July 6, 1948. J. A. KELLGREN 2,444,450

CHAIN TOOL

Filed Feb. 18, 1946 2 Sheets-Sheet 1

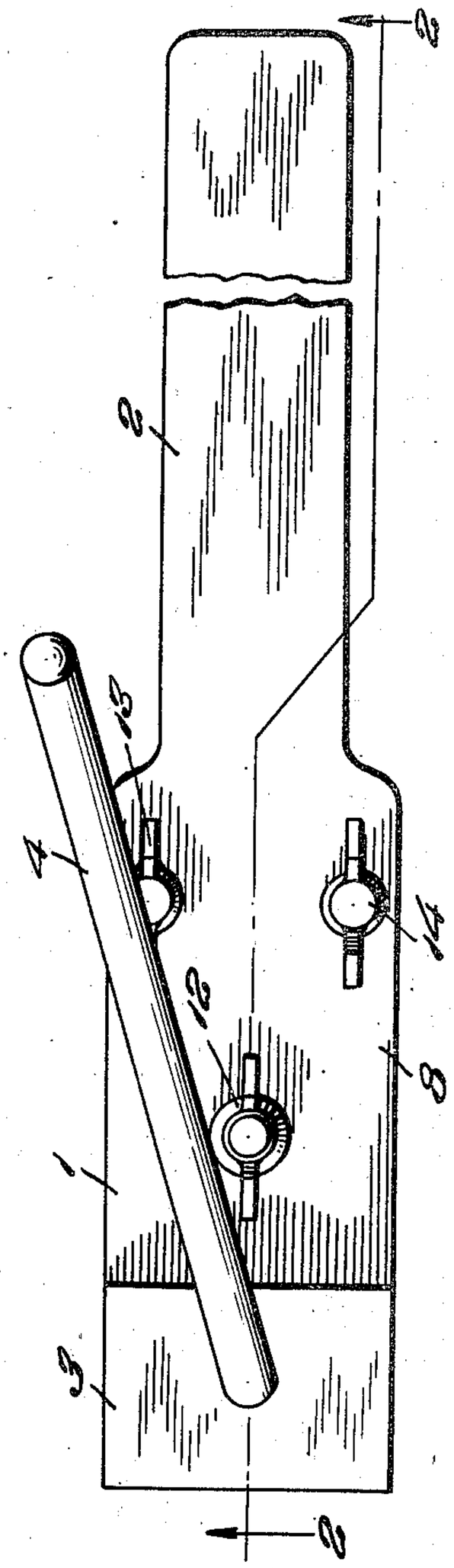

Fig. 1.

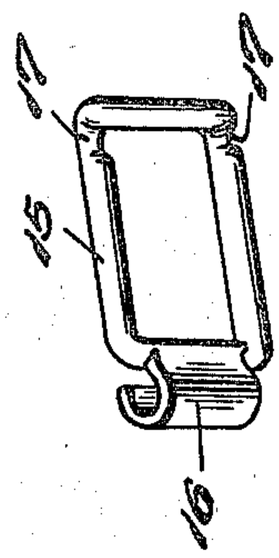

Fig. 6.

