

(No Model.)

2 Sheets—Sheet 1.

J. H. ALKER.
MANUFACTURE OF GATE HOOKS.

No. 469,621.

Patented Feb. 23, 1892.

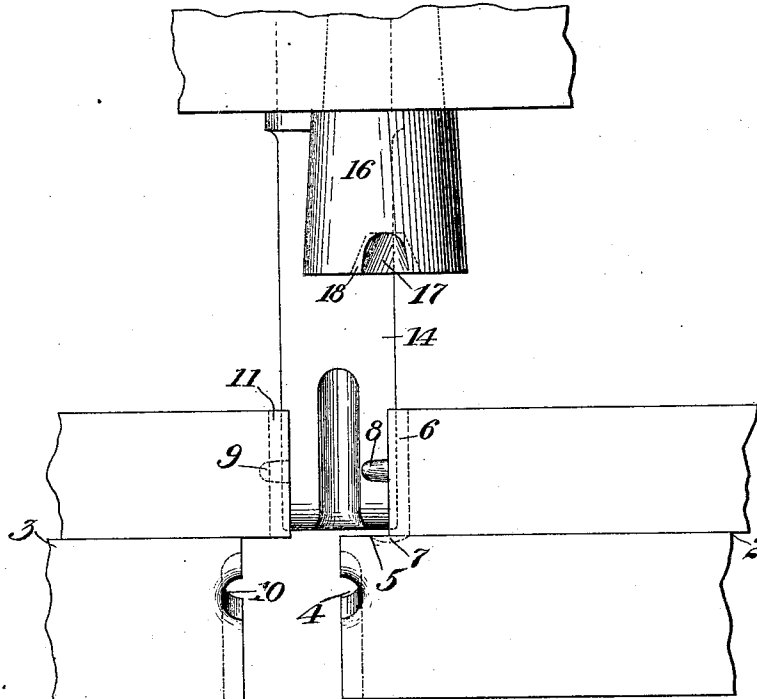


Fig. 1.

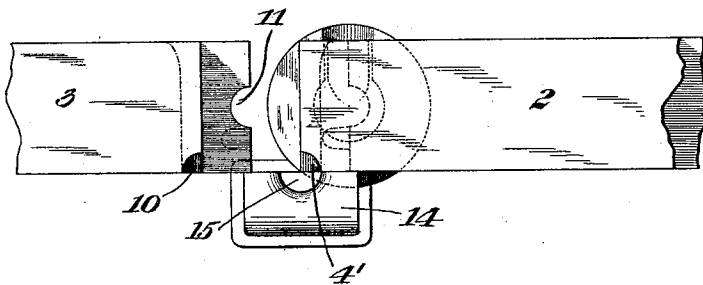


Fig. 2.

WITNESSES

H. M. Corwin
M. B. Corwin

INVENTOR

John H. Alker
by T. B. Bakerwell & Sons
his attorneys

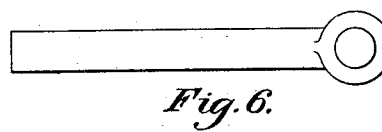
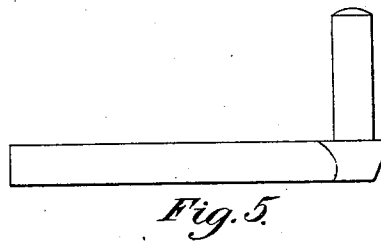
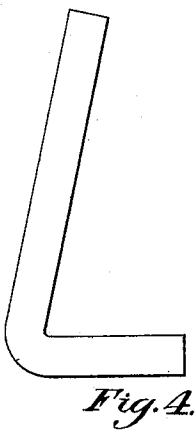
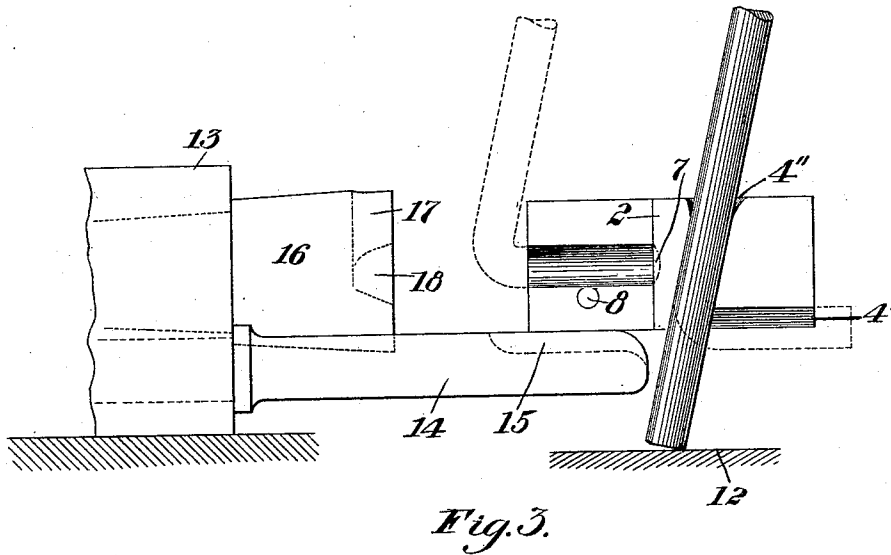
(No Model.)

