

J. WIKSCHTRÖM.
NAIL CUTTING DIES.
APPLICATION FILED APR. 23, 1908.

990,792.

Patented Apr. 25, 1911.

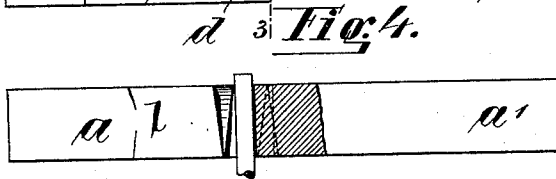
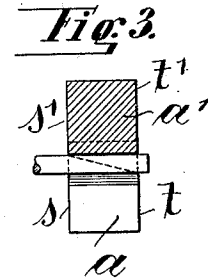
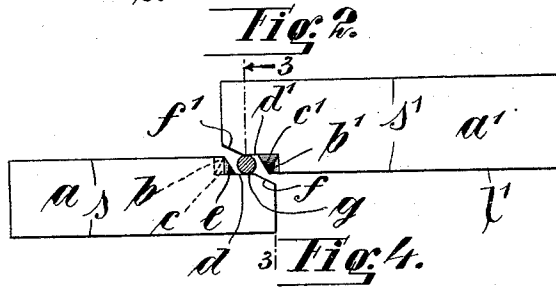
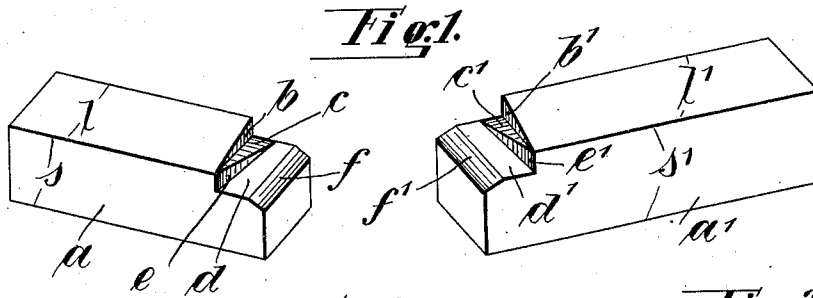


Fig. 5.

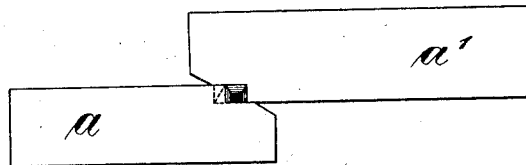
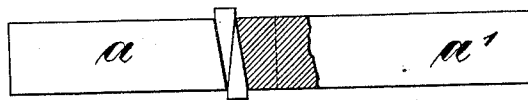


Fig. 6.



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NAIL-CUTTING DIES.

990,792.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Original application filed November 13, 1907, Serial No. 401,921. Divided and this application filed April 23, 1908. Serial No. 428,706.

To all whom it may concern:

Be it known that I, JAKOB WIKSCHTRÖM, a citizen of the German Empire, and a resident of Dusseldorf, Germany, have invented certain new and useful Improvements in Nail-Cutting Dies, of which the following is a specification.

My invention relates to improvements in wire nail cutting dies, and more particularly to that class of dies, in which a pair of dies coöperate to separate a blank passed between the same so as to produce two pointed nails or tacks by a single operation of the dies. The pair of dies may be said to be a modification of the dies shown in my previous patent, No. 804,786, granted to me November 14, 1905, and they differ from the construction shown in the specification of said previous patent by being of rectangular cross-section instead of having a trapezoidal cross-section.

My invention will be better understood from the following specification and the drawing, in which I have illustrated an example of the invention.

In said drawing Figure 1, is a perspective view of the dies, the one at the left being described hereinafter as the lower die, while the one at the right is described as the upper die, Fig. 2, is a side view of the coöperating dies with a blank interposed between the same, and showing the dies in the position before cutting, Fig. 3, is a vertical cross-section taken on the line 3—3 of Fig. 2 showing the upper die partly in section, Fig. 4, is a plan of Fig. 2 partly in section, Fig. 5, is a plan showing the dies in the closed position, and Fig. 6, is a side view of Fig. 5, showing the upper die partly in section, and illustrating the form and relative position of the cut blank portion.

