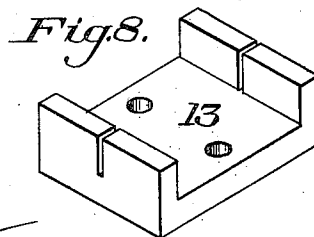
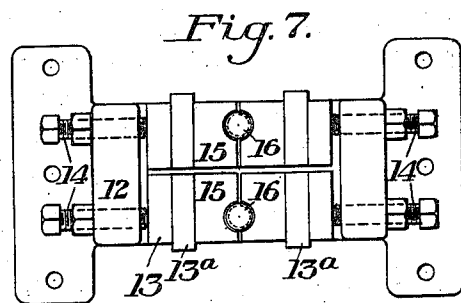
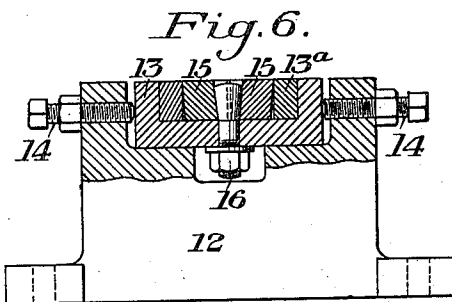
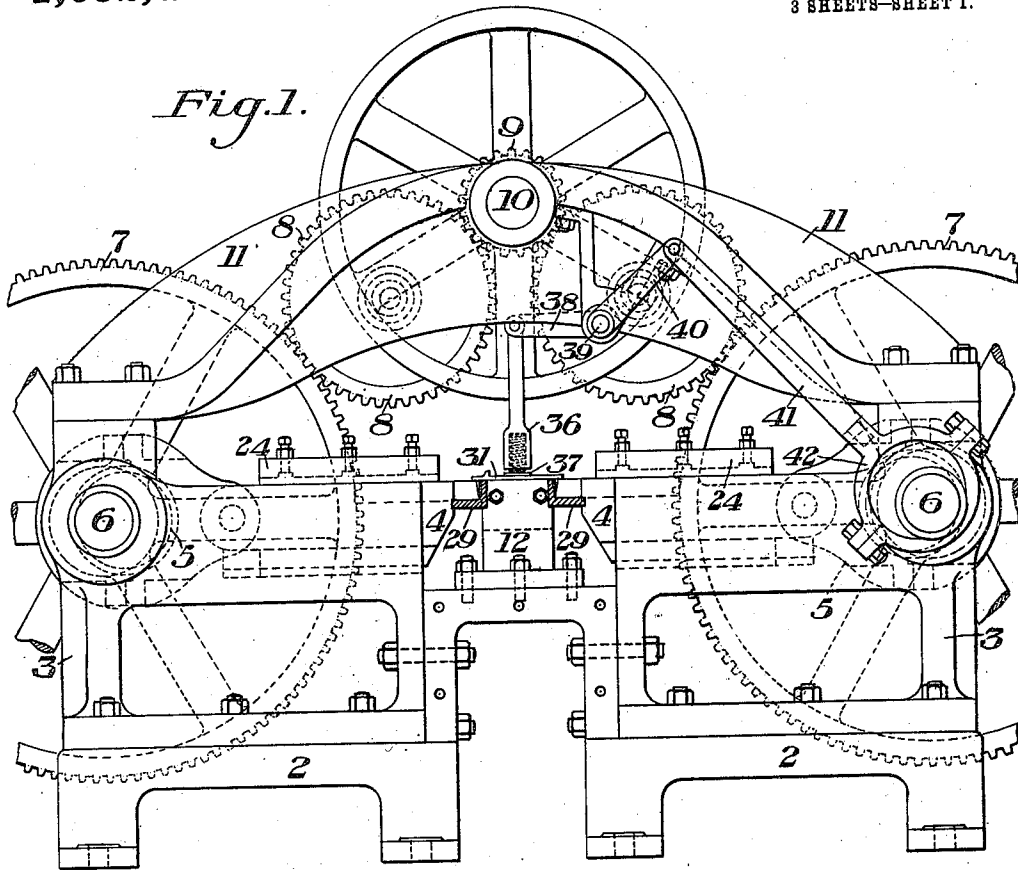


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MACHINE FOR SLOTTING TIE PLATE FLANGES.
APPLICATION FILED AUG. 3, 1910.

