

No. 646,478.

Patented Apr. 3, 1900.

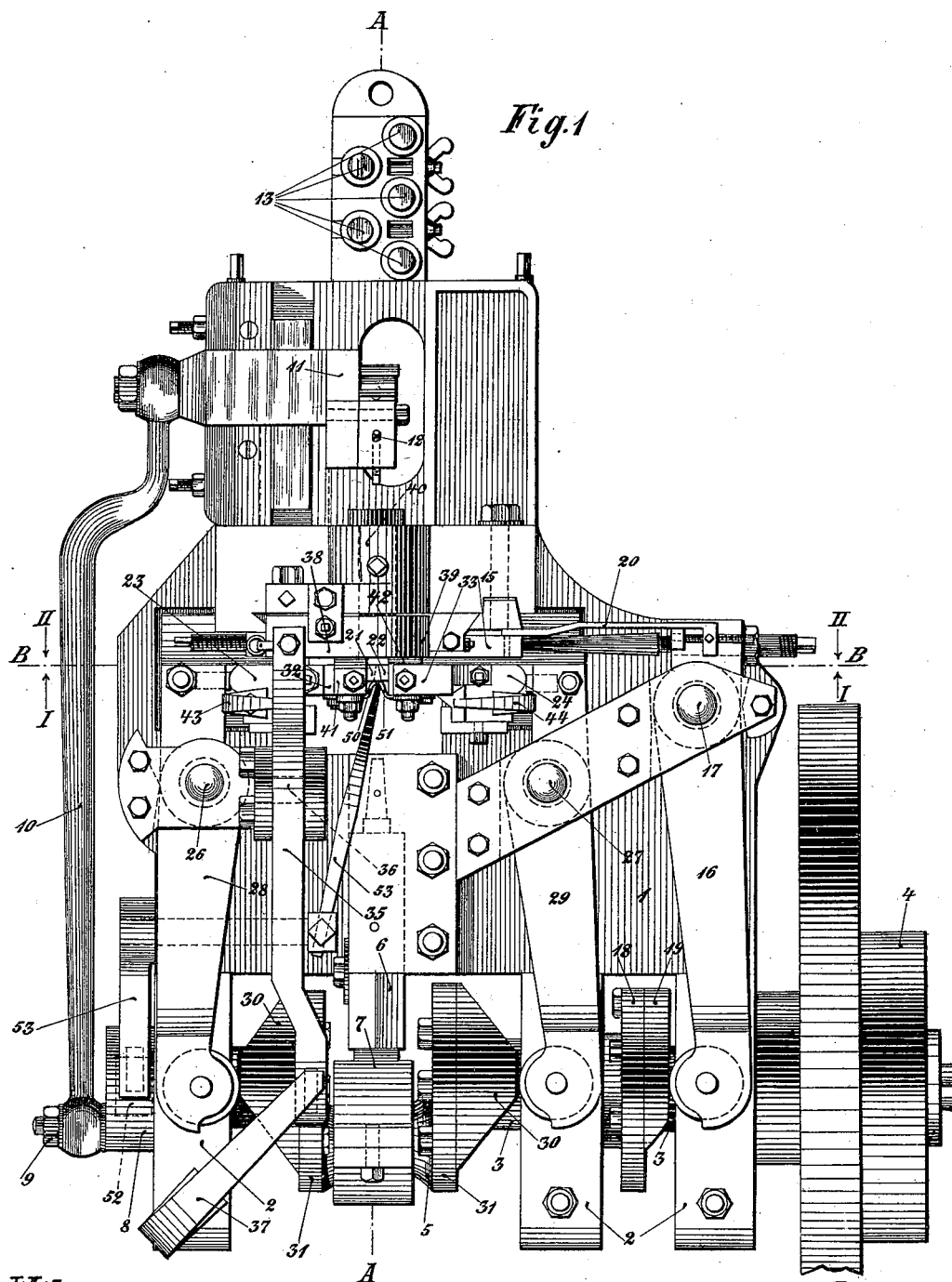
J. WIKSCHTREM.

