

B. YOCH.

MACHINE FOR POINTING CUT NAILS.

No. 423,366.

Patented Mar. 11, 1890.

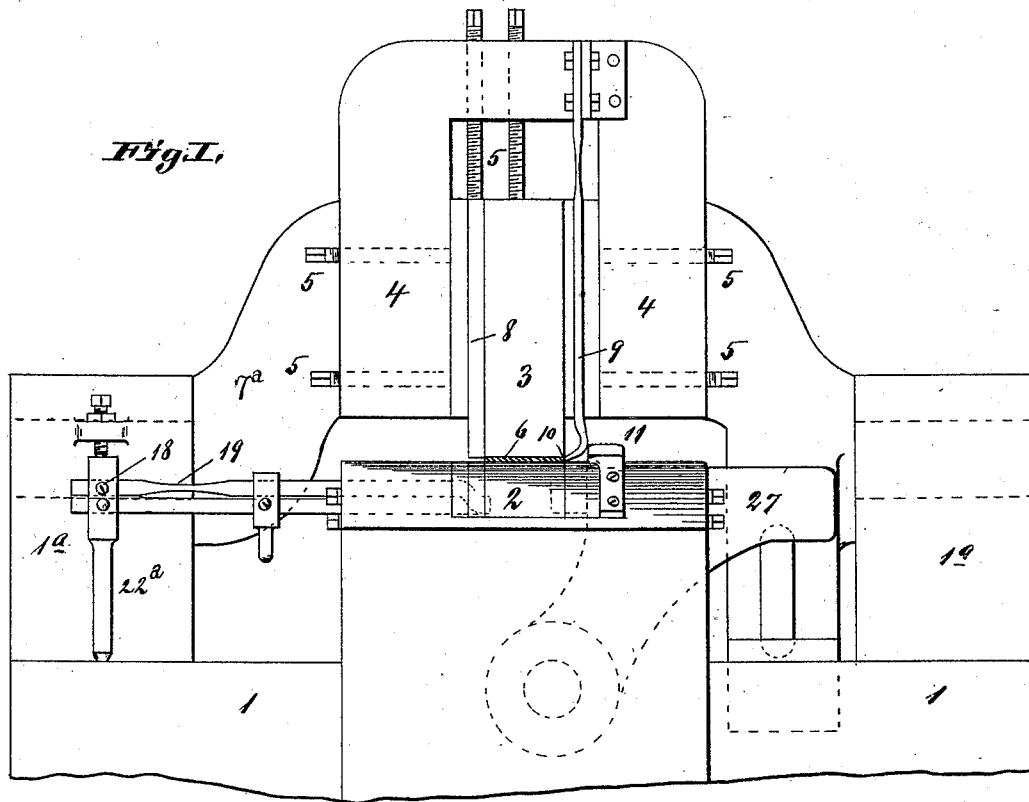
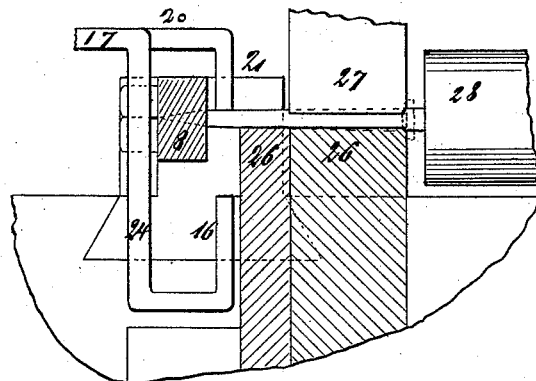


Fig. II.