1,052,415.

Patented Feb. 4, 1913.

3 SHEETS—SHEET 1.



WITNESSES

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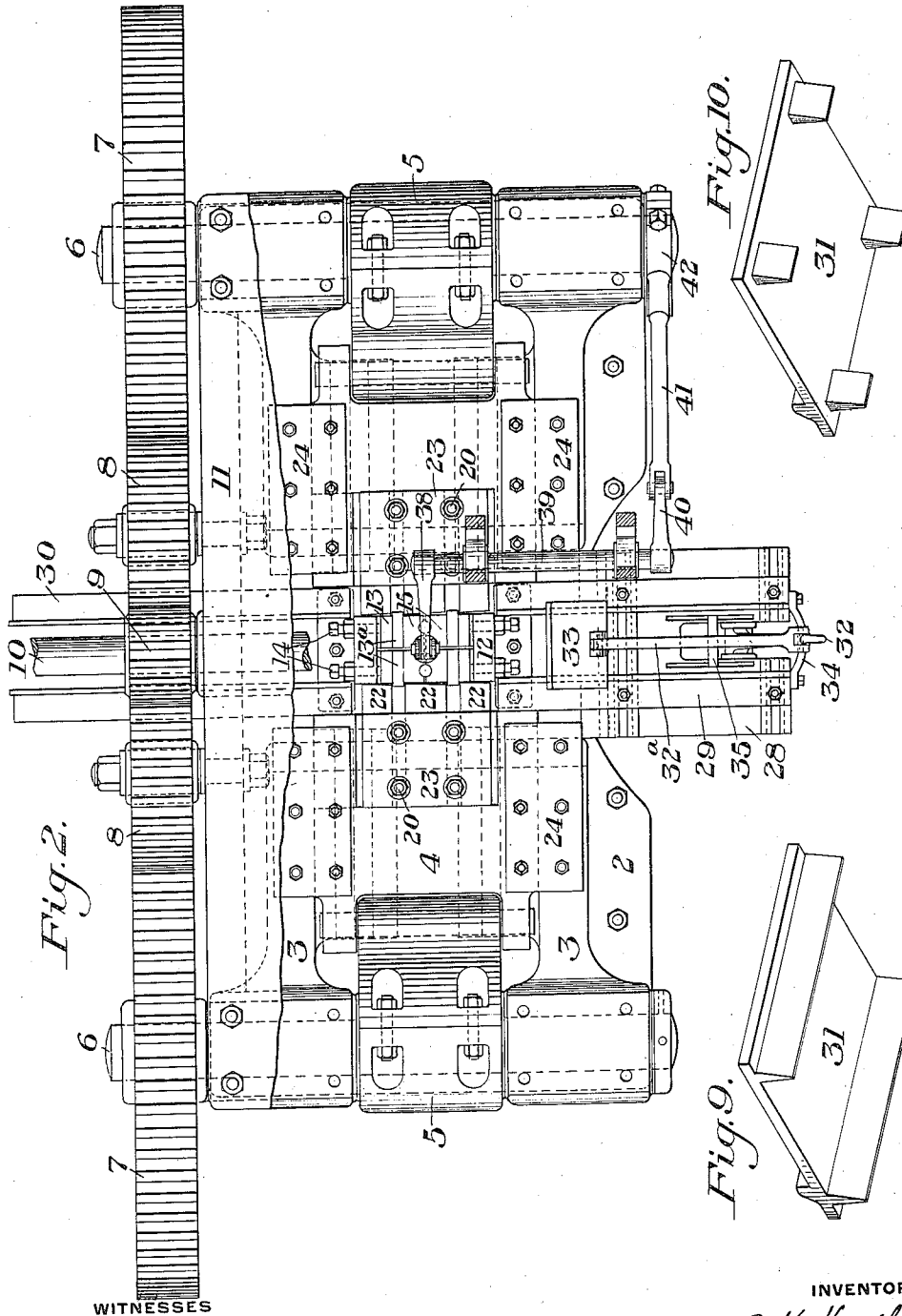
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Fig. 3

