

T. V. HANDLOSER & J. C. DILWORTH.
MACHINE FOR POINTING TIE PLATE CLAWS.

APPLICATION FILED AUG. 3, 1910.

Patented Mar. 5, 1912.

3 SHEETS—SHEET 1.

1,019,634.

Fig. 1.

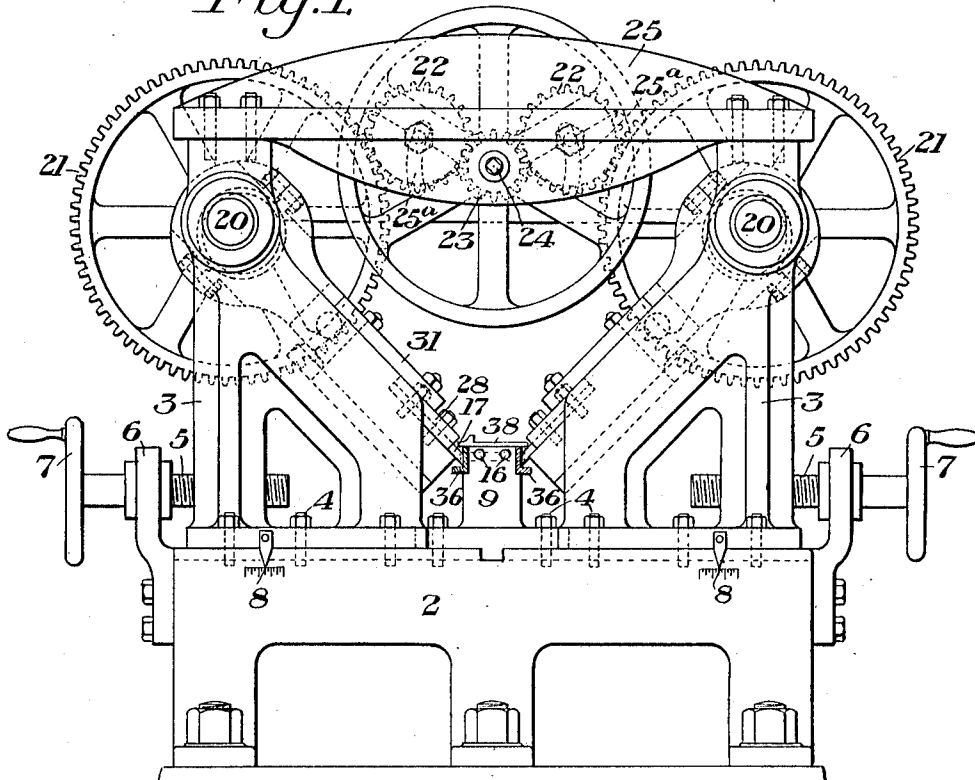
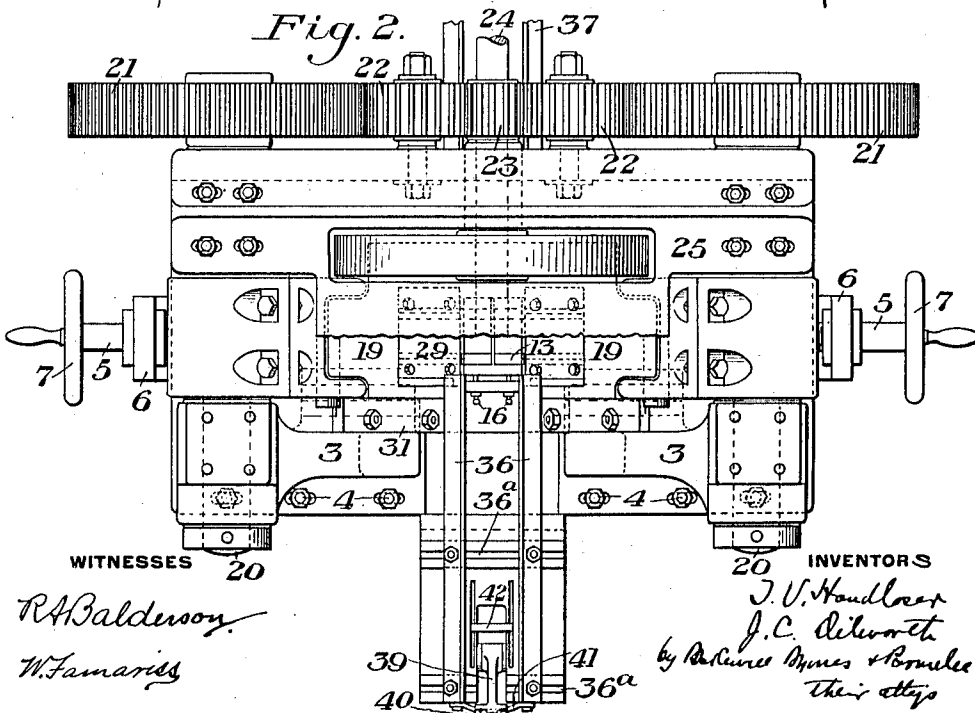