The same letters of reference have been used in all the views to indicate corresponding parts.

As will appear from Fig. 1, the upper and lower die forming blocks *a* and *a'* have the same form, the cutting parts, however, being arranged symmetrically on both blocks. The following description of one of the dies, which will be termed the lower die, will therefore equally apply to the other, or upper die.

Now, as shown in the figures, the block *a* is made of generally rectangular form and of rectangular cross-section. Its side faces

s and *t* are parallel to each other, and its upper longitudinal face *l* is perpendicular to the said side faces. At one of its corners, a die section is formed, which consists of two notches in step relation, each of which notches is adapted to coöperate with another die section provided on the upper block *a'* to form a cavity, or complete die, for a cut blank section. The upper notch is formed of two triangular surfaces *b* and *c* having their apices, as appears in Fig. 1, located on the upper and forward edge of the block *a*. The surface *b* is disposed perpendicularly to the upper or longitudinal face *l* of the block *a*, and, preferably, at an angle to a line perpendicular to the side faces *s* and *t* of the block, which angle is equal to one half the angle at the apex of the triangle *c*. The plane of the latter is parallel to the longitudinal axis of the block *a*, and it extends, with its apex coinciding with that of the triangle *b*, along the lower side of the triangle *b*. It will readily appear, that, in the construction shown, the surfaces *b* and *c* are disposed at a right angle to each other. The second notch is provided by a triangle *e* disposed substantially perpendicularly to the upper face of the block and extending downward from the free side of the triangle *c*, and by a plane *d* parallel to the upper face of the die, and extending from the lower side of the triangle *e* to the front face of the block. The apex of the triangle *e* is located on the rear face of the block *a*. At its forward end, the block *a* is formed with a chamfer *f*. As stated above, the upper block *a'* is made the same as the lower block *a*, except that its die portion is made symmetrical to the die portion of the block *a*. The corresponding surfaces have been indicated by the letters *b'*, *c'*, *d'*, *e'*, and *f'*.

In practical use, the dies coöperate as illustrated in Figs. 2-6. The upper face of the block *a* and the surface *d'*, and the lower face of the block *a'* and the plane *d* are in line with each other. Now, a blank *g* is placed between the planes *d* and *d'* facing each other, and the movable die, for instance *a'*, is moved toward the stationary die, and in the direction of its longitudinal axis, that is to say, its axis which is parallel to the side faces *s'* and *t'* and the longitudinal face *l'*. The cutting edges provided respectively by the triangles *c* and *e*, and *c'* and *e'* extend parallel to each other and

cross-wise through the space inclosing the blank *g*. They will therefore produce a diagonal cut through said blank, and the sections of the latter will be forced into cavities provided in the closed dies and formed, respectively, by the planes *b c*, *d'*, *e'*, and *b'*, *c'*, *d*, *e*, as appears from Fig. 5, which cavities are located one behind the other.

In the further manufacture of the tacks, a head may be formed thereon while within the die, as fully explained in my previous application, Ser. Nr. 401,921 filed November 13, 1907, whereupon the tacks are removed from the die by moving the movable die in its initial position shown in Fig. 2.

From an inspection of the figures it will readily appear, that the blanks cut by means of my improved dies project with their ends perpendicularly to the side faces *s* and *t* of the dies. The reason for this is, that in the operation of the dies the surfaces *d* and *d'* between which the wire is being fed are parallel to each other and perpendicular to the side faces *s*, *s'* and *t*, *t'*, and the cutting edges formed by the surfaces *c*, *e*, and *c'*, *e'* respectively extend transversely from the surface *d* to the surface *d'*, and therefore from one side of the wire to the opposite one, as is best shown in Fig. 3, in which the transverse cutting edges are indicated in dotted lines. On the other hand, the surface *b* (and *b'*) is disposed at an angle to a line perpendicular to the side faces *s* and *t* (and *s'* and *t'*), which angle is one half the angle at the apex of the triangle *c* (or *c'*). Therefore, as appears best from Figs. 5 and 6, the end of the wire which by the mere cutting operation would be flat is compressed into a point uniformly from both sides, so that the perpendicular position of the projecting end of the blank is not interfered with by the pressing operation. Therefore the projecting ends of the blanks can be headed without first bending the same into a position perpendicular to the side faces. Such bending operation which has been necessary in dies heretofore in use can not conveniently be performed where the projecting end of the blank is a very short one, that is to say in such blanks in which the head is formed directly over the side faces of the dies. For cutting blanks in the manner indicated the surfaces *d* and *d'* must be parallel to the direction of the feed of the wire, and perpendicular to the side faces *s* and *t*, and accordingly the longitudinal faces *l* and *l'* which cooperate with the surfaces *d* and *d'* in cutting and pointing the blanks must be perpendicular to the side faces *s* and *s'* and parallel to the surfaces *d* and *d'*. The surfaces *c* and *c'* which are disposed at an angle to the longitudinal faces *l* and *l'* respectively are parallel to the longitudinal axis of the dies, and they form with the surfaces *e* and *e'* cutting edges which extend transversely

