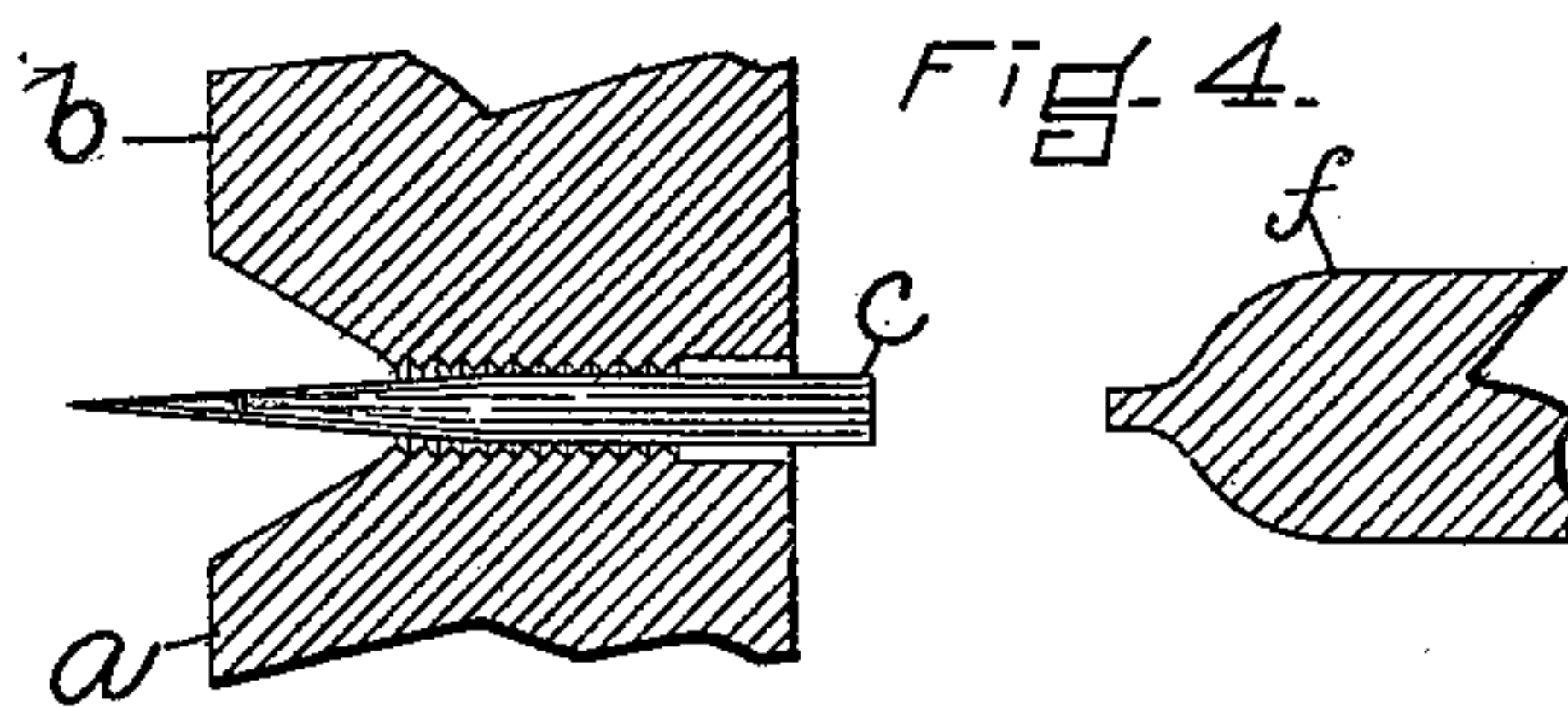