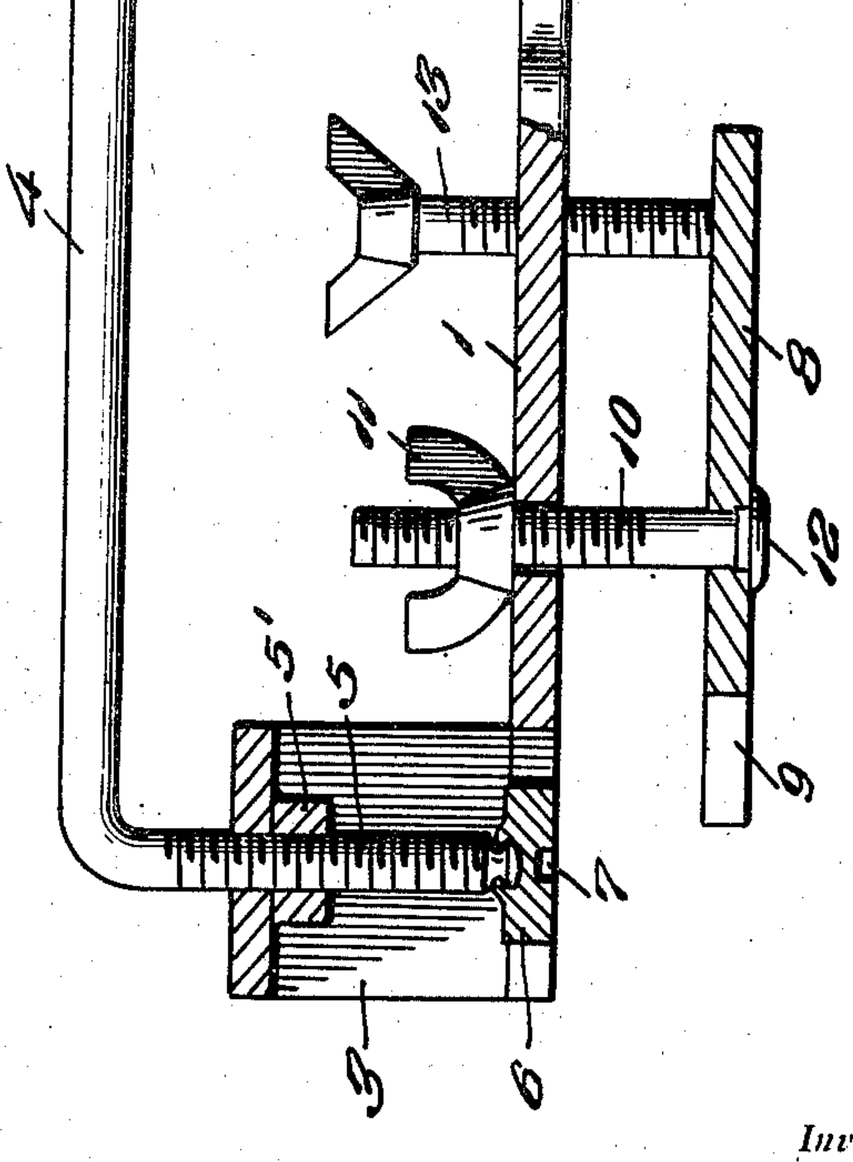

Fig. 2.

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CHAIN TOOL

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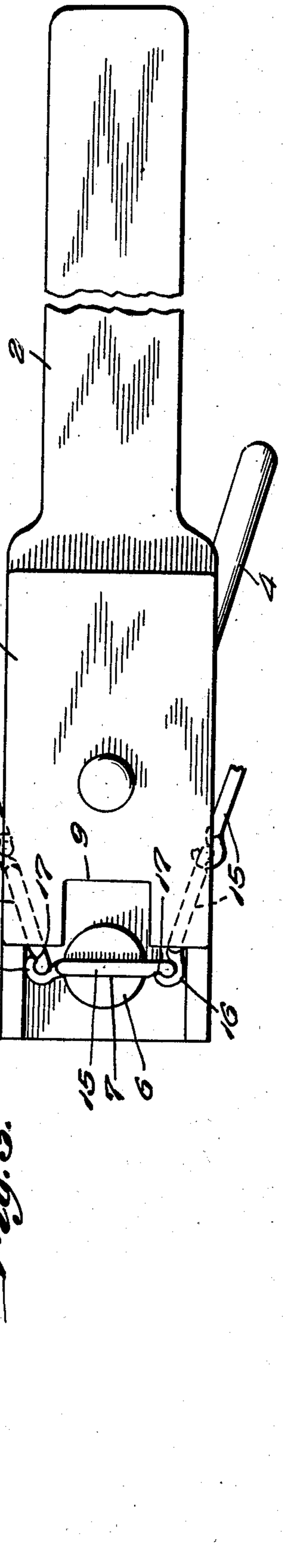

Fig. 3.

