

No. 673,747.

Patented May 7, 1901.

G. G. HOWE.
TOOL FOR BROACHING CHAIN LINKS.

(Application filed Oct. 27, 1900.)

(No Model.)

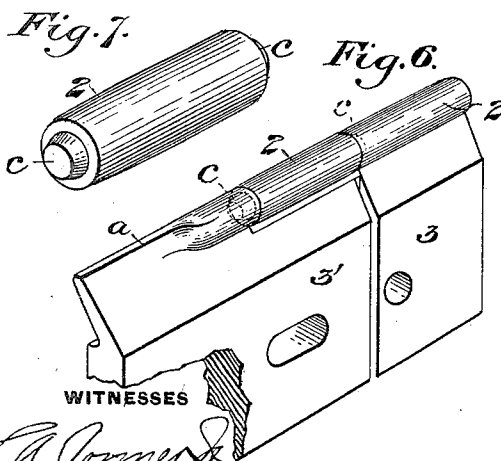
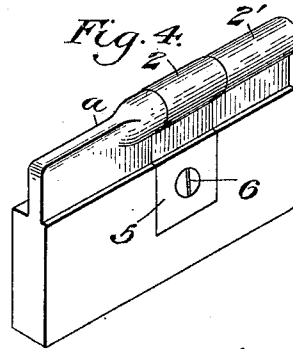
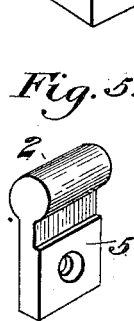
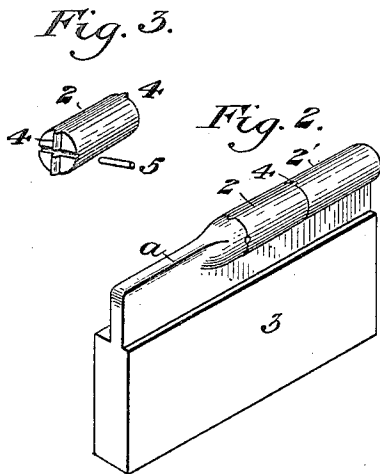
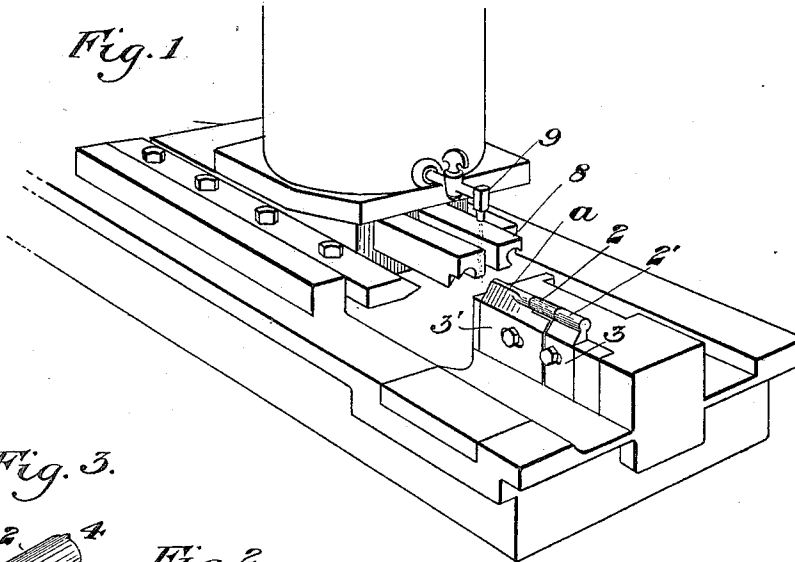


Fig. 6.

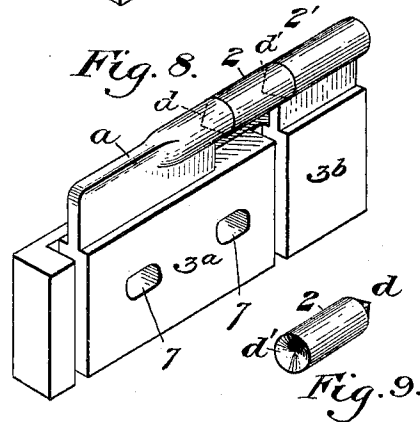


Fig. 9.

WITNESSES

L. A. Corner
A. Bixby

INVENTOR

G. G. Howe

UNITED STATES PATENT OFFICE.

GLENN G. HOWE, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE EWART MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

TOOL FOR BROACHING CHAIN-LINKS.