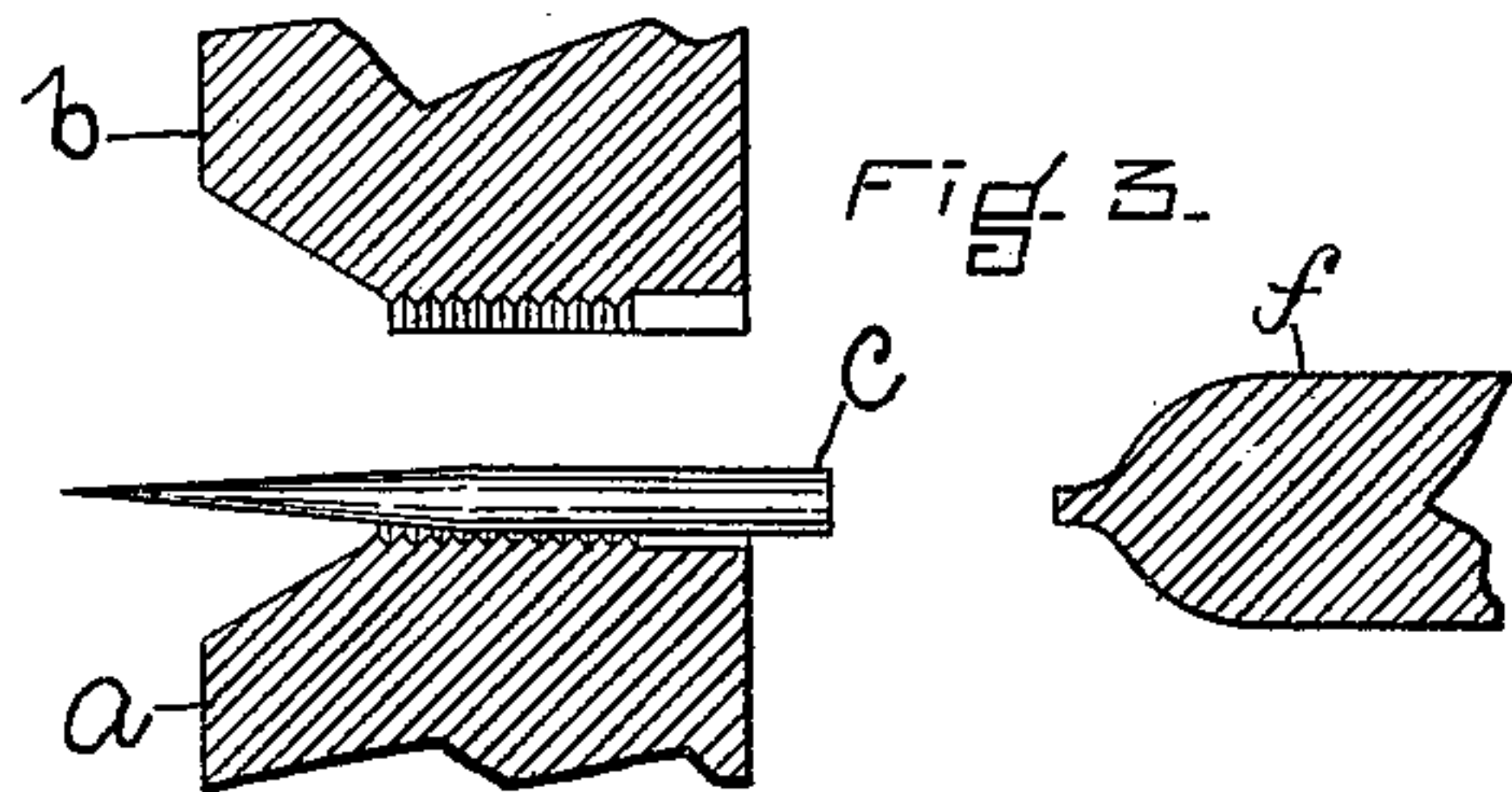
