May 17, 1960 G. H. JOHNSON 2,937,001

CHAIN BINDER

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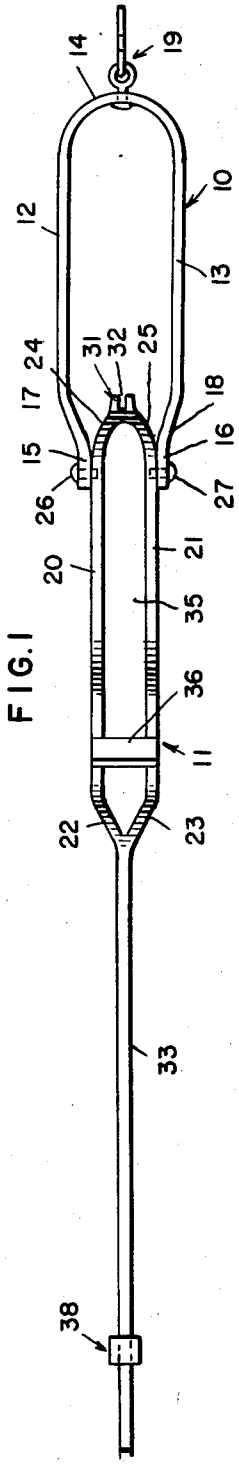


FIG. 1

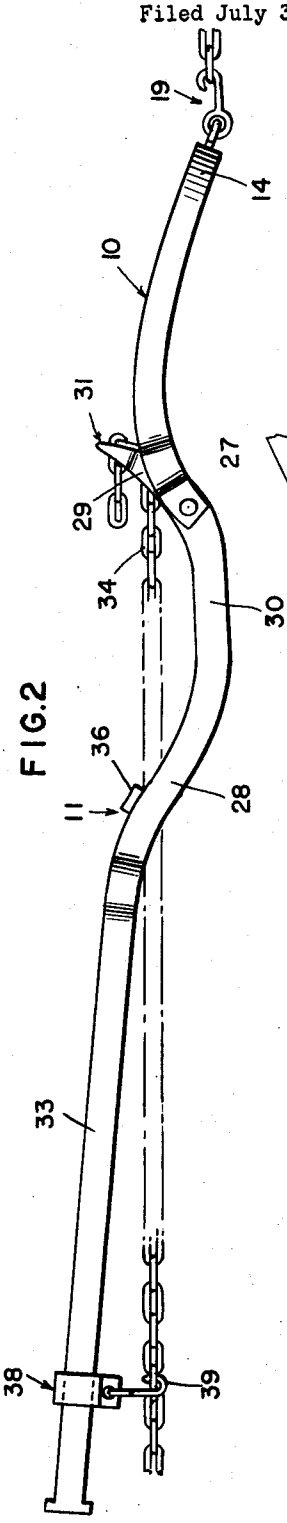


FIG. 2

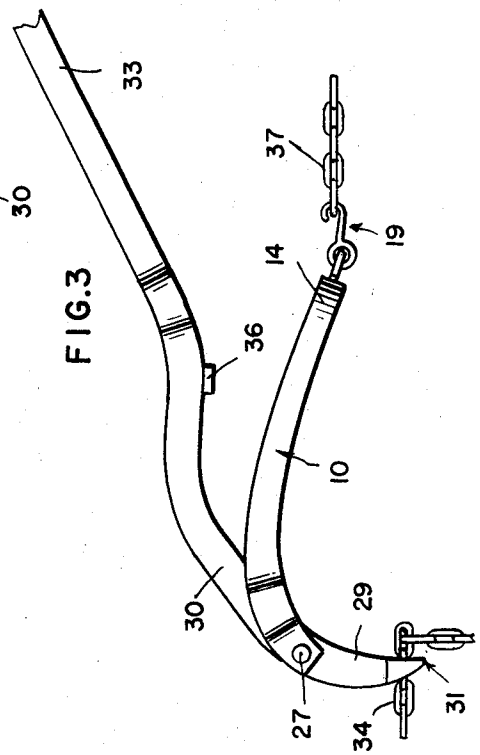


FIG. 3

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CHAIN BINDER

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2 Claims. (Cl. 254—78)

This invention relates generally to load binding tools and pertains more particularly to an improved form of chain binder characterized by its self locking and self releasing features.