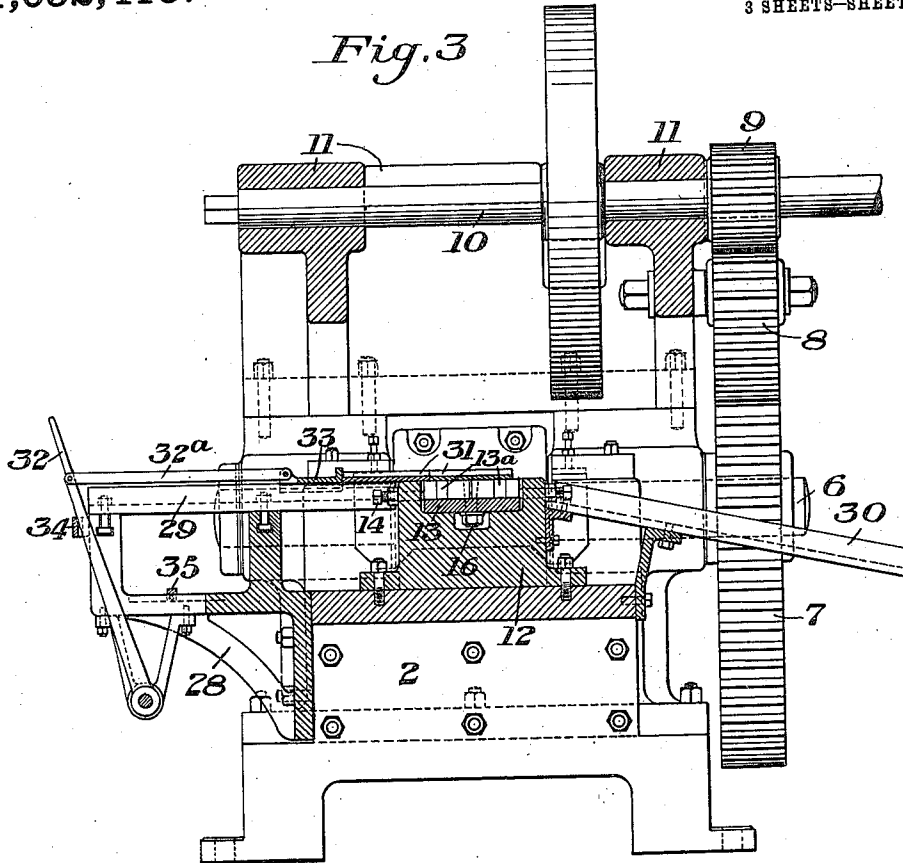


Fig. 4.

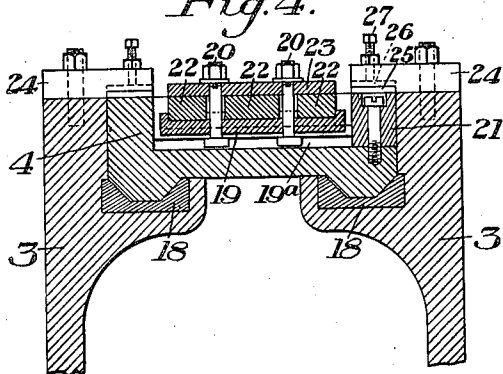
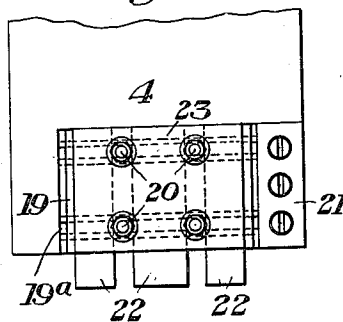


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR SLOTTING TIE-PLATE FLANGES.