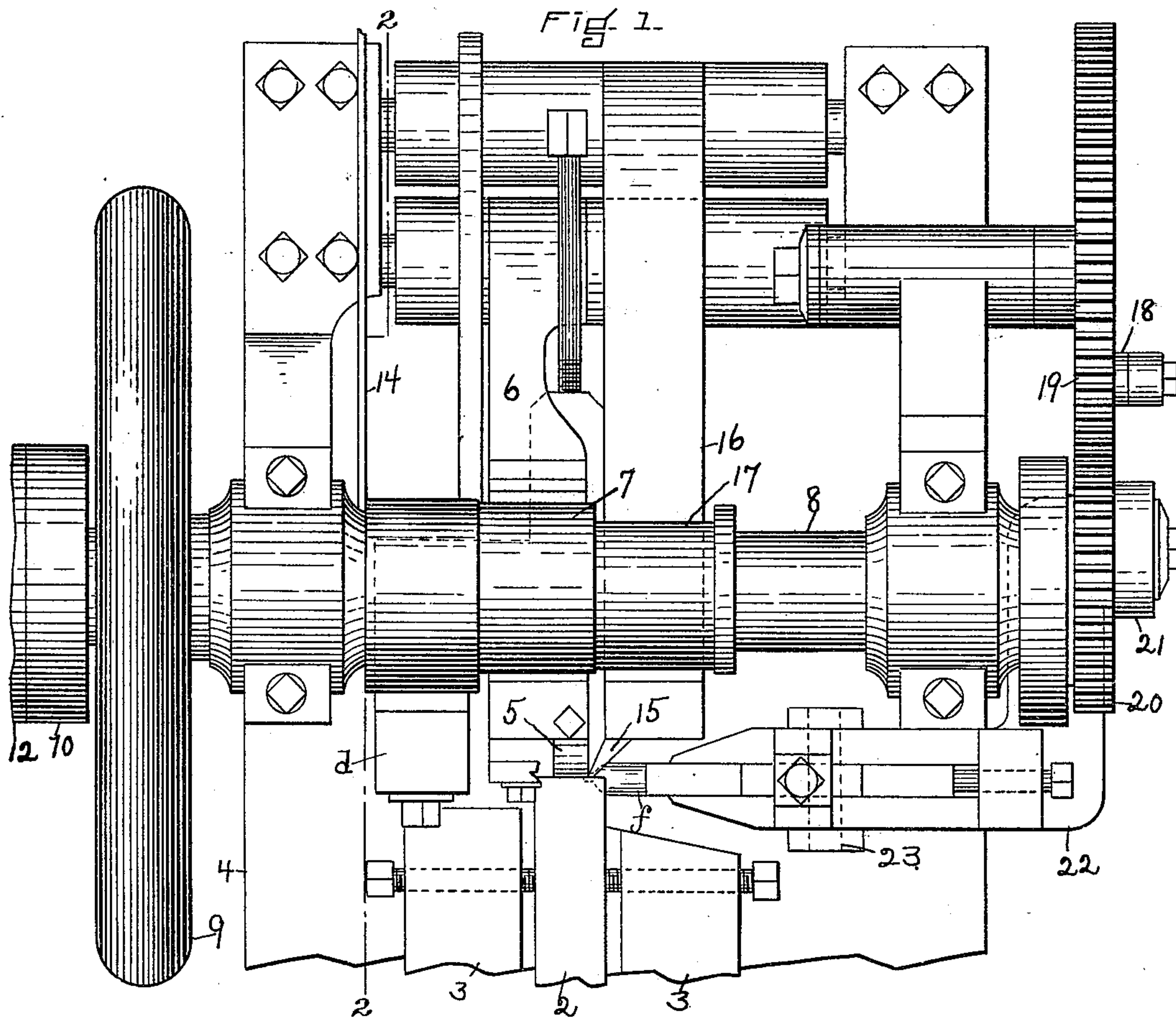
Patented Nov. 21, 1899.

