J. WIKSCHTRÖM.

WIRE NAIL MAKING MACHINE.

APPLICATION FILED NOV. 13, 1907.

1,011,545.

Patented Dec. 12, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

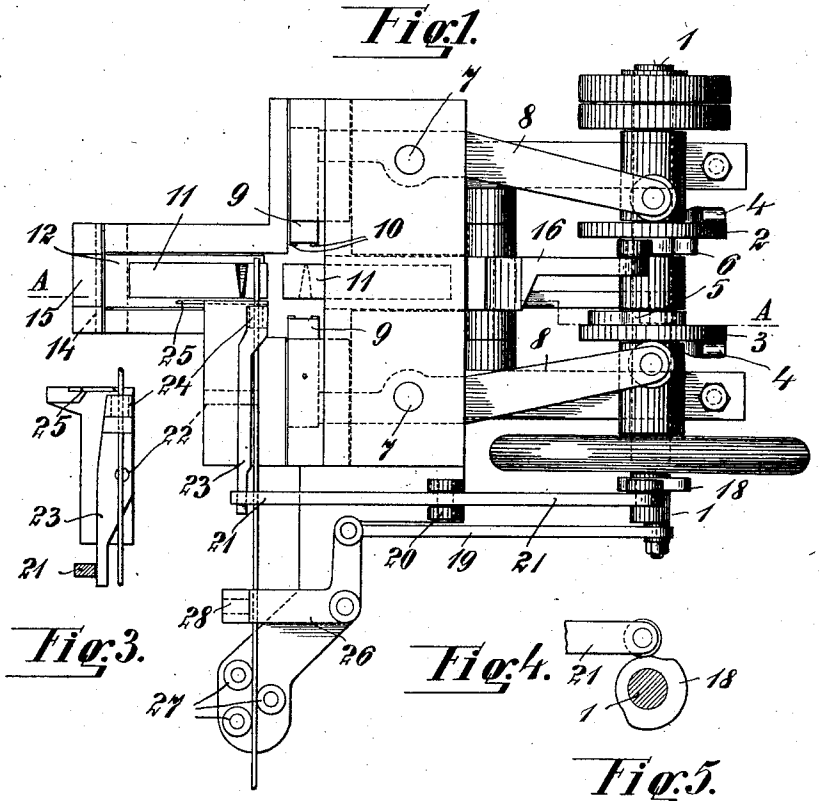


Fig. 3.

Fig. 4.

Fig. 5.

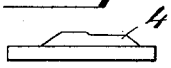
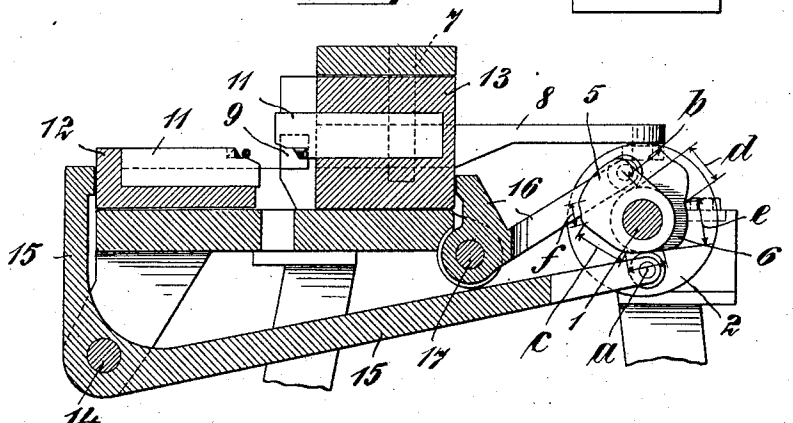


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 6.

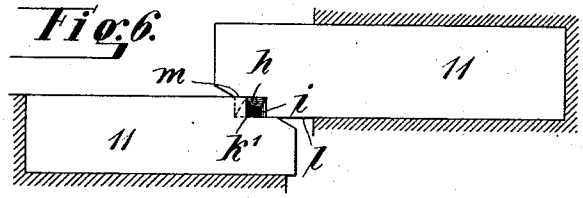


Fig. 7.

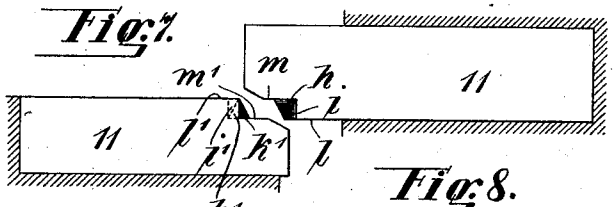


Fig. 8.