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

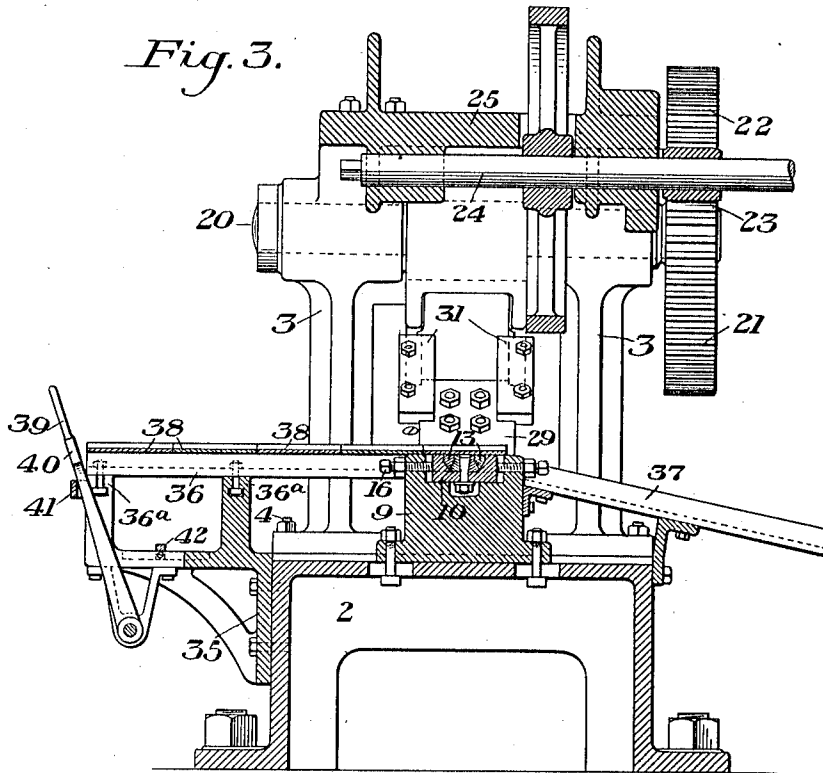


Fig. 4.

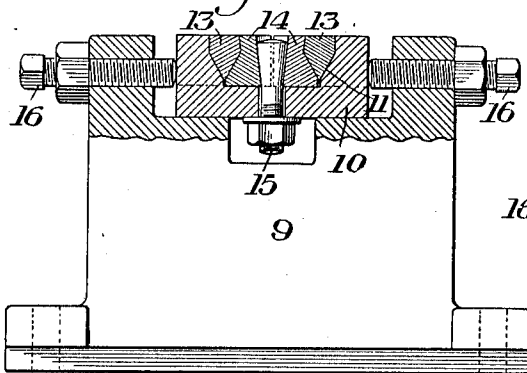


Fig. 5.