J. N. GIFFORD.
NAIL MAKING MACHINE.

(Application filed Apr. 11, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

A. D. Grover
Fred. C. Dorr.

Fig. 6.

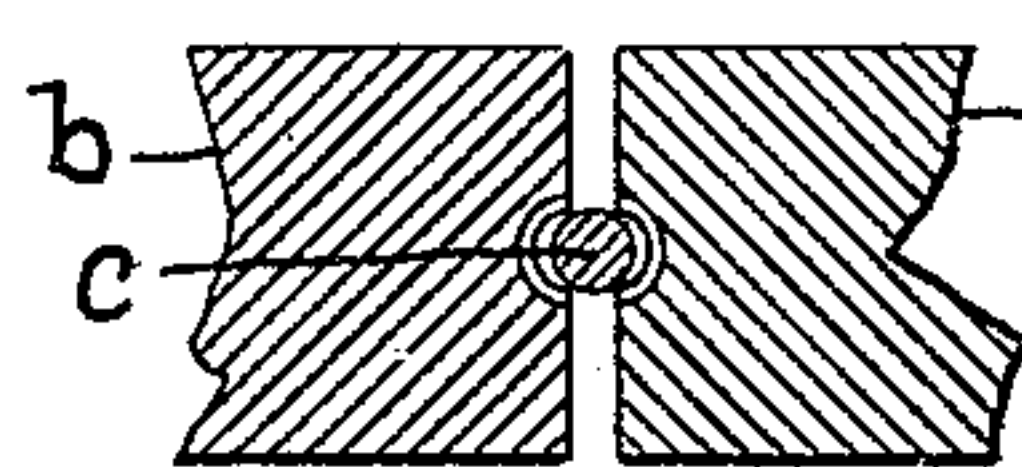
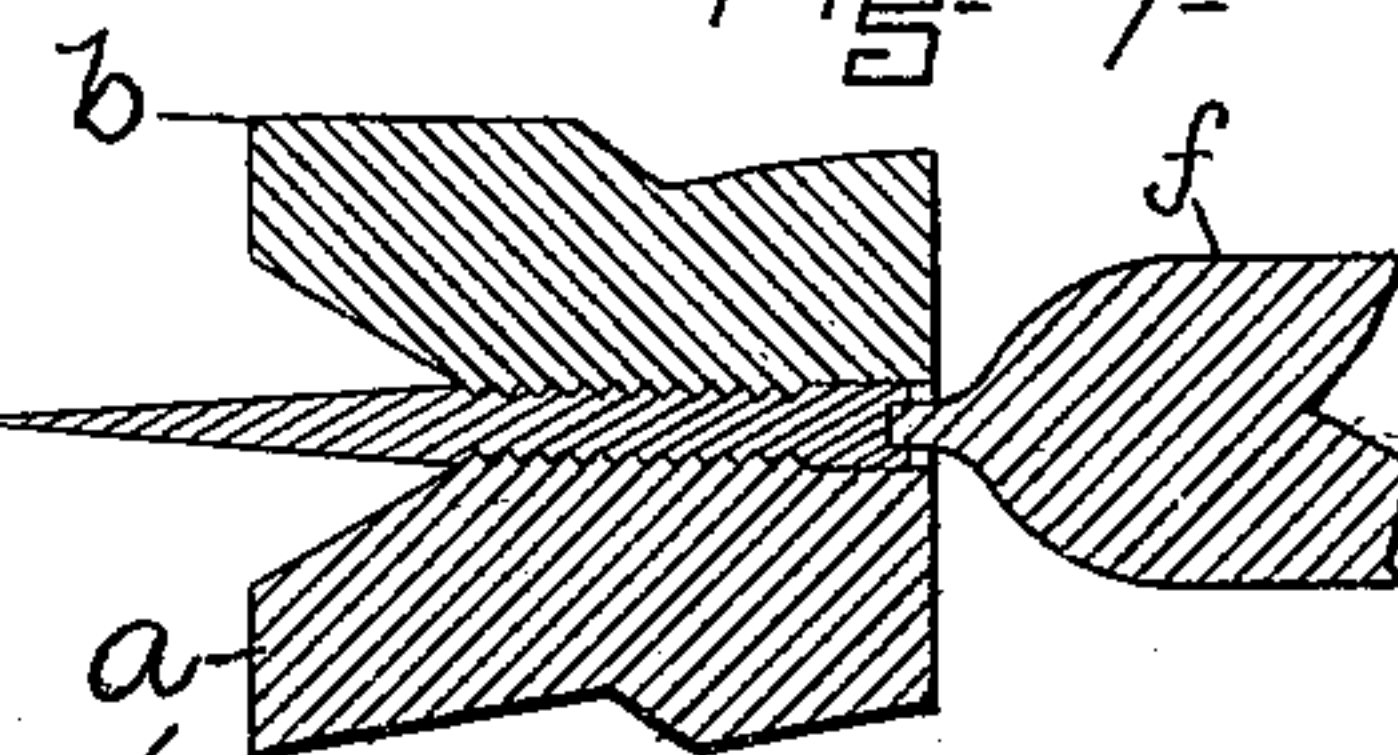


Fig. 7.



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2 Sheets—Sheet 2.

Fig. 2.