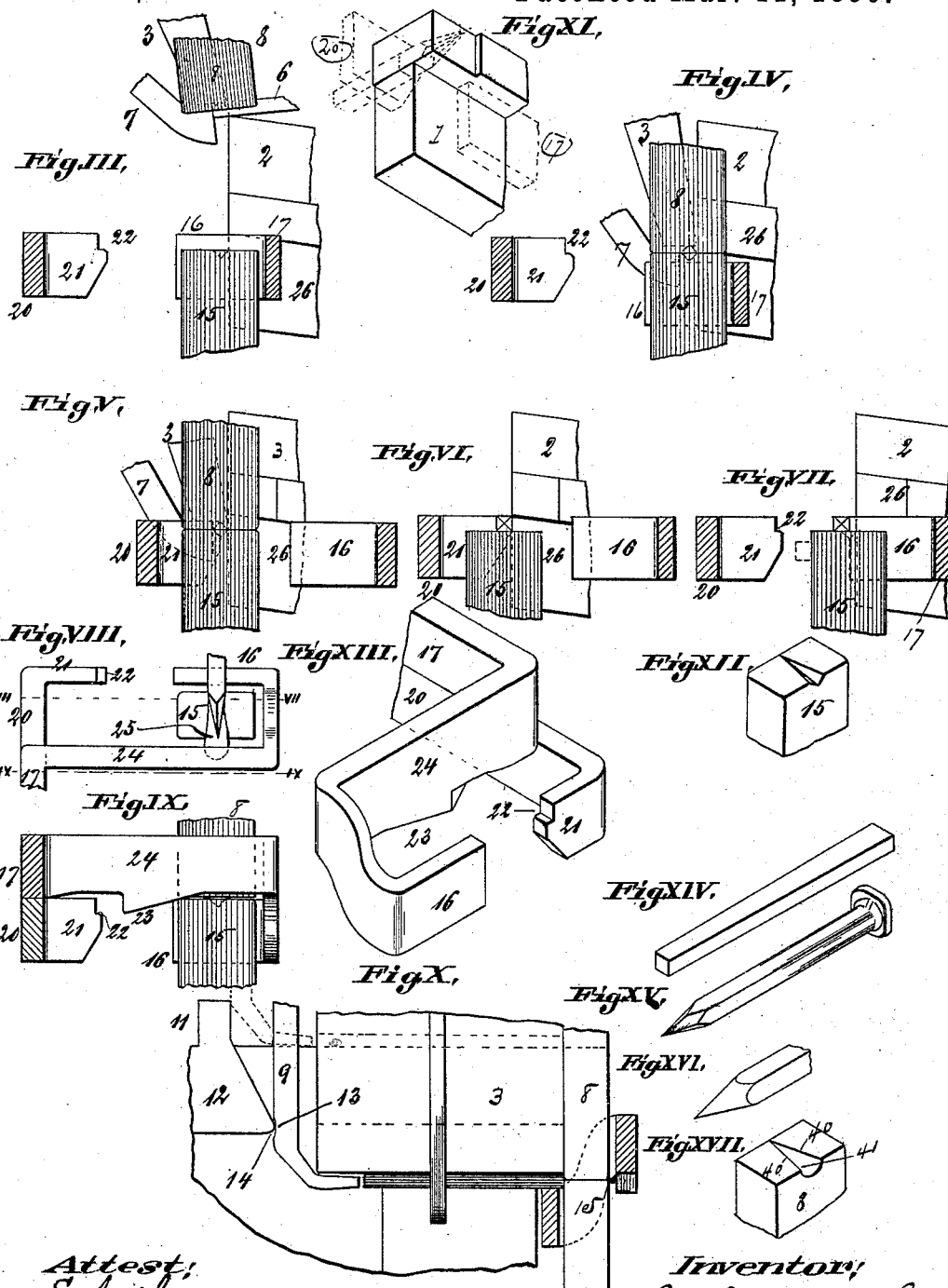
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UNITED STATES PATENT OFFICE.

BENHARD YOCH, OF BELLEVILLE, ILLINOIS.

MACHINE FOR POINTING CUT NAILS.

SPECIFICATION forming part of Letters Patent No. 423,366, dated March 11, 1890.

Application filed September 4, 1889. Serial No. 322,936. (No model.)