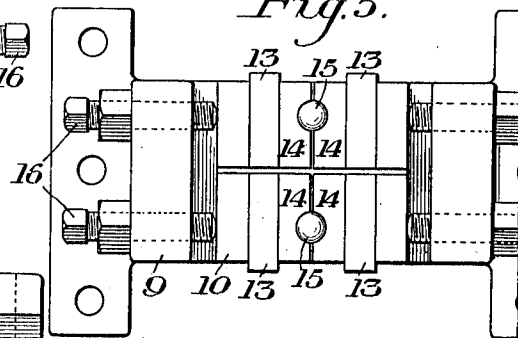
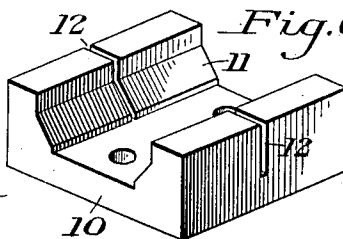


Fig. 6.



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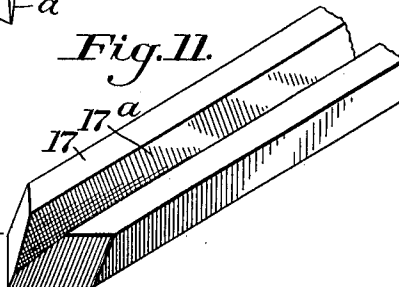
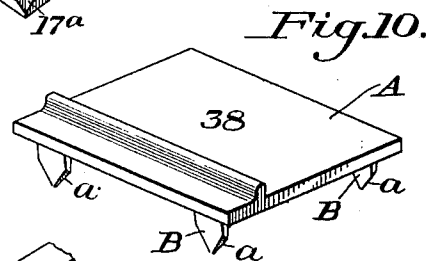
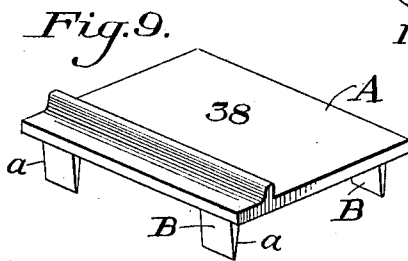
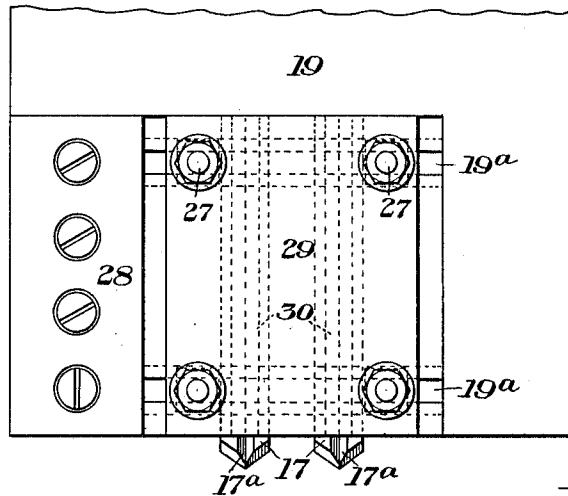
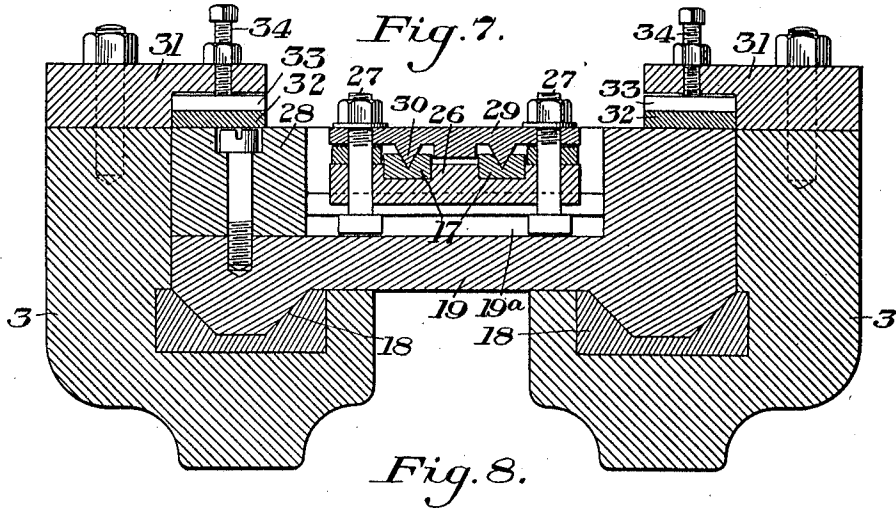
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UNITED STATES PATENT OFFICE.