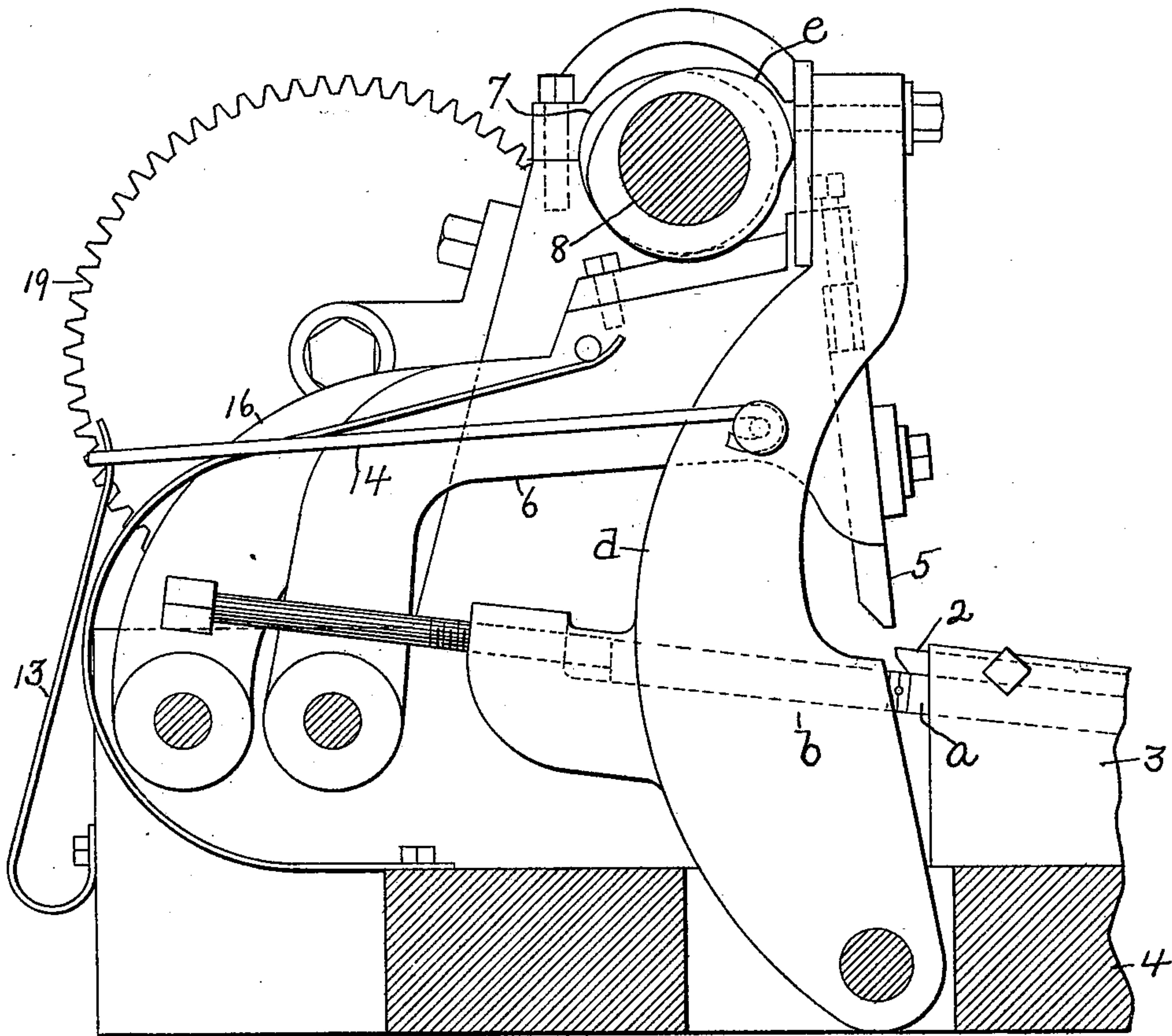
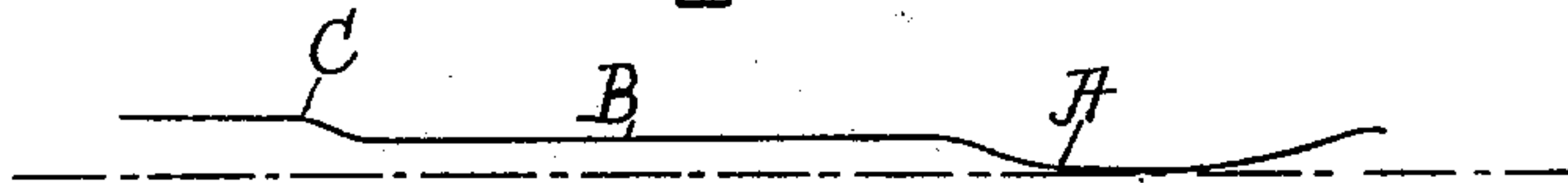


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES N. GIFFORD, OF FAIRHAVEN, MASSACHUSETTS, ASSIGNOR TO THE
ATLAS TACK COMPANY, OF MAINE.