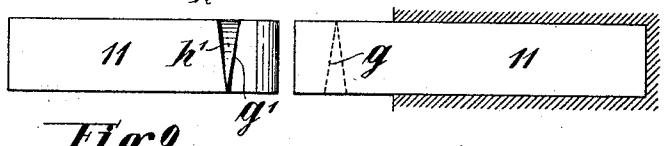


Fig. 9.

Fig. 10.

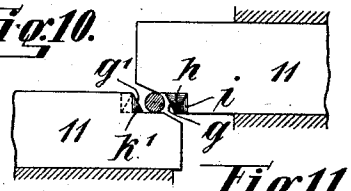


Fig. 12.

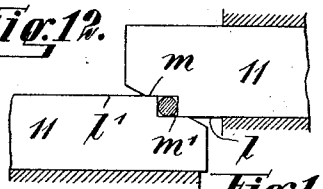


Fig. 11.

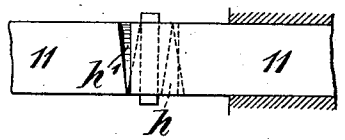


Fig. 13.

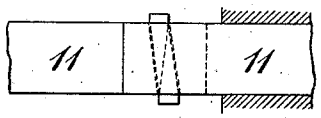


Fig. 14.

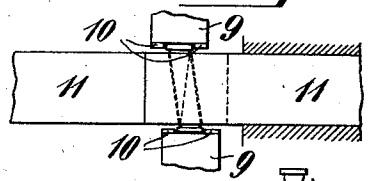
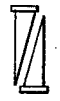


Fig. 15.

Fig. 16.



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UNITED STATES PATENT OFFICE.

JAKOB WIKSCHTRÖM, OF DUSSELDORF, GERMANY.

WIRE-NAIL-MAKING MACHINE.

1,011,545. Specification of Letters Patent. Patented Dec. 12, 1911.

Application filed November 13, 1907. Serial No. 401,921.

To all whom it may concern:

Be it known that I, JAKOB WIKSCHTRÖM, a citizen of the Kingdom of Prussia, German Empire, and resident of Dusseldorf, Germany, whose post-office address is Lindenstrasse 239, have invented certain new and useful Improvements in Wire-Nail-Making Machines, of which the following is a specification.

The subject of my invention is an improved machine for making two cut wire nails or tacks simultaneously. The nails are turned out without any waste of material and dies of peculiar shape are employed whereby both nails are also pointed and headed all in one operation.

One form of construction of my new machine is illustrated in the accompanying drawing.

Figure 1 is a plan of the machine, and Fig. 2 a section on the line A—A of Fig. 1. Figs. 3–5 show details to be hereinafter referred to. Fig. 6 is a side elevation of the dies in closed condition. Fig. 7 is a like view showing the dies open. Fig. 8 is a plan of the separated dies. Fig. 9 is a front elevation of the left hand die. Fig. 10 is a side elevation, and Fig. 11 a plan of the dies with inserted wire. Fig. 12 is a side elevation, and Fig. 13 a plan of the dies closed on the wire. Fig. 14 is a plan of the closed dies with head stamps in position. Fig. 15 is a plan of the opened dies with the finished nails between them. Fig. 16 is a side elevation of the nails themselves.

In the framing of the machine there is mounted a shaft 1, on which are fast and loose pulleys and a fly wheel. Between its bearings the shaft carries two disks 2, 3 each presenting a cam 4 on the outer side, which cams possess stepped faces as shown laid out in Fig. 5. The inner side of each of the disks 2, 3 presents a cam 5, 6 respectively.

8, 8 are two levers pivoted at 7, 7 to the machine framing. The longer arms of these levers carry rollers which bear on the outer side of the disks 2, 3 so that the levers can be oscillated by the cams 4. The shorter arms of the levers are connected to stamps 9, guided in the machine framing, and provided with small projections 10 (Figs. 1 and 14) for a purpose to be hereinafter described.

11 are dies, carried by slides 12, 13 also mounted in the framing and moving at right angles to the stamps 9.

15 is an elbow lever fulcrumed at 14 and having at one end a roller which bears on the cam 5, while the other end presses against the slide 12. A second lever 16 is fulcrumed at 17 to the framing. The one end of this lever lies in the plane of the cam 6, while the other end bears against the slide 13. On the shaft 1 there is also mounted a cam disk 18 and pivoted to the shaft end is a rod 19. The cam 18 operates the one end of a lever 21 fulcrumed at 20, the other end of said lever acting upon another lever 23 pivoted at 22, and which carries at one end a steel eye 24. At the level of the latter there is a stationary blade 25 provided in the framing. (Figs. 1 and 3.) To the rod 19 there is jointed a bent lever 26, which is located in front of the straightening rollers 27 for the wire and is furnished with a feeding device 28.

