DE WILL G. VAUGHN.

CHAIN REPAIRING TOOL.

APPLICATION FILED APR. 22, 1910.

979,609. Patented Dec. 27, 1910.

Fig 1

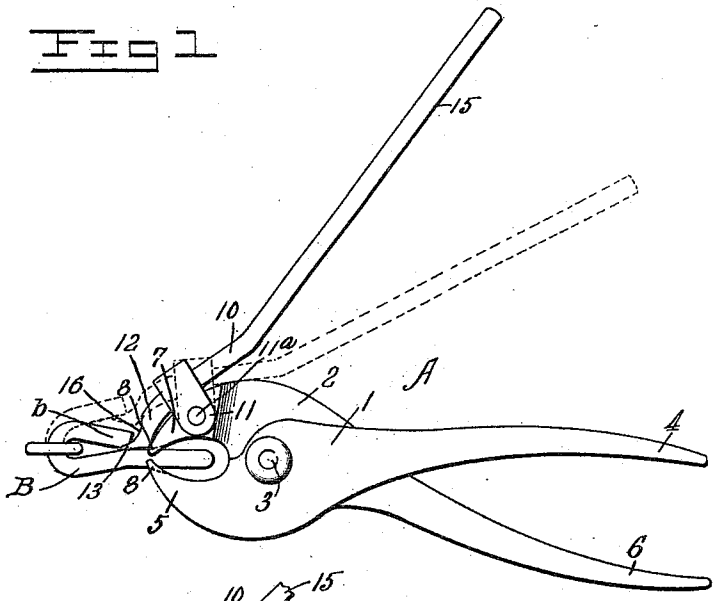


Fig 2

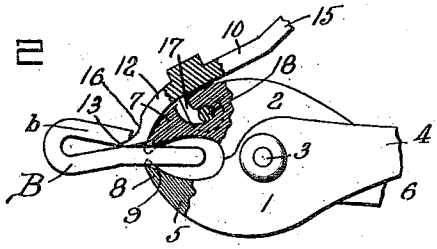


Fig 5

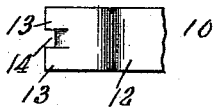


Fig 4

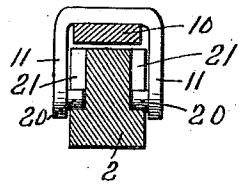


Fig 3

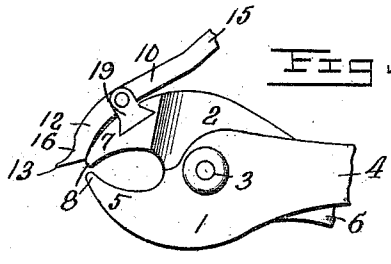
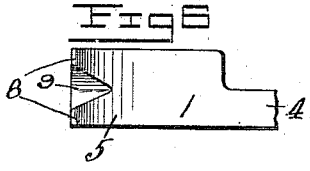


Fig 6



Witnesses

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DE WILL G. VAUGHN, OF RICHMOND, VIRGINIA.

CHAIN-REPAIRING TOOL.

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979,609.

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To all whom it may concern:

Be it known that I, DE WILL G. VAUGHN, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented new and useful Improvements in Chain-Repairing Tools, of which the following is a specification.

This invention relates to a special tool of the plier type for opening and closing chain links of that class in which the eyes are formed by bending the ends of the wires forming the links into a substantially circular form.

The improved tool designed for this purpose and which will be described later in detail consists, generally, of a pair of pliers formed of two pivoted members, each member comprising a jaw and a handle, the whole being similar to pliers in general use, and a third member pivoted to one of the plier jaws in such position that its handle extends rearwardly within reach of a person manipulating the tool, and its foot projects forwardly beyond the jaws of the pliers proper. By means of this tool, the chain link is grasped between the jaws of the pliers with the foot of the supplementary member below the eye and the latter opened when power is applied to the third or supplementary member.

With this object particularly in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawing, in which,

Figure 1 is a side view of the improved tool shown in operative position on a chain link; Fig. 2, a like view partly in section and with parts broken away illustrating a modified construction; Fig. 3, a side view of the head of the tool showing a further modification; Fig. 4, a cross sectional view of a still further modification; Fig. 5, a top view of the jaw of the supplementary member, and, Fig. 6, an inside view of one of the plier jaws.

Like reference characters are used for the same parts in all the figures.

In the drawing A indicates a pair of pliers comprising two similar members 1 and 2 connected by a pivot pin 3. The member 1 is provided with a handle 4 and a jaw 5 at opposite ends, and a similar handle 6 and jaw 7 form the member 2. The jaws 5 and 7 are curved, and taper to dull edges 8 each of which is bisected by a groove or notch 9 that together grasp one side of the chain link in the manner represented in Figs. 1 and 2, when the jaws are closed. A supplementary or link opening member 10 is pivoted on one of the plier members, as 2, in the type of tool illustrated in the drawings, and arranged to rock in the plane of said plier member. This arrangement is not absolute, as the link opening member may be otherwise mounted on the pliers and be capable of moving in a different direction.