NAIL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 637,381, dated November 21, 1899.

Application filed April 11, 1899. Serial No. 712,615. (No model.)

To all whom it may concern:

Be it known that I, JAMES N. GIFFORD, a citizen of the United States, residing in Fairhaven, in the county of Bristol and State of Massachusetts, have invented an Improvement in Nail-Making Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to a machine for making tacks or nails of that class known to the trade as "cub" or "headless cub" nails.

Prior to this invention nails of the class referred to have been made on machines which operate in two different ways. In one of these machines the nail-blank is cut, grasped by suitable nippers at its unpointed end, and carried by said nippers between a stationary die and two cooperating movable dies, one of which moves toward the stationary die to grasp the nail-blank and firmly hold it, while the nippers release the blank and retreat out of line with the second movable die, which then advances toward the stationary die and acts on the unpointed end of the blank. The dies are formed so as to corrugate the body portion of the nail, and in this machine the body portion is corrugated for substantially its entire length; but the machine is restricted in its capacity owing to the various operations above described, which require time, and consequently this machine is objectionable for this reason. To increase the production of the nails referred to in a given time, and thereby decrease the cost of the same, a second machine has been devised, wherein the nail-blank is nipped or gripped at its pointed end and carried between two cooperating dies, which corrugate the body portion, and while the capacity of this second machine is increased the increase in production and corresponding reduction in cost are obtained at a sacrifice to the holding capacity of the finished nail or tack, for the reason that the nippers or grippers which carry the blank to the corrugating-dies grasp a part of the body portion, and thereby reduce the length of the body portion acted upon by the corrugating-dies. Consequently

the full length of the body portion of the blank is not corrugated, as the dies used in this machine are necessarily shorter than the length of the body portion of the blank.

This invention has for its object to overcome the defects existing in the machines above referred to and to provide a machine in which a maximum number of tacks or nails may be made in a given time with the body portion of the nail corrugated its full length, so that nails or tacks of the class referred to of the desired holding power may be produced in maximum quantities, thereby producing a superior article of the class referred to at a minimum cost. For this purpose I employ two corrugating-dies of a width equal to the length of the body portion of the nail-blank and also employ nippers or grippers of usual construction, which grasp the unpointed end of the nail-blank and carry it between the corrugating-dies, and one of said dies is moved toward its cooperating die a distance sufficient to loosely hold the nail-blank and permit the nippers to release the blank and recede out of line with a pusher, which is then operated to push the nail-blank forward into the dies until all the body portion of the blank is between the said dies, which are then brought together to shape and corrugate the said body portion of the blank, after which the parts are returned to their normal position and the finished nail is removed from the dies or "cleared" in any usual manner.

Figure 1 is a plan view of a sufficient portion of a machine embodying this invention to enable it to be understood; and Fig. 2, a section on the line 2 2, looking toward the right. Figs. 3 to 7, inclusive, are sectional details illustrating the operation of the machine, Fig. 6 being a section on the line 6 6, Fig. 5; and Fig. 8, a developed view of the cam shown in Fig. 2.

Referring to Figs. 3 to 7, inclusive, *a b* represent the corrugating-dies, which are of usual or suitable construction for operating on the edges or sides of a nail-blank *c*, cut from a metal plate or strip by suitable mechanism common to machines of this class and comprising a stationary knife 2, secured to the bed 3, attached to or forming part of the

frame 4 of the machine, and a movable knife 5, attached to a lever 6, which is actuated by a cam 7 on the main shaft 8, provided, as shown, with the fly-wheel 9 and pulleys 10 12.