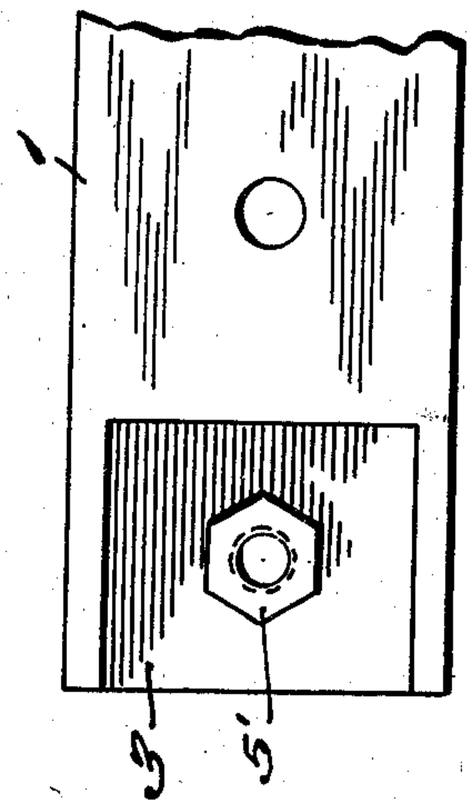

Fig. 5.

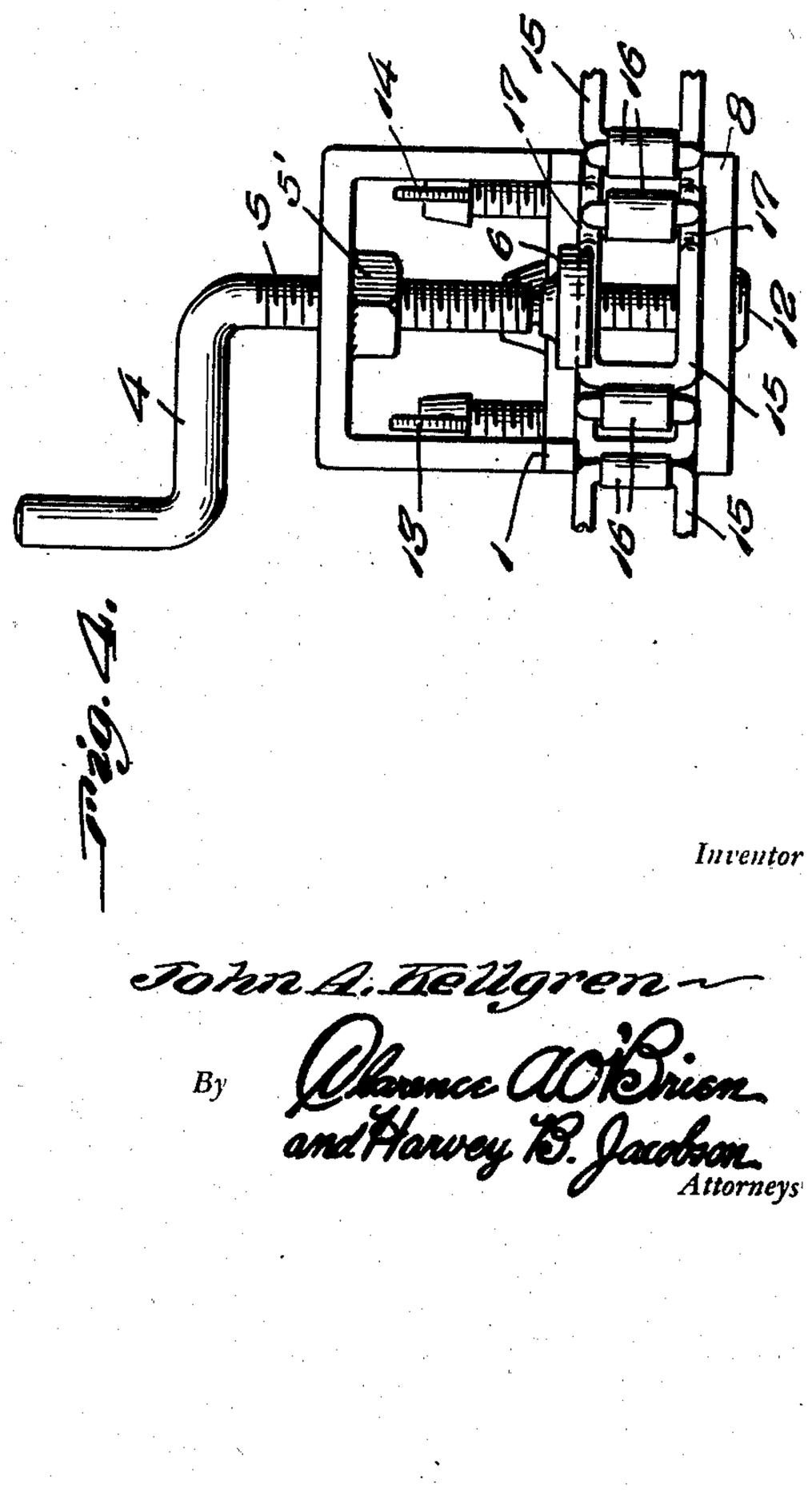

Fig. 4.

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UNITED STATES PATENT OFFICE

2,444,450

CHAIN TOOL

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Application February 18, 1946, Serial No. 648,326

4 Claims. (Cl. 59—7)

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My invention relates to improvements in chain tools for removing links from sprocket chains.

As explanatory, the type of sprocket chain with which my invention is particularly concerned is constructed of links swingably coupled together by means of a hook on each link fitting around one end of an adjacent link. The hooks may be detached, or uncoupled, from the links only when the links are swung into a set angular position with respect to each other to register the hooks with side notches in the links, and even when so swung, it is difficult to detach or uncouple the links for uncoupling such chains, particularly if the hooks have become bent.

Having the foregoing in mind, it is a primary object of my invention to provide a simple form of easily handled tools for uncoupling the links of sprocket chains in which the links are coupled together by hooks on the links, and whereby the uncoupling operation may be accomplished quickly and easily and without damaging the links.

Another object is to provide a tool for the purpose above set forth and by means of which the links may be rigidly held in the correct angular relation for uncoupling.

To the accomplishment of the above, and subordinate objects presently appearing, a preferred embodiment of my invention has been illustrated in the accompanying drawings, set forth in detail in the succeeding description, and defined in the claims appended hereto.

In said drawings:

Figure 1 is a view in top plan of my improved chain tool in the preferred embodiment thereof, partly broken away,

Figure 2 is a view in longitudinal section,

Figure 3 is a view in bottom plan,

Figure 4 is a view in front end elevation,

Figure 5 is a fragmentary view in bottom plan of the head, and

Figure 6 is a view in perspective of one of the links of the chain.