The operation of the machine is as follows:—The wire fed forward between the straightening and guide rollers 27 is seized by the feeder 28, and owing to the oscillating motion of the rod 19 is carried into the machine. After the wire has been fed forward, the part *a* of the cam 5 (Fig. 2) comes above the lever 15 and depresses it, whereby the other end of this lever is caused to force the slide 12 carrying the die toward the wire and the other die. Simultaneously the part *b* of the cam 6 (Fig. 2) comes below the lever 16 and thus causes motion of the slide 13 carrying the other die. Owing to this advance of the two dies toward each other, the end of the wire is jammed between them. Almost simultaneously herewith the cam 18 acts upon the lever 21. Hereby the steel eye 24 through which the wire passes is forced against the blade 25 whereby the wire is severed. As is seen from Fig. 11 the piece of wire cut off projects somewhat at each side of the dies. The rise *c* of the cam 5 (Fig. 2) now comes into operation and causes a further descent of the lever 15, and thus advances the slide 12 with the die in the direction of the stamp 9. The cam 6 at *d* (Fig. 2) is so shaped that the lever acting on the slide 13 can yield though the dies 11 during this retreat always remain in contact with the wire and hold it jammed between them. When the lever 16 arrives on the surface *e* the rear-

ward motion of the die which is in the slide 13 ceases. The cam 5, however, has at *f* a further rise, whereby the slide 12 with its die will press still more firmly against the now stationary die of the other slide 13. Owing to the cutting edges of the dies, the piece of wire jammed between the dies will be diagonally cut through and conically pressed by means of the projecting shoulders. Hereupon the cams 4 of the disks 2, 3 act upon the levers 8 whereby the stamps 9 are forced simultaneously against the dies 11 and the wire ends projecting from the dies are formed into two nail heads. (Fig. 14). After the application of this pressure the stamps 9 slacken owing to the flatter portion of the cam 4 (Fig. 5), the slides 12, 13 carrying the dies separate and the finished nails drop from the machine. In order that the nails may not remain hanging on the pressing shoulders of the dies, the edges of the stamps 9 may have small projections 10 as already stated, against which the head of the nails strike on separation of the dies, whereby the nails are caused more readily to drop out. Hereupon the stamps 9 return to their initial position and the procedure is repeated.

The shape of the dies and the manner of operation will be seen from Figs. 6–16, and their description is given hereinafter for the sake of completeness though they are described and claimed in my Patent No. 990,702, granted to me on April 25th, 1911. These dies are also of similar construction to those described in United States Letters Patent No. 804,786. But whereas the dies disclosed in the cited patent were of trapezoidal cross section, the new dies are of rectangular cross section. The new die presents a shoulder *g*, which on the one side is formed of two triangular surfaces *h* and *i*, whose apices are directed toward the same side, and by a triangular surface *k*, whose apex is directed in the opposite direction to those of the triangles *h*, *i*. The apices of the latter triangles lie on the edge *l*, the apex of the triangle *k* lies on the edge *m*. The second die is shaped symmetrically to the first and lies at an angle of 180 degrees to the same, in inverted position. When the dies are advanced toward each other, the shoulders *g*, g^1 come against each other and cut the wire and then press the two nails into the pyramidal recesses, which are presented owing to the peculiar shape of the dies. Three sides of these recesses are constituted by the triangular faces *h*, *i* and k^1. The vertical edges *l*, m^1 slide on each other and on closing of the dies the fourth side is thus formed, which, however, unlike the other three conical faces runs vertically. As will be seen from Fig. 14, when the stamps 9 come into action the dies 11 serve as matrices and in order that a sufficiently large face may be presented they are extended beyond the shoulders *g* (Figs. 6 and 12).

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

1. In a wire nail making machine, the combination with a pair of reciprocating nail pointing and cutting dies, of means to feed a wire between said dies, means to separate a blank from the wire fed between the dies, a pair of nail heading stamps located at one side of the line of feed of the wire one on each side of the wire and adapted to move toward each other to head the blank held between the dies simultaneously at both ends, means for forcing the dies together on the feeding line to seize a blank and for moving both dies with the blank from its line of feed laterally to position between the stamps and causing the dies to cut the blank to form the point portions of the nails, and means for moving the stamps toward the dies to head the nails after the point portions have been formed.

2. The combination with a pair of dies adapted to receive a blank to be headed, of a heading punch provided with terminal projections adapted to engage the head of the headed blank when the pressure of the punch on the dies is released and the latter are separated.

The foregoing specification signed at Dusseldorf this 26th day of October, 1907.

JAKOB WIKSCHTRÖM.

In presence of—
ADOLF BAYER,
ALEX. SCHWETTER,
WILHELM FLAYCHE.