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MACHINE FOR POINTING TIE-PLATE CLAWS.

1,019,634.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed August 3, 1910. Serial No. 575,363.

To all whom it may concern:

Be it known that we, THOMAS V. HAND-
LOSER and JOHN C. DILWORTH, both residents
of Pittsburgh, in the county of Allegheny
and State of Pennsylvania, have invented a
new and useful Machine for Pointing Tie-
Plate Claws, of which the following is a
specification, reference being had to the ac-
companying drawings, in which—

Figure 1 is a front elevation of a pointing
machine embodying our invention; Fig. 2 is
a top plan view partly broken away; Fig.
3 is a central longitudinal section of the ma-
chine; Figs. 4, 5 and 6 are detail views of the
die-block and die-holders; Fig. 7 is a cross
section of one of the plungers and guides;
Fig. 8 is a partial plan view, showing the
lower portion of the plunger with its die-
holders and dies; Fig. 9 is a perspective
view of the tie-plate before pointing the
claws; Fig. 10 is a similar view after point-
ing; and Fig. 11 is a perspective view of one
of the female dies.

Our invention relates to the pointing of
the tie-plate claws, and is designed to pro-
vide an improved apparatus by which the
claws on both sides of the plate may be si-
multaneously pointed.

Heretofore the claws on one side of the
plate have been pointed at one operation and
the claws on the other side of the plate then
pointed in a succeeding operation. Further-
more, the plates were laid in place for point-
ing by hand and held by hand, and this op-
eration was slow and liable to injure the
hands of the workmen.

In our improved machine, we preferably
feed the plates in a row, though our broad
claims are not restricted thereto, and as the
dies act simultaneously on both sets of claws,
the plate need not be held by hand, but is
held in place by the opposing action of the
sets of dies.

In the drawings, in which we show a pre-
ferred form of apparatus for carrying out
our invention, 2 represents the base of the
machine. To the top of this base at oppo-
site sides are adjustably bolted the frames
3, 3, which may be shifted toward or from
each other and then clamped in place, to
provide for operating upon different size
plates, or plates having claws arranged in
different locations. As shown, the securing-
bolts 4 extend through slots in the bases of

the frames 3, and these frames may be ad-
justed by screw-shafts 5, engaging screw-
threaded holes or bushings in the frames,
and having retaining collars on either side of
the brackets 6, 6. These shafts may have
suitable hand-wheels 7. We also preferably
provide pointer and scale mechanism,
shown at 8, 8, to provide for easy and rapid
adjustment of the frames to suit different
plates.

Centrally of the base, a die-block 9 is
bolted adjustably thereto. The top portion
of this die-block is recessed to receive a die-
holder 10, shown in Fig. 6. This die-holder
is also longitudinally recessed, the inner
faces of the side walls being inclined, as
shown at 11. These walls are also prefer-
ably provided with narrow middle slots 12,
in line with each other. The male dies 13
are arranged in two pairs in this die-holder,
with their ends projecting beyond the die-
holder; and they are secured in place pref-
erably by the split key-blocks 14 between
each pair. These expanding key-blocks fit
the inner faces of the male dies, and are
expanded by wedge-shaped keys or key-
bolts 15, having their nuts below the die-
holder and within a recess in the die-block.