In the construction shown, the link opening member 10 is formed or provided with ears 11 near its foot 12 which are pivoted on the member 2 by means of a through pin 11^a near the gripping edge 8 of the jaw 7. The underside of the foot 12 is curved so as to lie close against the curved outer edge of the jaw 7, and when in operative position, the bottom of said foot is in line with the bottom of the notch or groove 9 in the jaw 7, and a toe 13 projecting forwardly from the base of the foot 12 extends under the end of the eye or loop *b* of a chain link B. A notch or nick 14 is made in the toe 13 to engage with the loop end and prevent it slipping from the toe. The handle 15 of the supplementary member 10 stands at such an angle that when in its lowermost position, indicated by dotted lines in Fig. 1, there will be sufficient room for operating the plier handles 4 and 6 without interfering therewith. It is to be noted that the foot 12 of the supplementary member 10 is in front or advance of the plier jaw 7, and that it is cut away or hollowed on its forward side at 16 to form the toe 13 which is thin and relatively long and is thus enabled to pass easily beneath the link end to be raised.

Instead of permanently pivoting the supplementary member 10 on the jaw 7, it may have a removable connection therewith, as in Figs. 2, 3 and 4, so that said member may be disconnected and the pliers used alone in the ordinary manner. Thus in Fig. 2, is shown an inclined, angular or curved notch 17 cut in the jaw 7 to receive a pivot pin 18 extending between the ears 11 of the member 10. Downward pressure on the handle 15 to open a chain link forces the pivot pin 18 to seat in the bottom of the curved notch 17. A block 19, see Fig. 3, between ears on which the member 10 is piv-

oted, has a dovetailed base to be driven or slid into a like shaped seat cut in the jaw 7, and in Fig. 4 are shown short pins 20 projecting inwardly from the ears 11 on the member 10 arranged to seat in grooves 21 in the sides of the jaw.

To use the tool, the handle of the supplementary member is thrown outward to bring the under side of foot 12 in line with the notch or groove 9 in the jaw 7. The jaws of the pliers are now opened and the grooves 9 placed in position to engage a link B, the two being moved forward until the toe 13 of the dog projects beneath the end of the loop *b* of the eye of the link. The pliers are now closed on the link to grasp it firmly after which the handle of the supplementary member is operated to raise the foot 12 into position shown by dotted lines in Fig. 1, thus opening the eye sufficiently wide to permit its disengagement from the next succeeding link, or the link of a branch chain should such be attached to the eye. The eye may be closed in any convenient manner as by clamping it between the jaws of the pliers.

Having thus described the invention, what is claimed is:—

1. A tool of the character described comprising a pair of pivotally connected members having coöperating jaws, and a pivoted supplementary member provided with a foot arranged to operate in advance of the gripping edge of said jaws.

2. A tool of the character described comprising a pair of pivotally connected members having coöperating jaws, and a supplementary member pivoted on one of said jaws and provided with a foot adapted to be operated in advance of the gripping edges of said jaws.

3. A tool of the character described comprising a pair of pivotally connected members having coöperating jaws, and a supplementary member pivoted on one of said coöperating members and movable in the plane of said member, and a foot on said supplementary member projecting in advance of the jaws.

4. A tool of the character described comprising a pair of pivotally connected members having coöperating jaws, and a supplementary member mounted on one of said coöperating jaws and movable in the plane of movement of said jaws, a foot on said supplementary member projecting in advance of the jaws, and a sharpened toe on the front of said foot.

5. A tool of the character described comprising a pair of pivotally connected members having coöperating jaws, and a pivoted supplementary member removably attached to the tool and provided with a foot arranged to operate in advance of said jaws in the plane of their movement.

6. A tool of the character described comprising a pair of pivotally connected members having coöperating jaws, and a supplementary member pivotally mounted on one of said coöperating members and movable in the plane of said member, and a foot on said supplementary member projecting in advance of the jaws to engage the eye of a chain link held by the pivotally connected members and open said eye when the supplementary member is operated.

7. A tool of the character described comprising a pair of pivotally connected members having coöperating jaws, each having a groove formed therein which register when the jaws are closed, and a supplementary member pivoted on one of said coöperating members and having a foot extending in advance of said jaws, said foot having a notch in its forward end in line with the grooves in said jaws.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DE WILL G. VAUGHN.

Witnesses:

JOHN F. KAIN,

W. C. LYNHAM.