Referring to the drawings by numerals, my improved tool, as shown, comprises a bar like member embodying an elongated flat head 1 and a handle 2 at the rear end of the head co-planar therewith. The head 1 forms one plate like element of a clamp, the other element of which will presently be described. The front end of the head 1 has formed thereon an upstanding transverse bracket 3 of arched form open at its bottom.

A hand crank 4 with a threaded stem 5 is threadedly extended through the top of the bracket 3 and also through a bearing nut 5′ suitably

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secured in the top of the bracket 3, for instance as shown in Figure 4.

A presser member 6 of disc like form is swivelled on the lower end of the stem 5 to be moved upwardly or downwardly in the bracket 3 and is provided with a diametrical groove 7 in the bottom face thereof.

The other member of the clamp, above referred to, has the form of an elongated, rectangular, clamping plate 8 suspended from the head 1 to extend flatwise along the bottom of said head in spaced relation thereto. The clamping plate 8 is formed with a front end notch 9 and is offset rearwardly of the transverse center of the presser member 6 a distance suitable for a purpose presently seen. The notch 9 is of a width to permit the presser member 6 to pass therethrough.

A bolt 10 extending through the clamping plate 8, at an intermediate point and through the head 1 in the rear of the bracket 3 with a wing nut 11 thereon above said head 1 suspends the clamping plate 6 from said head. The head 12 of the bolt 10 is fixed in any suitable manner in the clamping plate 8, and the bolt 10 extends loosely through the head 1 so that said clamping plate and bolt may rock relative to the head 1 and said plate must be swung laterally and longitudinally to facilitate clamping operations in the manner presently apparent.

A pair of hand screws 13, 14 are threaded downwardly through the head 1 in spaced apart relation transversely of the same to bear against the top of the clamping plate 8 adjacent the rear corners of said plate and thereby adjust said plate laterally.