The dies may be adjusted by bolts or set
screws 16, extending through the die-block
and engaging the ends of the die-holder.
The male dies are tapered in cross section
toward their lower faces so as to enter the
recesses 17^a of the female dies 17, shown in
Fig. 11, and also to conform to the contour
of the pointed claw on the tie-plate.

Each of the adjustable angle frames 3
contains guideways 18 for a reciprocating
plunger 19. Each plunger is connected to
an eccentric on a shaft 20, and each shaft 20
carries a gear-wheel 21, intermeshing with
an idler wheel 22, which in turn, intermeshes
with the driving pinion 23 on the main shaft
24, through which power enters. The bear-
ings for the idlers 22 and shaft 24 are in a
top frame 25, which is adjustably bolted to
the angle frames 3, to allow their adjust-
ment. For this same purpose, the bearings
of the idlers 22 are mounted in curved slots
25^a in the frame 25, these slots being on the
arc of a circle with the axis of shaft 24 as
their center. The idlers can thus be adjusted
to the proper mesh within certain limits of
adjustment of the angle frame.

The lower end portion of each plunger is recessed to receive a die-holder 26, this recess being extended out to one side face of the plunger. The bottom of the recess is provided with transverse undercut grooves 19^a, to receive the heads of the securing bolts 27 for the die holder, and when this is slid into place, the block 28 is screwed to the side of the plunger. The die-holder is longitudinally recessed to receive the two female dies 17, which are both clamped and centered by the clamping-plate 29. This plate is provided with tapered ribs 30, which enter portions of the recesses 17^a of the female dies 17, to center them, while screwing down the nuts on the bolts 27 forces down the clamp to secure these dies.

The angle-frame is provided with suitable inwardly projecting longitudinal guide plates 31, between which and the plunger are arranged shims 32. These shims are preferably in the form of long bars having bosses 33, engaged by the hold-down bolts 34, and provided for taking up the wear. The guides 18 are also preferably removable so as to be replaced when worn. They are preferably in the form of brass shoes or bushings.

The operator may feed the plates to the machine by laying one after the other on the male die holder. We prefer, however, to provide a feed system, such as shown in Figs. 2 and 3. In the form shown, a bracket 35 is secured to the front end of the base frame, this bracket projecting upwardly and having adjustably secured to it two angle-bars 36, which may be adjusted toward and from each other by means of guideways 36^a. The tops of these angle-bars are flush with the top of the die-holder. At the rear of the machine is an ordinary gravity feed-out device 37, in the nature of a skid formed of angle-bars, upon which the plates as they are pushed forward fall one after the other and slide down. The tie-plates 38 are laid on the in-feed bar 36 in a row, with their ends abutting against each other. The plates are shoved forward intermittently by the hand-lever 39, this having a broad flattened portion 40, to engage the rearmost plate. Instead of feeding the plates forward in a row, as shown, there may be but one plate between the lever 39 and the plate that is being operated on. The movement of the lever in both directions is limited by stops 41 and 42, of which the stop 42 is adjustable to provide for different lengths of plates.

In the operation of the machine, the operator at each stroke of the machine pushes the lever forward to bring the inmost plate into pointing position, and on retracting the lever, lays another plate next to the lever and in the rear of the row. At each stroke of the machine, the four female dies coast

with the four male dies to simultaneously point the four claws, two in each row. At the same time, these coacting dies give a beveled cut which forms a knife edge *a* at one face of each claw, and on both edges of this face; this results from the inclination of the female die to the male die, all parts of the die coming into action at the same time, the end of each female die being beveled off, as shown in Fig. 11.

In Figs. 9 and 10 A represents the tie plate body and B the claws.

The advantages of our invention will be apparent to those skilled in the art.