1,052,415.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed August 3, 1910. Serial No. 575,362.

To all whom it may concern:

Be it known that we, THOMAS V. HAND-
LOSER and JOHN C. DILWORTH, both resi-
dents of Pittsburgh, Allegheny county,
State of Pennsylvania, have invented a new
and useful Machine for Slotting Tie-Plate
Flanges, of which the following is a full,
clear, and exact description, reference be-
ing had to the accompanying drawings,
forming part of this specification, in
which—

Figure 1 is a front elevation showing a
preferred form of machine, constructed in
accordance with our invention; Fig. 2 is a
top plan view with the top plate partly
broken away; Fig. 3 is a longitudinal cen-
tral section; Fig. 4 is a cross section of the
side frame and plunger; Fig. 5 is a detail
plan view showing the attachment of the
dies to the plunger; Figs. 6, 7 and 8 are
detail views of the die-block and holders;
Fig. 9 is a perspective view of the tie-plate
before slotting the flanges; and Fig. 10 is
a similar view after slotting.

Our invention relates to the slotting of
tie-plate flanges. These tie-plates are rolled
with continuous flanges, as shown in Fig.
9, and these flanges are slotted to form rec-
tangular claws, as shown in Fig. 10, and the
claws are then preferably pointed. In the
slotting of these continuous flanges to form
the claws, each flange has heretofore been
slotted separately, thus requiring two slot-
ting operations for each plate. Further-
more, the plate was not supported in a hori-
zontal position, as the slotting dies acted
vertically.

In our machine, the flanges are both
slotted simultaneously, thus doing away
with one operation, and the plate lies hori-
zontally, so that the row of plates may be
easily and rapidly fed to the machine, the
intermittent feeding being timed according
to the stroke of the machine.

In the drawings, in which we show a
preferred form of apparatus for carrying
out our invention, 2 represents the base of
the machine having bolted at opposite sides
thereof the side frames 3, 3, which carry
the plungers 4, 4. These plungers are actu-
ated from eccentrics 5, 5, mounted on shafts

6, 6, these shafts having toothed wheels 7, 7,
intermeshing with idler gears 8, 8. The
gears 8, 8, intermesh with their driving
pinion 9, on shaft 10, which is the main
shaft through which the power enters. The
bearings for the shaft 10 and the idlers are
mounted in a top frame 11.

Centrally secured to the base is a die-
block 12, which is recessed to receive a chan-
nel-shaped die holder 13, which is adjust-
ably secured to the die holder by screw
bolts 14, extending through the die block.

13^a designates the four stationary dies,
which are secured in two pairs within the
die holder, and are clamped therein by the
split key blocks 15, which are slightly
shorter than the dies to provide space for
the material removed from the flanges of
the tie plate. These keys are provided with
tapered recesses to receive the wedge-shaped
key bolts 16, the lower ends of which are
provided with nuts which engage the under
face of the die holder 13^a and lie within a
recess in the die block.

The angle frames are provided with suit-
able guide-ways for the plungers 4, which
plungers are guided in shoes or bushings
18, which are removable and replaceable
when worn. The lower end portion of each
plunger is recessed to receive a die-holder
19, the recess for this holder being extended
out to one side face of the plunger. The
bottom of the recess is provided with under-
cut grooves 19^a, to receive the heads of the
securing bolts 20, for the die-holder and
when this die-holder is slid into place, the
block 21 is screwed to the side of the plun-
ger. The die-holder is longitudinally rec-
cessed to receive the three dies 22, which are
spaced from each other a distance equal to
or slightly greater than the width of the
dies 13^a, and are clamped in their adjust-
able position by the clamping plate 23. The
angle frame is provided with inwardly pro-
jecting longitudinal shoes or plates 24, be-
tween which and the plunger are arranged
shims 25. These shims are preferably in
the form of long bars having bosses 26,
engaged by the hold-down bolts 27 and pro-
vide for taking up the wear of the plunger.