MACHINE FOR MANUFACTURING WIRE NAILS.

(Application filed Feb. 27, 1899.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:

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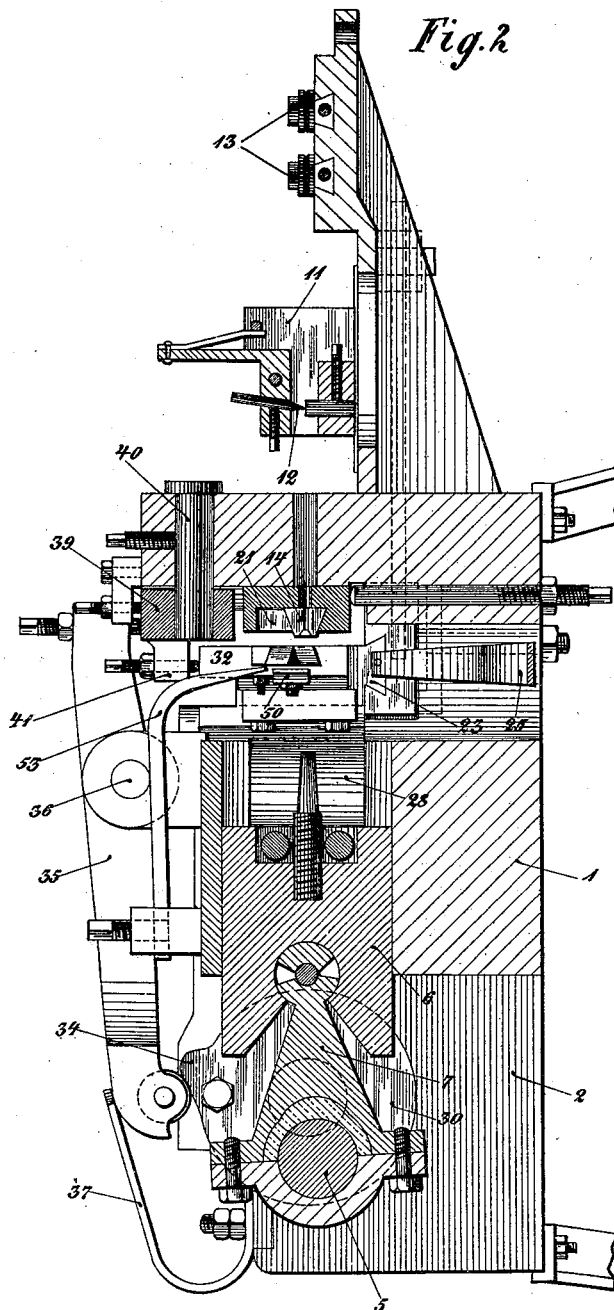
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4 Sheets—Sheet 2.