The cutting of all the claws is carried out at one operation, and this not only reduces the number of operations, but causes one set of dies to oppose the other in such a way as to render unnecessary any holding of the plate in place during the pointing operation. The machine is adjustable for different sizes of plates and different locations of the claws; the top plate is especially formed for this purpose to allow the adjustment, while keeping the toothed wheels in mesh. As the female dies operate at an angle to the vertical, the plates may lie horizontally, thus allowing for easy feeding. The die-holding systems are simple, not liable to get out of order, and provide for adjustments. The system for feeding in the plates is also simple, under entire control of the operator, and may be rapidly operated in time with the stroke of the machine. The feed-out is automatic, whereas in previous machines each plate was laid in by hand at an angle and taken out by hand, for each pointing operation, there being two pointing operations for each plate.

Many changes may be made in the form and arrangement of the machine and its parts; the feed-system may or may not be used; and many other changes may be made without departing from our invention as defined by the appended claims.

We claim:

1. In a machine for pointing tie plate claws, a support for the plate arranged to resist movement of the cutters and provided with male dies, female dies, and mechanism arranged to move the female dies through a path at an oblique angle to the claws and transversely of the tie plate body, substantially as described.

2. In a machine for pointing tie plate claws, a backing support for the plate arranged to receive the claws projecting at substantially right angles from the plate and having projecting male dies, recessed cutters coacting with the male dies, and mechanism for moving said recessed cutters at an oblique angle to the claws and transversely of and away from the plate, substantially as described.

3. In a machine for pointing tie plate claws, a tie plate support, a pair of recipro-

cating plungers, mechanism for moving the plungers at an oblique angle to the claws and transversely of the plate and its support, and mechanism for adjusting the plungers to accommodate different lengths of plates, substantially as described.

4. In a machine for pointing tie plate claws, a tie plate support, a pair of plungers having cutting mechanism arranged to point the claws, a pair of gear wheels arranged to actuate the plungers, connecting mechanisms for the gear wheels, and mechanism for adjusting the plungers and their gearing connections to accommodate different lengths of plates, substantially as described.

5. In a pointing machine for tie plate claws, a die block, a die holder in said block, adjustable male dies secured in the die holder, plungers carrying female dies arranged to coact with the male dies in cutting the claws at opposite sides of the plate and mechanism for simultaneously actuating the plungers, substantially as described.

6. In a machine for pointing tie plate claws, a supporting tie block for the plate arranged to accommodate the right-angled claws, an adjustable die holder in said block, bevel dies adjustably secured in the holder, sets of movable cutters cooperating with said dies, and mechanism for moving the cutters simultaneously at an oblique angle to the claws and transversely of the plate to simultaneously point the sets of claws, substantially as described.

7. In a pointing machine for tie plate claws, a pair of plunger-supporting frames, adjustable toward and from each other, and connections arranged to drive the plunger in different positions of the frames, substantially as described.

8. In a pointing machine for tie plate claws, plunger-carrying frames adjustable

toward and from each other, and a top plate adjustably secured to the frames, and having adjustable gear connections with the plungers, substantially as described.

9. In a machine for pointing tie plate claws, a support for the tie plate having a plurality of projecting dies at opposite sides thereof, reciprocating elements having female dies, centering and clamping devices having projections entering the recesses of said female dies, and mechanism for moving the female dies simultaneously at an oblique angle to the claws and transversely of the plate, substantially as described.

10. In a machine for pointing tie plate claws, a die holder arranged to support the tie plate in a substantially horizontal position while accommodating the right-angled claws, a plurality of movable elements carrying dies, and mechanism for simultaneously moving said elements at an oblique angle to the claws and transversely of the plate to simultaneously point the tie plate claws on opposite sides, substantially as described.

11. In a machine for pointing tie plate claws, a support having two sets of stationary dies projecting from opposite sides thereof, sets of movable dies at opposite sides of the support, and mechanism for simultaneously moving the movable dies at an oblique angle to the claws and transversely of the plate in the direction of the support to point the claws at both sides of the plate, substantially as described.

In testimony whereof, we have hereunto set our hands.

THOS. V. HANDLOSER.
JOHN C. DILWORTH.

Witnesses:

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H. M. CORWIN.