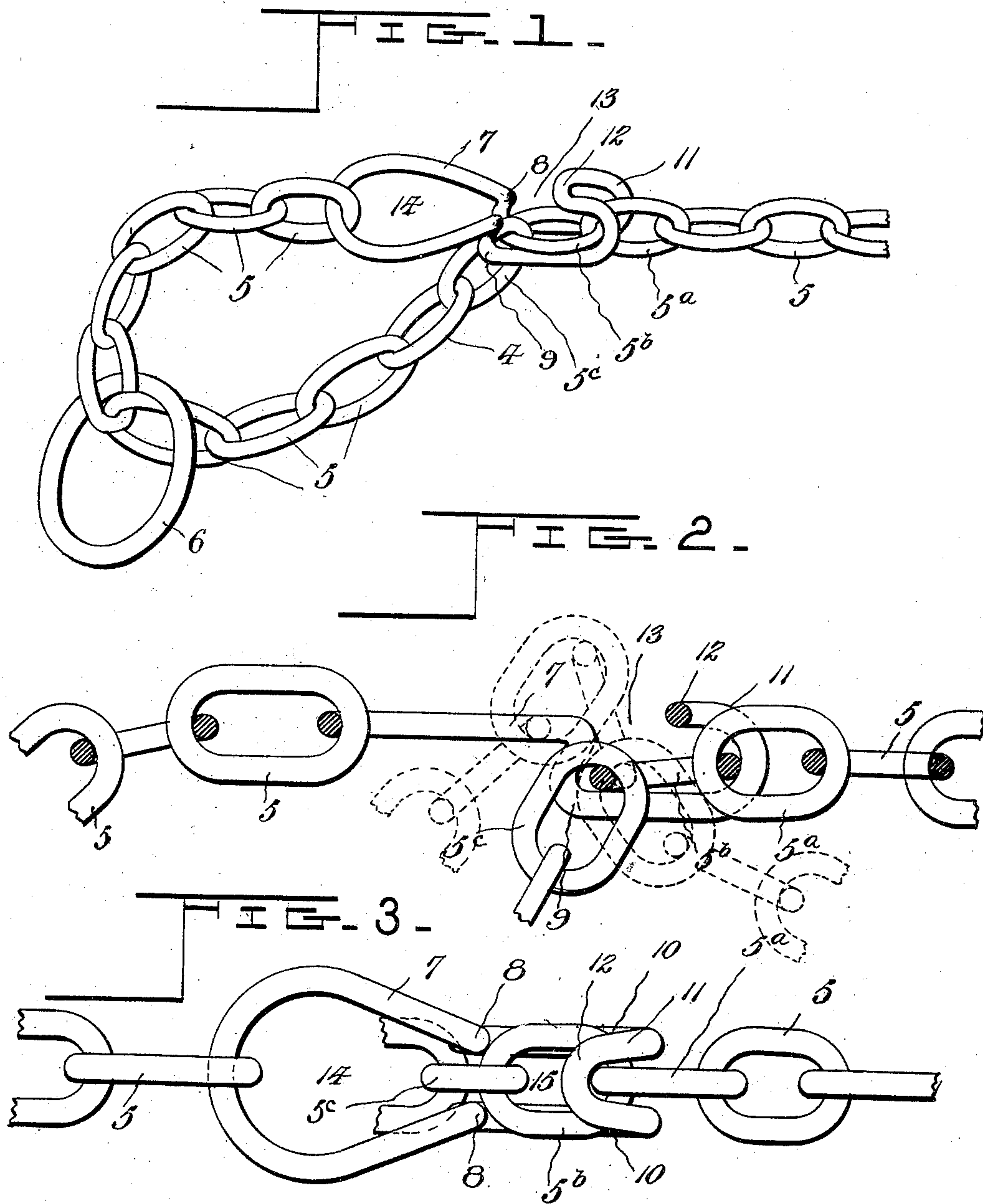


No. 705,035.

Patented July 22, 1902.

W. J. CASS.  
SLIP LINK FOR TRACE CHAINS.  
(Application filed Mar. 17, 1902.)

(No Model.)



Witnesses:

*Fred Page*  
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# UNITED STATES PATENT OFFICE.

WILLIAM JONES CASS, OF HARTLAND, CANADA.

## SLIP-LINK FOR TRACE-CHAINS.

SPECIFICATION forming part of Letters Patent No. 705,035, dated July 22, 1902.

Application filed March 17, 1902. Serial No. 98,494. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM JONES CASS, a subject of the King of Great Britain, residing at Hartland, county of Carleton, Province of New Brunswick, Canada, have invented certain new and useful Improvements in Slip-Links for Trace-Chains; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved connection for the trace-chains employed in hitching horses to wagons, the same being in the form of a link of peculiar shape forming the last link of the trace-chain and provided at one end with means whereby the chain after being passed around through the ring or eye attached to the whiffletree is passed back and hooked into one of the links of the trace-chain; and my improvement comprises means for readily attaching and detaching the slip-link to and from any link of the chain as may be proper to connect the horse at the proper distance from the wagon.