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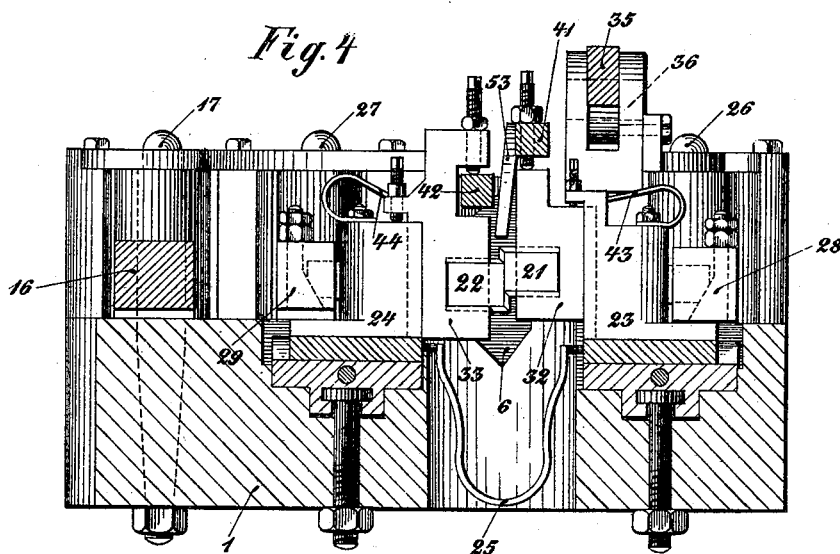
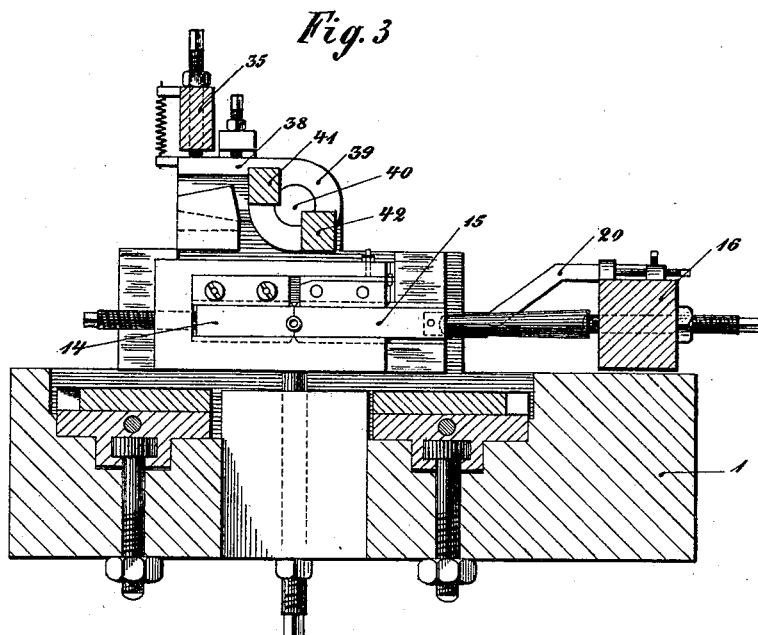
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4 Sheets—Sheet 4.

Fig. 5a

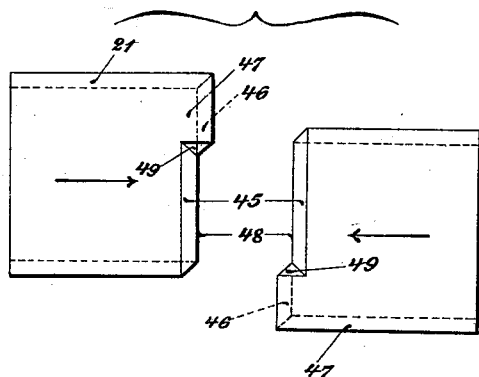


Fig. 5b

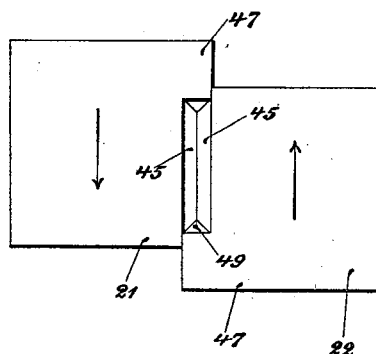


Fig. 5c

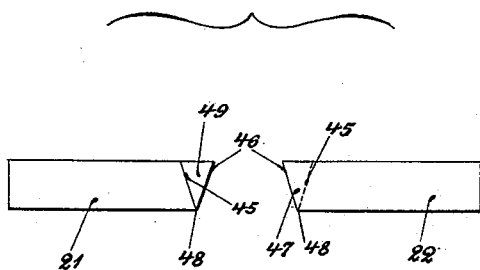
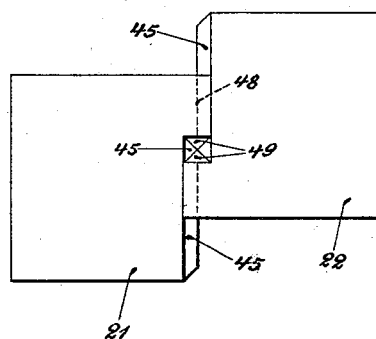


Fig. 5d



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UNITED STATES PATENT OFFICE.