To all whom it may concern:

Be it known that I, BENHARD YOCH, of Belleville, in the county of St. Clair and State of Illinois, have invented a certain new and useful Improvement in Machines for Pointing Cut Nails, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention relates to certain improvements in machines for pointing cut nails; and my present invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a detail front view illustrative of my invention. Fig. II is a detail horizontal section showing the parts in the position they occupy while the nails are being headed. Figs. III and VII are sections taken on line III VII, Fig. VIII, Fig. III showing the parts in the position they occupy as the nails are being cut from the blank, and Fig. VII showing the parts in the position they occupy after the nail has been completed. Fig. IV is a view showing the parts in the position they occupy just after pointing the nail. Fig. V is a view showing the parts in the position they occupy after the fin has been removed from the nail. Fig. VI is a view showing the parts in the position they occupy after the nail has been completed and the upper die and gage have receded. Fig. VIII is a plan view showing the parts in the position they occupy after the point has been formed, but before the fin has been removed. Fig. IX is a section taken on line IX IX, Fig. VIII. Fig. X is a detail elevation showing the parts in the position they occupy just as the point is completed. Fig. XI is a perspective view showing part of the bed-plate of the machine and the nail and inner ends of the fingers in dotted lines. Fig. XII is a detail perspective view of one of the dies. Fig. XIII is a detail perspective view of the fingers for removing the fins from the points and for holding and removing the nails after completion. Fig. XIV is a view of a nail after being cut from the blank and before it is pointed or headed. Fig. XV is a view of a completed nail. Fig. XVI is a view of one end of a nail with a dif-

ferent form of point, and Fig. XVII is a view of one of the dies having a recess for forming the point of the shape shown in Fig. XVI.

Referring to the drawings, 1 represents the main frame of the machine. 2 represents the fixed knife, and 3 the movable knife. The knife 3 is held in a head 4 by means of suitable set-screws 5, and the head 4 is supported on a rocking lever, such as the lever 7^a shown and described in my application Serial No. 306,245, filed April 6, 1889, and allowed August 17, 1889. A side view of the lever is not shown in this application, nor is the mechanism shown for operating it, as they form no part of my present invention, and the parts are designed to be the same as in the application referred to. The lever is journaled, as shown by dotted lines, in boxes or extensions 1^a of the frame or bed-plate 1.

As the head 4 is operated the knives 2 and 3 cut a piece from the plate 6 (see Figs. I and III) of sufficient size to produce a nail. In Fig. III the parts are shown in the position they occupy as the cutting commences, the gage 7 receiving the inner end of the plate 6. 8 represents the upper die, which is secured to and carried by the head 4. When the cutting is completed, the head continues to move downwardly, carrying with it the upper die 8, the knife 3, and the gage 7, the nail, which has been removed from the plate 6, being, of course, directly beneath the knife. It is necessary that the nail be moved from this position beneath the upper die 8, so that when the dies come together the nail will be pointed. To accomplish this I secure a spring-arm 9 to the head 4, this arm having a point 10, that bears against the head end of the nail. As the parts descend after the cutting is completed the arm 9 comes against a cam 11 and is forced from the position shown in Fig. I to the position shown in Fig. X, the cam having an inclined face 12, (see Fig. X,) which forces the lower end of the arm 9 inward, thus moving the nail until the portion of it to be pointed is beneath the upper die 8, and consequently, of course, will be between this die and the lower one when the two come to work on the nail to produce the point. I have shown the arm 9 with a small recess 13, which comes op-

posite the lower point 14 of the cam just as the nail is being pointed, the object being to allow the arm to spring back slightly as the nail is slightly elongated by the action of the dies, and thus the arm is not allowed to interfere with the operation of the dies.

15 represents the stationary die. Its position is directly beneath the die 8; but it cannot be seen either in Figs. I or II. It is shown, however, in Figs. III, IV, V, VI, VII, VIII, and IX. It is held by any suitable means to the bed-plate 1.

