No. 820,452. PATENTED MAY 15, 1906.

J. A. WALLER.

CHAIN.

APPLICATION FILED SEPT. 24, 1904.

Fig. 3.



Fig. 2.

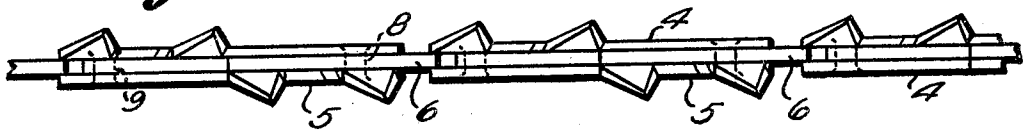


Fig. 1.

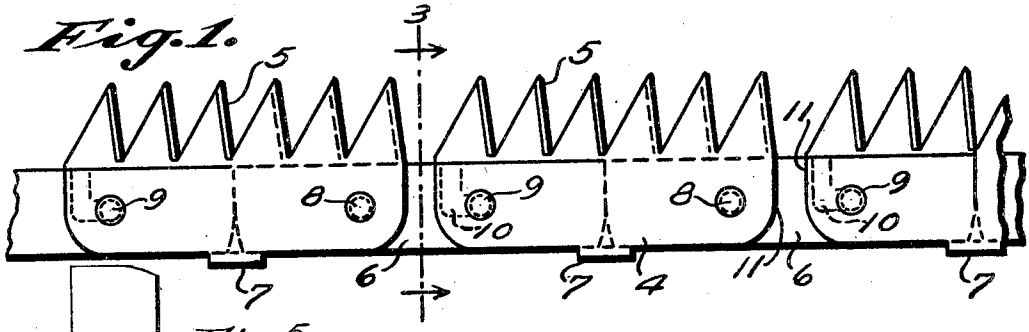


Fig. 5.

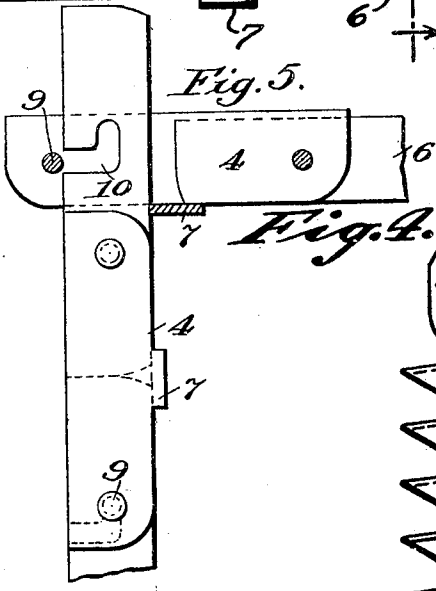
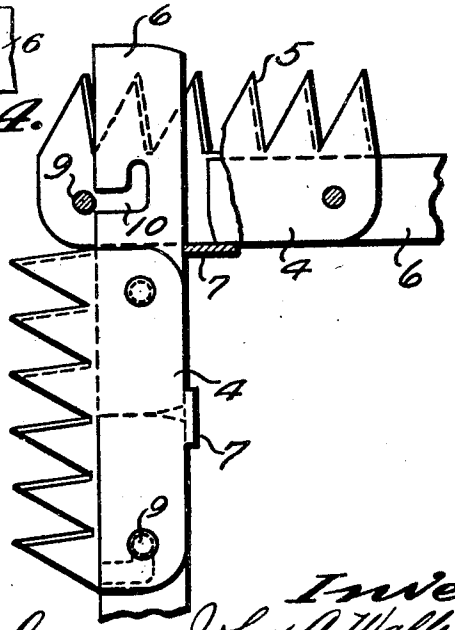


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CHAIN.

No. 820,452. Specification of Letters Patent. Patented May 15, 1906.

Application filed September 24, 1904. Serial No. 225,850.

To all whom it may concern:

Be it known that I, JOHN A. WALLER, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Chains, of which the following is a specification.

The main object of this invention is to provide an improved form of detachable-link chain.

The drawings show my form of chain structure as applied to a chain-saw. The features which relate specifically to the saw construction are not claimed in this application, but are more fully described and claimed in my copending application, filed July 11, 1904, Serial No. 216,159.

A specific embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a chain-saw having detachable links constructed according to my invention. Fig. 2 is an elevation of the same viewed from the cutting edge of the saw. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a side elevation of the same, showing the method of separating the links. Fig. 5 is a view corresponding to Fig. 4, but omitting the saw-teeth for the purpose of more clearly illustrating the link construction.