from the longitudinal faces *l* and *l'* to the surfaces *d* and *d'* respectively.

I claim:

1. A pair of nail pointing and cutting dies, each having parallel side faces and a longitudinal face perpendicular thereto and each provided with two transverse notches in step relation symmetrical in both dies; one of the notches in each of the dies having a bounding surface which extends substantially perpendicularly from the said longitudinal face of the die and a bounding surface which is substantially parallel to the longitudinal axis of the die and at an angle to the longitudinal face of the die, the transverse border lines of both bounding surfaces converging toward the same side of the die; the second one of said notches in each of the dies being formed by a surface extending substantially perpendicularly from said surface at an angle and of a surface which is parallel to said longitudinal face of the die, one of the surfaces on one notch intersecting one of the surfaces of the other notch to form a transverse cutting edge therewith.

2. A pair of nail pointing and cutting dies, each having parallel side faces and a longitudinal face perpendicular thereto and each provided with two transverse notches in step relation symmetrical in both dies; one of the notches in each of the dies having a triangular bounding surface which extends substantially perpendicularly from said longitudinal face of the die and a triangular bounding surface which is substantially parallel to the longitudinal axis of the die and at an angle to the longitudinal face of the die, the transverse border lines of said triangular surfaces converging toward the same side of the die; the second one of said notches in each of the dies being formed by a triangular surface extending substantially perpendicularly from said surface at an angle and of a surface which is parallel to said longitudinal face of the die, one of the surfaces of one notch intersecting one of the surfaces of the other notch to form a transverse cutting edge therewith.

3. A pair of nail pointing and cutting dies, each having parallel side faces and a longitudinal face perpendicular thereto and each provided with two transverse notches in step relation symmetrical in both dies; one of the notches in each of the dies having a bounding surface which extends substantially perpendicularly from the said longitudinal face of the die and at an angle to a line perpendicular to said side faces of the die and a bounding surface which is substantially parallel to the longitudinal axis of the die and at an angle to the longitudinal face of the die, the transverse border lines of both bounding surfaces converging toward the same side of the die; the second one of said notches in each of the dies being formed by

a surface extending substantially perpendicularly from said surface at an angle and of a surface which is parallel to said longitudinal face of the die, one of the surfaces of one notch intersecting one of the surfaces of the other notch to form a transverse cutting edge therewith.

4. A pair of nail pointing and cutting dies, each having parallel side faces and a longitudinal face perpendicular thereto and each provided with two transverse notches in step relation symmetrical in both dies; one of the notches in each of the dies having a triangular bounding surface which extends substantially perpendicularly from said longitudinal face of the die and a bounding surface in the form of an isosceles triangle which is substantially parallel to the longitudinal axis of the die and at an angle to the longitu-

dinal face of the die, the transverse border lines of said triangular surfaces converging toward the same side face of the die; the second one of said notches in each of the dies being formed by a triangular surface extending substantially perpendicularly from said surface at an angle and of a surface which is parallel to said longitudinal face of the die, one of the surfaces of one notch intersecting one of the surfaces of the other notch to form a transverse cutting edge therewith.

The foregoing specification signed at Düsseldorf this tenth day of April, 1908.

JAKOB WIKSCHTRÖM.

In presence of—

PETER LIEBER,
WILHELM FLASCHE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