As the head 4 is making its downward movement, and before the movable die has advanced sufficiently near to the stationary die for them to produce the point, the nail comes against the return-bend 16 of a finger 17, pivoted at 18 to the bed-plate 1 or one of the standards of the boxes 1^a. This finger 17 is provided with a thin portion 19, as shown in Fig. I, which allows it to spring downwardly when the nail comes against it, as stated. Beneath the finger 17 is a second finger 20, having an end 21, provided with a recess forming a shoulder 22. After the dies have formed the point these fingers 17 and 20 are moved by their pivot 22^a rocking in its bearing. This carries the fingers from the position shown in Fig. IV to the position shown in Fig. V, and the bend 16 of the finger 17 being carried from beneath the nail and the shoulder 22 of the finger 20 coming up beneath the nail, as shown clearly in Fig. VI, and the bend 16 of the finger 17 being elevated into line with the top of the nail by the finger springing back to its normal position after being released from beneath the nail, it having been forced down, as stated. The shoulder 22 of finger 20 now supports the nail. The nail might come against some other part of the finger other than the bend 16. As this movement of the fingers takes place an inclined surface 23 on the bend 24 of the finger 17 comes against the fin 25, formed by the dies in producing the point on the nail, and breaks the fin off. The nail is now pointed and the fins removed. While these parts have been approaching each other the nail is grasped between holding-jaws 26 and 27 and the head formed thereon by a plunger or swage 28, which I have not fully shown, as they form no part of my present invention. As the holders 26 and 27 grasp the nail the head 4 recedes, carrying the movable knife, movable die, gage 7, and the arm 9 with it, and as the fingers 17 and 20 go back to their normal positions, the head having been formed and the holders receded, the bend 16 of the finger 17, which, as stated, has gone back to its normal position and is in line with the nail, comes against the nail and removes it from the machine; and thus the operation of the parts go on indefinitely, cutting the nails from the blank, forming the points,

removing the fins, forming the heads, and discharging the nails.

I have not shown any means for operating the fingers 17 and 20, as they may be operated by a cam or any suitable means of this kind, and a finger similar to that marked 20, with a means for operating it, is common in this class of machines. Finger 17, however, and its peculiar construction are, I believe, new and novel.

By carrying the movable die with the knife 3 an opportunity is afforded for the nail to be pushed beneath it while the parts are approaching the fixed die.

Spring-pressure might be depended on for the movement of the arm 9 and the cam 11 be dispensed with:

The dies are provided with cutting-edges 40, (see Fig. XVII,) formed by conical or tapering semicircular recesses 41 in the ends of the dies. The recesses form the points on the nails, and the edges 40 serve to cut off or nearly cut off the fins produced by the dies in forming the points.

I claim as my invention—

1. In a machine for pointing cut nails, the combination of knives and dies, a spring-finger 9, and gage 7, substantially as and for the purpose set forth.

2. In a machine for pointing cut nails, the combination of a fixed knife and die, a movable knife and die, a head to which the movable knife and die are secured, a gage 7, an arm 9, and a cam 11 for operating the arm, substantially as and for the purpose set forth.

3. In a machine for pointing cut nails, the combination of a fixed knife and die, a movable knife and die, a head to which the movable knife and die are secured, a gage 7, an arm 9, having a recess 13, and a cam for operating said arm, substantially as and for the purpose set forth.

4. In a machine for pointing cut nails, the combination of the fixed knife and die, the movable knife and die, and the movable head to which the movable knife and die are secured and by which said movable knife and die are caused to move together, substantially as set forth.

5. In a machine for pointing cut nails, in combination with the knives and dies, a spring-finger 17, having a return-bend 16 and an incline 23, substantially as and for the purpose set forth.

6. In a machine for pointing cut nails, in combination with the knives and dies, the spring-finger 17, having a return-bend 16, and the finger 20, having a shoulder 22, substantially as and for the purpose set forth.

BENHARD YOCH.

Witnesses:

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THOS. KNIGHT.