2 Sheets—Sheet 2.

J. H. ALKER.
MANUFACTURE OF GATE HOOKS.

No. 469,621.

Patented Feb. 23, 1892.



WITNESSES

A. M. Corwin
W. J. Corwin

INVENTOR

John H. Alker
by W. B. Baskwell & Sons
his attorneys

UNITED STATES PATENT OFFICE.

JOHN H. ALKER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE OLIVER
IRON AND STEEL COMPANY, OF SAME PLACE.

MANUFACTURE OF GATE-HOOKS.

SPECIFICATION forming part of Letters Patent No. 469,621, dated February 23, 1892.

Application filed December 19, 1891. Serial No. 415,653. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. ALKER, of
Pittsburg, in the county of Allegheny and
State of Pennsylvania, have invented a new
and useful Improvement in the Manufacture
of Gate-Hooks, of which the following is a full,
clear, and exact description, reference being
had to the accompanying drawings, forming
part of this specification, in which—

Figure 1 is a top plan view of my improved
dies in retracted position. Fig. 2 is a front
elevation, and Fig. 3 a side view, of the same
with one clamping-die removed. Fig. 4 is a
view of the blank after the bending opera-
tion, and Figs. 5 and 6 are views of the fin-
ished article.

Like symbols of reference indicate like parts
in each.

My invention relates to the manufacture of
"gate-hooks" or the pin portions of gate-
hinges; and it consists in improved dies
whereby the finished hook is produced from
the blank by two strokes of the plunger-die
and also in the improved method of forming
such hooks, as hereinafter more fully de-
scribed, and set forth in the claims.

In the drawings, 2 represents the stationary
and 3 the movable clamping-die. The die 2
in its front portion is provided with the an-
gled groove 4 and in the rear thereof with
the jog or offset 5. In the rear of the offset is
the horizontal groove 6, which terminates in
a concave recess 7, which is located partly
beneath the groove and partly in the shoul-
der formed by the offset. Immediately be-
neath the groove 6 is the projecting pin 8,
which enters a corresponding aperture 9 in
the movable die 3. This pin serves both as
a stop for introducing the blank into the
groove and sustaining it until the movable
die clamps it in position and also as a guide
for the movable die to produce an exact reg-
istering of the two clamping-dies. The mov-
able clamping-die is provided with the grooves
10 and 11, corresponding to the grooves 4 and
6 in the stationary die, and when the dies are
closed these grooves form holes in which the
blank is placed.

As is clearly shown in Fig. 3, the groove 4
consists of two portions, a horizontal portion

4' on the lower inner edge of the die and an
angled portion 4'' extending upward and out-
ward at an acute angle thereto and upon the
inner face of the die. The groove 10 exactly
corresponds thereto, and immediately beneath
the groove 4 is the stop 12, which is suitably
secured to the frame of the machine and is
preferably vertically adjustable. In the rear
of the clamping-dies is the plunger-die 13, the
lower extension 14 of which moves beneath
the clamping-dies, and the groove 15 of which
registers with the horizontal portions of the
grooves 4 and 10 when the clamping-dies are
closed. Above the part 14 is the head 16,
having upon its front face the groove 17, which
terminates in an enlarged recess 18 with out-
wardly-tapering cone-shaped sides. This re-
cess registers with the hole formed by the
grooves 6 and 11 when the clamping-dies are
closed and forms the head upon the finished
article.