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 28 is secured to the central portion of the front end of the base frame, this bracket projecting upwardly and having adjustably secured to it two angle-bars 29, which may be adjusted toward and from each other. 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 30 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 31 are preferably laid on the in-feed bar 29 with their edges abutting against or adjacent to each other. The plates are shoved forward intermittently by the hand-lever 32, having a link 32^a, to which is secured a guided pusher 33, to engage the rearmost plate. The movement of the lever in both directions is limited by stops 34 and 35, of which the stop 35 is adjustable to provide for different lengths of plates.

Each plate when in slotting position is held down by a vertically movable holder 36, which is preferably provided with a spring shoe 37, to allow for variations in the plates and impart a yielding pressure. This hold-down rod is pivoted to a lever 38, mounted on rock-shaft 39, carried by the top frame 11, this shaft being rocked by a lever 40, pivoted to pitmen 41, connected with another eccentric 42 on the shaft 6. At each stroke of the machine, this hold-down is forced downwardly to engage the plate just prior to the die-slotting action.

In the operation of the machine, the operator at each stroke of the machine pushes the feed lever forward to bring the inmost plate into position and on retracting the lever, lays another plate next to the pusher 33 and in front of the die-block. At each stroke of the machine, the six movable dies 22 coact with the four stationary dies 13^a to slot the flanges and cut away both the outer and center portions thereof, forming four separated claws, two in each row.

The advantages of our invention will be apparent to those skilled in the art. The slotting of the claws is carried out at one operation, and the action of one plunger opposes that of the other, so that there is no undue strain on the stationary dies as the pressure from one set of movable dies is transmitted to the other movable die through the body of the tie plate, which permits us to remove a greater amount of metal with the movable dies than is backed up by the stationary dies without providing any supplemental devices for preventing the stationary dies from removing the portions of the flanges adjacent thereto. The machine

is adjustable for different sizes of plates and different locations of the claws. The die-holding systems are simple, not liable to get out of order, and are arranged to permit the dies to be adjusted with relation to each other. The system of feeding the plates is simple, under entire control of the operator, and may be rapidly operated in time with the stroke of the machine. The feed-out of the plates is automatic.

Many changes may be made in the form and arrangement of the parts; the feed system may or may not be used; and many other changes may be made without departing from our invention.

We claim:

1. A tie plate slotting machine having a central tie plate support arranged to receive a tie plate having flanges at both ends thereof, stationary dies on said support for engaging both flanges on the tie plate, oppositely moving dies coacting with the stationary dies for removing a portion of said flanges, and mechanism for moving said movable dies simultaneously so that they will resist each other through the body of the tie plate and thereby remove the material adjacent to the movable dies without affecting the material adjacent to the stationary dies; substantially as described.

2. In a tie plate slotting machine, a support having sets of projecting dies with spaces to receive the right-angled projecting flanges of the plate body, feeding mechanism also arranged to accommodate said flanges and feed the plates successively into slotting position on the support, and oppositely acting sets of dies arranged to simultaneously slot the flanges at opposite sides of the plate on the support, substantially as described.

3. In a tie-plate slotting machine, a die block, an adjustable die holder in said block, and slotting dies adjustably secured in said holder by a clamp, the clamp acting to wedge the parts together to form a substantially solid block; substantially as described.

4. In a tie plate slotting machine, a die block, a die holder in said block, adjustable dies secured in the die holder, and plungers carrying dies movable parallel to the plate and at right angles to the flanges of the plate to coact with the stationary dies in simultaneously slotting the flanges at opposite sides, substantially as described.

5. A tie plate slotting machine, having a central tie plate support arranged to receive a tie plate having flanges at both ends thereof, stationary dies on said support for engaging both flanges on the tie plate, oppositely moving dies co-acting with the stationary dies for removing a portion of said flanges, actuating mechanism for moving said movable dies simultaneously so that they will resist each other through the body of the tie plate and thereby remove the ma-

terial adjacent to the removable dies without
affecting the material adjacent to the sta-
tionary dies, and a power actuated holding
device for holding the tie plate on the cen-
5 tral plate support during the movement to-
ward each other of the moving dies; sub-
stantially 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.