5 The die *a* is usually stationary, and the die *b* is movable, being carried by a lever *d*, which is actuated by a cam *e*, of novel construction, as will be described, said lever being held in engagement with said cam by the spring 13,

10 which engages the rod 14, attached to said lever. The dies *a b* are grooved or "scored" in the usual manner and receive and embrace the sides of the blank *c*, which is delivered to said dies by suitable nippers or grippers,

15 only one, 15, of which is shown in Fig. 1, but which are common to machines of this class and form no part of this invention. The nipper 15 is attached to the lever 16, acted upon by a cam 17 on the shaft 8, and the coöperating nipper (not shown) is operated from a stud

20 18, eccentrically mounted on a gear 19, driven by a gear 20 on the main shaft 8. The nippers referred to grasp the unpointed end of the nail-blank and carry it between the dies, which

25 are open at such time, as represented in Fig. 3, and the said nippers hold the nail-blank while the portion A of the cam *e* (see Fig. 8) is acting on the lever *d*. The portion A of the cam *e* is shaped so as to move the die *b* toward

30 the die *a* a distance sufficient to loosely embrace or hold the nail-blank after the manner represented in Fig. 4, and thus permit the nippers to release the blank and recede.

By reference to Fig. 4 it will be seen that a

35 part of the unpointed end of the body portion of the blank projects beyond the front side of the dies, which portion has been previously gripped by the nippers. The nippers having receded, the nail-blank is next moved longi-

40 tudinally by a pusher or driver *f* until the unpointed end of the nail-blank is flush or substantially flush with the front sides of the dies, which motion of the pusher may be effected in the usual manner by a crank 21, at-

45 tached to the gear 20 and connected to a lever 22, carrying the pusher or driver *f*, the said lever having its pivot 23 considerably below the level of said pusher, so that as the lever 22 is oscillated the pusher will move in

50 the arc of a circle of sufficiently large radius to enable it to move forward from substantially the position shown in Fig. 3 to that shown in Figs. 5 and 7. While the nail-blank is being moved forward by the pusher *f* the die *b* is

55 stationary, as the circular portion B of the cam *e* is at such time in engagement with the lever *d*, and at or about the time the pusher has completed its forward stroke and the end of the blank is substantially flush with the

60 front sides of the dies *a b* the portion C of the cam *e* acts on the lever *d* and completes the forward movement of the die *b*, and thereby shapes and corrugates the nail-blank for substantially the full length of the body portion

65 of said blank, as clearly shown in Fig. 7. The lever *d* and die *b* and pusher *f* recede to their normal or starting positions, and the finished

nail is removed from the die or cleared in the usual manner.

I claim—

1. In a machine of the class described, the combination of the following instrumentalities, viz: coöperating dies constructed to receive and loosely hold a nail-blank and one of which is movable toward and away from the other, a lever to operate said movable die, a pusher to move the nail-blank longitudinally while loosely held by the dies, and a cam acting on said lever and constructed to move the movable die toward its coöperating die a sufficient distance to loosely hold the nail-blank, to then hold the said movable die stationary while the pusher is operating, and to then complete the forward movement of said movable die toward its coöperating die, for the purpose specified.

2. In a machine of the class described, the combination of the following instrumentalities, viz: coöperating dies scored or grooved to receive the opposite sides of a nail-blank and one of which is movable relatively to the other, means to effect a partial movement of said movable die toward its coöperating die and loosely hold or engage said nail-blank, means to permit the movable die to remain stationary while the nail-blank is moved longitudinally, means to move the nail-blank longitudinally while the movable die is stationary and the said blank is loosely held by said dies, and means to effect further movement of the movable die toward its coöperating die after the nail-blank has been moved longitudinally in the dies, substantially as and for the purpose specified.

3. In a machine of the class described, the combination of the following instrumentalities, viz: coöperating knives or cutters to cut the nail-blank, coöperating dies constructed to receive and loosely hold the cut nail-blank and one of which is movable toward and away from the other in a plane substantially at right angles to the plane of movement of said knives, means to grip the unpointed end of the nail-blank and carry it into line with the said dies, means to effect a partial movement of said movable die toward its coöperating die to loosely hold or engage said nail-blank, means to act on the unpointed end of the nail-blank and move it longitudinally while loosely held by the dies to bring the unpointed end between the active faces of the dies, and means to effect further movement of the movable die toward its coöperating die after the nail-blank has been moved longitudinally, substantially as and for the purpose specified.

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

JAMES N. GIFFORD.

Witnesses:

JAMES EDE,
ELLEN E. PETTEE.