The operation is as follows: A bar being in-
serted in the groove 4, the movable die 3 is
reciprocated by suitable mechanism and
clamps the rod in the grooves 4 and 10, it
standing therein at a slight angle to the ver-
tical. The plunger-die is then reciprocated,
and the extension 14, striking the lower part
of the bar, bends the same up into the hori-
zontal portions of the grooves 4 and 10, the
groove 15 being suitably curved downwardly
at its outer end, so as to prevent cutting of the
bar. The movable clamping-die is then re-
tracted and the blank removed, it then being
in the form of Fig. 4. The plunger-die hav-
ing been retracted, this blank is then inserted
in the groove 6 and rests upon the pin 8 until
clamped by the movable die 3. The plunger-
die then moves forward again and the angu-
lar portion of the blank is pressed into the
head by the recess 18, while at the same time
the inner end of the blank is rounded by com-
pression against the concave recess 7, the hook
of Figs. 5 and 6 resulting. The object of
bending the two portions of the bar at an
acute angle to each other is that enough metal
may be obtained at the angle to form the head
upon the hook. Moreover, in this way the
vertical part of the blank is prevented from
being pushed upward, as in the old method,

and the hook is formed by one stroke, where before several strokes of the plunger-die were necessary to produce the head.

The advantages of the device are obvious. 5 The parts are simple, few in number, and not liable to get out of order, while the entire action is automatic.

Many changes may be made in the form and arrangement of the parts without departing 10 from my invention, since

What I claim is—

1. The combination, with clamping-dies having registering grooves, of a plunger-die 15 arranged to move across the end of the hole formed by said grooves, substantially as and for the purposes described.

2. The combination, with clamping-dies having corresponding grooves, the two portions of which extend at an angle to each 20 other, of a reciprocating die having a groove arranged to register with one of said portions, substantially as and for the purposes described.

3. The combination, with clamping-dies having mating grooves upon their lower inner 25 edges and corresponding grooves extending upwardly at an acute angle thereto, of a plunger-die having a groove arranged to register with the grooves upon the lower edges 30 of the clamping-dies, substantially as and for the purposes described.

4. The combination, with clamping-dies having registering grooves, of a plunger-die having a recess arranged to register with the 35 ends of the grooves and a groove extending from such recess, substantially as and for the purposes described.

5. The combination, with clamping-dies having registering grooves and a pin and corresponding hole immediately beneath the 40 same, of a plunger-die having a recess arranged to register with the ends of the grooves and a groove extending from such recess, substantially as described.

45 6. The combination, with clamping-dies

having registering grooves and a stop beneath the same, of a plunger-die arranged to move across the end of the hole formed by said grooves, substantially as and for the purposes described. 50

7. The combination, with clamping-dies having registering grooves and an adjustable stop beneath the same, of a plunger-die arranged to move across the end of the hole 55 formed by said grooves, substantially as and for the purposes described.

8. The combination, with clamping-dies having two sets of registering grooves, of a plunger-die having an extension arranged to move past the end of one set of grooves and 60 a recess arranged to register with the end of the aperture formed by the other set, substantially as and for the purposes described.

9. The combination, with clamping-dies having two sets of registering grooves, of a 65 plunger-die having a grooved extension arranged to move past the end of one set of grooves, and a recess arranged to register with the end of the aperture formed by the other set, substantially as and for the purposes 70 described.

10. The method of making gate-hooks, consisting in bending a portion of a blank at an acute angle to the remaining portion and then 75 shaping the angled part into a head, substantially as and for the purposes described.

11. The method of making gate-hooks, consisting in bending a portion of a blank at an acute angle to the remaining portion, then 80 shaping the angled part into a head, and at the same time rounding one end of the blank, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 15th day of December, A. D. 85 1891.

JOHN H. ALKER.

Witnesses:

• W. B. CORWIN,
H. M. CORWIN.