SPECIFICATION forming part of Letters Patent No. 673,747, dated May 7, 1901.

Application filed October 27, 1900. Serial No. 34,604. (No model.)

To all whom it may concern:

Be it known that I, GLENN G. HOWE, of Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful
5 Improvement in Tools for Broaching Chain-Links, 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—

10 Figure 1 is a perspective view illustrating a portion of one type of machine and form of my improved broaching-tool in position. Fig. 2 is a perspective view of one form of holder with the bit or drift in place. Fig. 3 is a detached detail perspective view of the drift or
15 bit shown in Fig. 2, and Figs. 4, 5, 6, 7, 8, and 9 are similar views of modified forms of holders and bits or drifts for the same.

In the manufacture of detachable chain-
20 links, even when great care is exercised, inequalities are apt to occur, which when the links are assembled interfere with the fitting of the parts, increase the friction of the joints, and thus impair the usefulness and commercial value of the chain. To prevent this, I
25 have devised a tool by which the hook portions of the links can be broached, freed from all irregularities in their interior, and brought to a standard size and form. When links are
30 thus treated, their uniformity renders them easy to assemble, and when assembled the chain operates with the least possible friction. In Fig. 2 of the drawings I show the broaching-tool made of two parts, a steel bit or drift
35 2 being inserted in an opening in and in line with the link-guiding portion 2', the parts 2 and 2' being held at the side by a holder 3, but being free at both ends, so that the tool can be passed through and beyond the slotted
40 opening or hook portion of a chain-link. One end *a* of the guiding portion 2' of the tool is preferably reduced in thickness and tapers, so that it may enter the hook easily, and the bit 2 is made of hardened steel and is of the
45 same diameter as that desired for the interior of the hook, being of somewhat larger diameter than that of the portion 2'.

The bit 2 may be integral with the remainder of the tool; but I preferably make it of a
50 separable and renewable piece. A conven-

ient mode of attaching it is shown in Figs. 2 and 3, in which the bit has at its ends ribs 4, which fit in grooves in the ends of the opening in which the bit is set and is locked in place by a key or wedge 5, driven into registering grooves formed on the bit and on the
55 abutting surface.

In Figs. 4 and 5 I show another mode of attachment, in which the bit has a lateral shank 5, adapted to fit in a recessed groove
60 on the end of the holder and to be held therein by a screw 6.

In Figs. 6 and 7 I show a third mode of attachment, in which the holder has a movable section 3', adapted to be fixed by screws to
65 the main holder, which extends back of the section 3' throughout its entire length, and the bit has at its ends tongues or sockets *c c*, adapted to fit tongues or sockets on the portions 3 3' of the holder.

In Figs. 8 and 9 I show another modification of my invention, in which the holder is made of two sections 3^a and 3^b, having overlapping end portions, and both are held to
70 the machine by bolts passing through slots 7 7. The bit is provided with a conical projection *d* at one end and a conical socket *d'* at the other, the two sections 3^a and 3^b being provided with the necessary projection and socket shaped to fit the bit.
80

My tool may be passed through the link while the link is held stationary; but I prefer to fix the tool in stationary position and to push the link over it. This I may effect
85 by employing a pusher 8, having a longitudinal slot shaped in counterpart of the tool, and I mount the pusher on a reciprocating head, which causes it to move back and forth over the tool.

The link to be broached is placed between
90 the pusher and the tool with its hook on the reduced portion *a*. The pusher then advances and pushes the link over the tool and beyond the same, and as it passes over the bit 2 the hook is broached and reamed to the
95 standard diameter. When it passes the end of the tool, the link is removed by hand or by suitable means.

To facilitate the motion of the link and to prevent overheating, I prefer to discharge a
100

small stream of oil upon the tool from a supply-pipe 9.

I claim—

1. A broaching-tool free at both ends and
5 attached at its side to a holder, said tool being adapted to pass through and beyond the slotted opening of a chain-link or like article; substantially as described.

2. A broaching-tool free at the ends and
10 having at its middle portion a detachable bit; substantially as described.

3. A broaching-tool free at both ends, and attached at its side to a holder, said tool hav-

ing a detachable bit and a guiding portion *a* of less dimensions; substantially as described. 15

4. A broaching-tool free at both ends, said tool being adapted to pass through and beyond the slotted opening of a chain-link or like article; substantially as described.

In testimony whereof I have hereunto set 20 my hand.

GLENN G. HOWE.

Witnesses:

THOMAS W. BAKEWELL,
L. C. HOWE.