JAKOB WIKSCHTREM, OF KIEW, RUSSIA, ASSIGNOR OF ONE-HALF TO PETER KRUTIKOW, OF SAME PLACE.

MACHINE FOR MANUFACTURING WIRE NAILS.

SPECIFICATION forming part of Letters Patent No. 646,478, dated April 8, 1900.

Application filed February 27, 1899. Serial No. 707,009. (No model.)

To all whom it may concern:

Be it known that I, JAKOB WIKSCHTREM, a citizen of the Empire of Russia, and a resident of Kiew, in the Empire of Russia, have
5 invented certain new and useful Improvements in Machines for the Manufacture of Wire Nails, (for which I made application for patent in Germany on the 20th of December, 1898,) of which the following is a specification.

This invention refers to an improvement in machines for the manufacture of wire nails; and it consists, essentially, in imparting a double movement to the knives for cutting
15 the nail and means for transferring said motion from the driving-shaft of the machine to the knives.

In the accompanying drawings, Figure 1 is a top view of the new machine. Fig. 2 is a longitudinal cut through same on line A A of Fig. 1. Fig. 3 is a horizontal cut through the machine on line B B of Figs. 1 and 2 seen in the direction of arrow I. Fig. 4 is the same cut seen in the direction of arrow II. Figs.
25 5^a, 5^b, 5^c, and 5^d show the form of the knives and their relative position in the different stages of work.

On a base-plate 1 are arranged three vertical plates 2, in which are fixed the bearings of a shaft 3. The same is provided with a fixed and a loose pulley 4, with different disks, and with a crank 5. To the latter is connected, by means of a connecting-rod 7, a block 6, acting as a hammer and guided by
35 prismatic slides in a horizontal line. The end of shaft 3 opposite from the pulley 4 bears a disk 8, having a crank-pin fixed to its surface. A connecting-rod 10 is articulated with one end to said crank-pin, whereas the other
40 is fixed to a slide-block 11, moving between guide-boards. This block is provided with an arrangement 12 for taking hold of the wire introduced and straightened by means of the rollers 13 when moving forward, but sliding
45 over the wire when moving in opposite direction.

The wire is held firmly between two jaws, one of which, 14, is fixed to the bed-plate, whereas the other one, 15, is movable. The

head of the nail is formed out of the material
50 projecting over the surface of said jaws. The motion of the movable jaw is produced by means of a double-armed lever 16, having its pivot in 17. The upper end of same is provided with a rotating disk sliding on the side
55 of a disk 18, fixed to the shaft 3 and provided with a lateral nose 19. If the nose pushes the lever to the side, the movable jaw is pressed against the fixed one and is held as long in this position as the end of the lever
60 rests on the top of the nose. It is evident that the top of the nose extends over exactly half the circumference of the disk 18, for the jaws are closed as long as the motion of the gripping device to the rear takes place. A
65 piece 20 connects the lever and the movable jaw in such a way that the latter is obliged to follow the back movement of the former.

Immediately above the jaws 14 15 are arranged the movable knives 21 22, by means
70 of which the nail is cut off and pointed. They rest for that purpose in two guide-blocks 23 24, guided in dovetails in the bed-plate, or in a block which by means of screws may be shifted on the former. A strong spring presses
75 the two guide-blocks to their extreme position. The short arms of two double-armed levers 28 29, having their pivots in 26 and 27, press against the outer sides of the guide-blocks. Their upper ends are provided with
80 rollers and slide on the side of the disks 30 on the main shafts. The disks also have noses projecting laterally.

The knives are not directly fixed to the described guide-blocks, but rest in them by
85 means of dovetailed blocks 32 33, movable in a direction rectangular to the movement of the guide-blocks 23 24. The blocks 32 33 receive a motion in opposite directions and in the sense of their edges by the following device: On the circumference of the disk 31 is
90 arranged a nose 34, which pushes aside the end of a double-armed lever 35, pivoted in 36 and pressed by a spring 37 against the disk 31. The lower end of lever 35 bears against
95 an arm 38 of a disk 39, rotating on trunnion 40. The disk has on its surface two projecting pins 41 42, to which are articulated the

guide-blocks 32 33. If the disk is rotated, these receive movements in opposite directions. The knives are returned to their initial position by two springs 43 44, fastened to the other guide-blocks 23 24.