In the form shown in the drawings, the chain consists of a series of jointed members 4, detachably connected together. Each of these members consists of a double part 5, which for convenience will be herein called a "section" to distinguish it from the other part or link 6. The section 5 is formed of a single piece of sheet metal cut to shape and bent upon itself to form a pair of parallel plates spaced apart for receiving the links 6 and connected together by a transverse back piece 7. In the saw structure the cutting-teeth are shown upon the edges of the sections 5 on the side opposite the back piece 7. Each link 6 is pivotally connected to one end of its corresponding section 5 by means of a rivet 8 and extends inward of the section to about the middle thereof. The side plates of the section are also connected together at their other end by means of a rivet 9, which forms a pivot for the next succeeding link. Each of the links 6 is provided with a bayonet-slot 10, consisting of an aperture fitting the rivet 9, then extending longitudinally inward toward the rivet 8, and having a branch extending transversely outward to the edge of the link which corresponds to the toothed edge of the sections and which will hereinafter be called the "front edge" of the chain. Both ends of the links extend beyond the pivots 8 and 9 to the middle of the adjacent sections. These extended parts are adapted to engage the back piece 7 and prevent the chain from bending to a curvature concave on its front edge. The ends of adjacent links also abut against each other and against the back piece 7 in such manner as to prevent the pivots 9 and the bayonet-slot from becoming disengaged from each other except when two of the adjacent members 4 are turned to positions substantially at right angles to each other, as in Figs. 4 and 5. When so turned, the adjacent ends of the adjacent links are clear of each other, and the pivot 9 may be readily passed out of the slot 10. The opposed ends 11 of the sections 5 are spaced apart to permit the sprockets of a suitably-formed sprocket-wheel to enter between them for the purpose of driving the chain.

When the chain is extended, the back piece 7 and the abutting ends of the adjacent links serve as stops which effectually prevent the adjacent sections from becoming separated. The back piece 7 also serves to support the ends of the links and prevent the chain from bending through pressure on its front edge. The links are, however, free to bend in the opposite direction, as in passing around a sprocket-wheel. To separate sections, it is necessary to first release the tension from the chain and then bend two adjacent sections backward at right angles to each other, as in Figs. 4 and 5. Pressure upon the front edge of the chain tends to urge the opposite curvature, and thus renders accidental separation of the links impossible while in operation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a chain of the class described, the combination of a section comprising a pair of parallel plates spaced apart and connected by a transverse pivot; a link fitting between said plates and having therein an elongated slot open toward one side for detachably engaging said pivot; and stops for limiting the relative movement of said link and section

and thereby preventing the pivot from becoming disengaged from said slot except through relative movement longitudinally of the link when said link and section are turned on the pivot to a certain relative angular position, substantially as described.

2. As an article of manufacture, a chain comprising a series of alternate links and sections, each of said sections comprising a pair of plates spaced apart for receiving the ends of the adjacent links, a pair of pivots extending transversely between said plates, each of said links being mounted in fixed pivotal relation to one of the adjacent sections and having an elongated slot open toward one side for detachably engaging one of the pivots on the other adjacent section; and stops adapted to limit the movement of the links and prevent the pivot from being shifted along said slot for separating the link and section except when said link and section are turned to an angle to each other, substantially as described.

3. In a device of the class described, the combination of a section comprising a piece of sheet metal bent upon itself to form a pair of parallel plates spaced apart and having a cross-piece extending between them at one side; a pivot extending transversely between said plates; and a link having therein a slot extending inward from one side of the same for detachably engaging said pivot; said cross-piece being adapted to engage said link and prevent the same from becoming disengaged from the pivot, except when the link and section are turned to a certain relative angular position, substantially as described.

4. In a device of the class described, the combination of a section comprising a pair of parallel plates spaced apart, a pivot extending transversely between said plates, a link fitting between said plates and having therein an elongated slot extending toward one side and adapted for detachable engagement with said pivot, and a stop on said section adapted to engage the link and prevent the same from becoming disengaged from the pivot except when said link and section are turned to a certain relative angular position, substantially as described.

5. As an article of manufacture, a chain comprising a series of alternate links and sections, each of said sections comprising a piece of metal bent upon itself to form a pair of parallel plates connected together by a transverse part at one edge and spaced apart for receiving the ends of the adjacent links, pivots transverse to said plates and connecting the adjacent links and sections, and said links being extended beyond their pivotal axes to engage the transverse part of said sections, for limiting the bending of said chain, substantially as described.

6. As an article of manufacture, a chain comprising a series of alternate links and sections, each of said sections comprising a piece of metal bent upon itself to form a pair of parallel plates connected together by a transverse part at one edge and spaced apart for receiving the ends of the adjacent links, pivots transverse to said plates and connecting the adjacent links and sections, and said links being extended beyond their pivotal axes to engage the transverse part of said sections, for limiting the bending of said chain, and each of said links having therein an elongated slot for detachably engaging the adjacent pivot, said slot being open toward the side of the link which is opposite the transverse part of the corresponding section, substantially as described.

Signed at Chicago this 22d day of September, 1904.

JOHN A. WALLER.

Witnesses:
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