The described tool is designed for use with a sprocket chain, such as shown in Figures 3 and 4, formed of links 15, such as shown in detail in Figure 6, and having at one end a roll-like hook 16 and at its other straight end a pair of side notches 17. The hooks 16 fit over the straight ends of adjacent links and when two alternate links 15 are swung into angular relation to an intermediate link, the beaks of the hooks 16 of two register with the side notches 17 so that the intermediate link may be detached or uncoupled from the links at each end thereof.

In using the described tool, the same is grasped by the handle 1 and the appropriate part of the chain from which a link 15 is to be detached, or uncoupled, is arranged edgewise between the head 1 and the clamping plate 8 with a link 15 to be detached or uncoupled extending transversely of the tool and centered substantially in the axis of the stem 5, the links 15 at the ends of

the link to be detached, or uncoupled, being arranged in the proper angular position, previously described, and as shown in Figures 3, 4, to permit the uncoupling operation to be performed. Then the two links 15 are clamped in the proper angular position between the head 1 and the plate 8. The clamping is accomplished by adjusting the wing nut 11 and hand screws 13, 14 to adjust the clamping plate 8 at its front end towards said head 1. Then by turning the hand crank 4 to feed the stem 5 downwardly, and positioning the groove 7 of the presser member 6 over the uppermost side of the link 15 to be detached, or uncoupled, said link may be pressed downwardly and detached from the angularly related links 15 to thereby uncouple the chain. As best shown in Figure 3, the front end of the clamping plate 8 is offset rearwardly to prevent the same from obstructing the link 15 to be detached, or uncoupled, and the notch 9 provides for the presser member 6 passing therethrough and clearing the clamping plate 8 when said member 6 is fed downwardly further than may be required in the uncoupling operation. The manner in which the angularly arranged clamped links 15 are released, or unclamped, will be apparent.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, as regards structure, operation and advantages thereof.

Manifestly, the invention, as described is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

What I claim is:

1. In a tool for detaching a link from a chain, an elongated flat clamping head having a handle, a clamping plate opposed flatwise to said head, means to suspend said plate from the head for swinging movement thereon into clamping relation thereto, hand screws threaded through said head for turning against said plate to swing the same, a rotary stem threaded through said head for feeding toward said plate, a presser member on one end of said stem for exerting pressure against a link of a chain clamped between said head and plate, and manipulative means on the other end of said stem for rotating the same.

2. In a tool for detaching a link from a chain, an elongated flat clamping head having a handle, a clamping plate opposed flatwise to said head, means to suspend said plate from the head for swinging movement thereon into clamping relation thereto, hand screws threaded through said head for turning against said plate to swing the same, a rotary stem threaded through said head for feeding toward said plate, a presser member on one end of said stem for exerting pressure against a link of a chain clamped between said head and plate, and manipulative means on the other end of said stem for rotating the same, said presser member being swiveled on said stem to prevent rotation of the same with said stem and having a groove therein for straddling the link against which pressure is exerted by the member to thereby center said link in the axis of the stem.

3. In a tool for detaching a link from a chain, an elongated flat clamping head having a handle, a clamping plate opposed flatwise to said head, means to suspend said plate from the head for swinging movement thereon into clamping relation thereto, hand screws threaded through said head for turning against said plate to swing the same, a rotary stem threaded through said head for feeding toward said plate, a presser member on one end of said stem for exerting pressure against a link of a chain clamped between said head and plate, and manipulative means on the other end of said stem for rotating the same, said clamping plate being notched to permit the presser member to pass therethrough.

4. In a tool for detaching a link from a chain, an elongated flat clamping head having a handle, a clamping plate opposed flatwise to said head, means to suspend said plate from the head for swinging movement thereon into clamping relation thereto, hand screws threaded through said head for turning against said plate to swing the same, a rotary stem threaded through said head for feeding toward said plate, a presser member on one end of said stem for exerting pressure against a link of a chain clamped between said head and plate, and manipulative means on the other end of said stem for rotating the same, said clamping plate being notched to permit the presser member to pass therethrough, said head having an arched bracket thereon for accommodating said presser member while a chain is being clamped between said head and plate.

JOHN A. KELLGREN.