The form of the knives is shown in Figs. 5^a, 5^b, and 5^c, showing also their relative positions in the different stages of forming the point. On the side turned toward the hammer the edges of the plates forming the knives are chamfered 45. Each knife has at one end a protruding part 47, the foremost edge of which, 46, is chamfered in opposite sense to the face 45 in such a way that the lower edge of both forms a continuous line. The face 49 of the part 47 adjoining 45 is also chamfered.

The knives when moving under the influence of the noses 30 toward each other cut off the length of wire equal to the diameter of the circle described by the crank-pin 9. The end of the separated part has the form of a wedge. If the knives move in the direction of their edges, the corners of this wedge are pressed together by means of the faces 49, and the wedge is formed to a point in the shape of a pyramid.

In order to prevent the nail from jumping away when separated from the wire, there are arranged immediately over the knives two plates 50 51, made of thin sheet metal. The nail is held between them until the knives move back to their original position.

To prevent the finished nail from sticking to the knives, the following device is provided: On the circumference of disk 8 there is a nose 52. The end of a lever 53 is pressed by a spring against the circumference. The lower end of said lever is curved and passes directly over or below the plates 50 51, and when the lever or clearer is rocked by the nose on disk 8 the clearer is first passed over the knives and returned then to its original position, serving to remove any nail which may have stuck to the knives.

The operations executed by the machine are the following ones: first, pressing of the head of the nail by means of the hammer, moved by the crank of the shaft 3; two, opening of the jaws 14 15; third, feeding in of wire which has been straightened by means of the rollers 13; fourth, closing of the jaws 14 15; fifth, moving the guide-blocks 23 24 toward each other; sixth, imparting to the knives a movement in the direction of their edges and in opposite senses by means of a turn of the disk 39, and, seventh, returning of the knives, respectively, of the guide-blocks to their initial position and passing of the ejection

tor 53 over the knives and returning of same to its original position.

What I claim is—

1. In a machine for the manufacture of wire nails the combination with a crank-shaft, cams and disks, carried by said shaft, a sliding hammer operated from said shaft and a cutting, holding and gripping device for intermittently advancing the wire, also actuated from said shaft; of a disk bearing a cam, and a double-armed lever, engaging with its free end the tangentially-directed arm of a circular disk being capable of rotating on a central pivot; said disk imparting a lateral movement to the knives; substantially as shown and for the purpose described.

2. In a machine of the kind hereinbefore described the combination with a crank-shaft, bearing three disks, of a double-armed lever, resting with its upper end on the side of the disk and bearing with its lower end against a movable jaw and of two double-armed levers, provided at their upper ends with rollers sliding on the side of the disks and bearing with their other ends against guide-blocks, dovetailed to the base-plate, and a third lever sliding with the upper end on the circumference of the disk, the edge of which is provided with a projection and the lower end of which bears against the tangential arm of a disk, pivoting on a pin and having on the surface projections engaging with the guide-blocks containing the knives and dovetailed to the former guide-blocks, substantially as and for the purpose described.

3. The combination in a wire-nail machine, of a pair of knives, guide-blocks dovetailed to the bed-plates of the machine, and two elastic plates of thin sheet metal located near said knives, substantially as described.

4. In a wire-nail machine, the combination with elastic holding-plates of a clearer, consisting of a double-armed lever whose curved end projects directly in proximity to said plates, and means for operating said lever, substantially as described.

5. In a machine of the class described, a pair of cutting-knives having each two reversely-beveled edges with a beveled shoulder at the meeting-point of said reversely-beveled edges, the edges of one knife being beveled reversely to the edges of the other, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAKOB WIKSCHTREM.

Witnesses:

ERWIN L. GOLDSCHMIDT,
HENRY HASPER.