I have illustrated my improvement in the accompanying drawings, wherein—

Figure 1 is a perspective view of a trace-chain having my improved slip-link attached thereto and shown in the hooked position in which it is attached to an intermediate link of the chain. Fig. 2 is a longitudinal vertical section through the link and chain, and Fig. 3 is a plan view of the same.

The same numerals of reference denote like parts in all the figures of the drawings.

The trace-chain is shown at 4, being made up of oval links 5, as herein shown, and 6 is the ring which is attached to the hook or eye of the whiffletree and through which the chain is passed, as shown in Fig. 1, while 7 designates my improved slip-link. As shown, this link is in the form of an endless bent metal rod, which is passed through the last link 5 of the chain, and its rear end is bent into the oval form shown in Figs. 1 and 3 until the sides of the link approximate one another at an intermediate point, as shown at 8. At this point a heel is formed upon the link by bending the metal downward and slightly backwardly and then forwardly, the lower bend thus produced being indicated at 9.

The two sides of the link are then carried forwardly parallel to one another, as at 10, and the front end, where these sides meet, is bent upwardly into a hook 11.

The dimensions of the hook, the distance between the hook and intermediate bend, and the distance apart of the two parallel sides are not arbitrary, but their formation depends upon the size and shape of the links, and it will be seen that the hook is so bent as to cause its toe 12 to approximate to the heel or bend 8, so as to leave only a limited intervening space 13 between them, and the distance between the inner sides of the hook and bend 9 is but slightly greater than the length of a link 5 of the chain, while the distance between the parallel sides 10 is but slightly in excess of the thickness of the links 5.

The mode of operation of my improved slip-link fastening is as follows: After the end of the chain has been passed through the ring 6 it is pulled forward and drawn up to the proper point, giving the desired length of trace-chain, and the chain is seized at this point, and being slack is bent into a loop, and the loop is drawn bodily through the wide-open space 14 between the sides of the link at its rear portion. One of the links 5<sup>a</sup> is now turned edgewise and passed through the slot 15, formed between the parallel sides 10, into the end of the hook—that is to say, into the position shown in the drawings—causing the front end of the adjacent link 5<sup>b</sup> to be drawn into the hook and caught therein, as this link will be transverse. The link 5<sup>c</sup>, behind the link 5<sup>b</sup>, is now turned edgewise, so as to carry the rear end of the link 5<sup>b</sup> over the heel 8 and into the bend 9, whereupon the remainder of the chain may be pulled back through the link 14, which will be caught firmly between the hook and bend of the link, as in the position shown in the drawings, and will be prevented from slipping out except by first drawing upon the rear end of the link 5<sup>b</sup> and turning it over the heel and reversing the cycle of operations just described.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or posi-



tion without affecting the operativeness or utility of my invention, and I therefore reserve the right to make such modifications as are included in the scope of the following  
5 claims.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A slip-link for trace-chains consisting of  
10 an endless metal bar having a loop in its rear end, a downwardly-bent heel formed at an intermediate point, and a hook formed at its front end coacting with said heel to retain a link of a trace-chain therein, in combination  
15 with a trace-chain attached to said slip-link and having links adapted to be seated and engaged between said hook and heel.

2. A slip-link for trace-chains, consisting of an endless metal bar having a loop in its rear  
20 end, a downwardly-bent heel formed at an intermediate point, and a hook formed at its front end coacting with said heel to retain a link of a trace-chain therein, the sides of the forward portion of the link being parallel and  
25 approximated to a distance slightly exceeding the thickness of the links of the trace-chain, in combination with a trace-chain attached to said slip-link and having links adapted to be seated and engaged between  
30 said hook and heel.

3. The combination of a trace-chain adapted to be passed through a ring or eye to attach it to a whiffletree and to be turned back and fastened to itself, and means for fasten-  
35 ing the end of the chain to an intermediate link thereof comprising a slip-link in the form of an endless metal bar looped into the end of

the chain and having its rear portion opened into a wide loop, its front portion bent into a hook, and the sides thereof brought together  
40 in parallel relation at a distance slightly exceeding the distance of the trace-links and having downwardly, backwardly and forwardly bent intermediate portions coacting with the hook.

4. The combination of a trace-chain adapted to be passed through a ring or eye to attach it to a whiffletree and to be turned back and fastened to itself, and means for fasten-  
50 ing the end of the chain to an intermediate link thereof comprising a slip-link in the form of an endless metal bar looped into the end of the chain and having its rear portion opened into a wide loop, its front portion bent into a hook, and the sides thereof brought together  
55 in parallel relation at a distance slightly exceeding the thickness of the trace-links and having downwardly, backwardly and forwardly bent intermediate portions coacting with the hook, the distance between the in-  
60 side of the hook and bend being approximately equal to the length of one of the trace-links, whereby the latter is adapted to be forced into and seated therein, the adjacent links passing through the slot formed between  
65 the two parallel sides of the link, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM JONES CASS.

Witnesses:

JOHN L. FAWCETT,  
GEORGE M. SHAW.