Load binders are conventionally used in connection with a chain girding a load of logs or similar discrete articles for joining the opposite ends of the chain and pulling the chain into taut binding relationship with the articles to form a girdle for holding them in unitary fashion. The prime requisite for load builders is adaptability for rapid manipulation and ability to quickly engage and disengage the associated chain without requiring undue manipulation on the part of the operator.

It is, therefore, a primary object of this invention to provide an improved form of chain binder having the abovementioned characteristics.

One object of this invention is to provide an improved chain binder incorporating two rugged yet light weight component parts which are of simple yet effective design.

Another object of this invention is to provide an improved form of chain binder incorporating pivotally interconnected lever and fork assemblies so constructed and related as to provide a self-locking unit when the device is manipulated to tension the associated chain while at the same time the assembly will automatically release the chain when manipulated to relax the tension on the associated chain.

Another object of this invention is to provide an improved form of chain binder according to the preceding object wherein the fork embodies a pair of spaced leg members connected only at one end and provided thereat with means for connection to a chain and wherein the lever assembly embodies an elongate head comprised of a pair of spaced side members interconnected at opposite ends so as to provide an opening therebetween, with the head being pivotally connected at one end between the free ends of the legs of the fork and provided at this one end with a bifurcated nose for gripping a chain and the head being of generally U-shaped configuration so that when the assembly is in the chain tightening position, the chain will pass from the nose through the opening between the spaced side members of the head to permit an over-center locking relationship between the parts so as to prevent accidental disengagement of the assembly.

Another object of this invention is to provide an improved form of chain binder in conformity with the foregoing object wherein a stop member is provided rigidly between the opposite side members of the head adjacent the end thereof remote from the nose and wherein a handle projects axially beyond this latter mentioned end of the head.

With the above and other objects in view, the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawing and pointed out in the claims hereto appended, it being understood that

various changes in the form, proportions, and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

Fig. 1 is an elevational view of the assembly showing the same in load binding position;

Fig. 2 is a side elevational view of the assembly shown in Fig. 1 and showing the associated chain attached thereto; and

Fig. 3 is a view similar to Fig. 2 but showing the parts manipulated to a relaxed position.

Referring more particularly at this time to Fig. 1, reference numeral **10** indicates in its entirety the fork assembly whereas the reference numeral **11** indicates in its entirety the lever assembly, the two of which are pivotally interconnected as will be presently set forth.

The fork assembly embodies a pair of spaced leg members **12** and **13** which are joined by an integral portion **14** at one end of such legs and with the opposite ends of the legs being free. The legs **12** and **13** extend for the most part of their length in spaced parallelism but toward the free ends **15** and **16** thereof are embodied the convergent portions **17** and **18** so that the free ends **15** and **16**, though parallel, are laterally inwardly offset with relation to the legs **12** and **13**. The portion **14** which interconnects the two legs **12** and **13** is provided with a suitable hook mechanism indicated generally by the reference character **19** by means of which this end of the fork may be attached to a chain, see particularly Fig. 2.

The lever assembly **11** will be seen most clearly from Figs. 1 and 2 and will be seen to include a head assembly comprised of a pair of spaced parallel side members **20** and **21** which have convergent opposite ends **22**, **23**, **24** and **25**. The side members **20** and **21** are spaced apart so as to be freely disposed between the free ends **15** and **16** of the legs **12** and **13** of the fork in the manner shown most clearly in Fig. 1 and they are pivotally interconnected therebetween by means of the rivet members **26** and **27** or other suitable means. It is, however, important that the pivot providing means not extend appreciably within the space between the side members **20** and **21**, as will be clearly apparent presently.

The side members forming the head are of generally U-shaped configuration as will be seen most clearly in Fig. 2 to present the opposite end portions **28** and **29** and the intermediate bight portion **30**. The end **29** of the head assembly which is pivotally connected between the legs **12** and **13** terminates in a bifurcated nose **31** presenting the notch **32** so as to straddle a chain link in the manner shown most clearly in Fig. 2 so as to grip the same when the chain is being tightened. An elongate handle **33** extends from the opposite end **28** of the head assembly and extends in general in parallel relationship to the bight portion **30** of the head, the purpose of which will be presently apparent also.

As is also shown most clearly in Fig. 2, the fork assembly is provided with a slight curvature and the parts are interconnected so that when they are extended as in Fig. 2, the curvatures of the head and the fork face in opposite directions, that is, in Fig. 2 the curvature of the fork is facing downwardly whereas the curvature of the head is facing upwardly with the nose **31** disposed uppermost. The reason for this is to permit the chain end **34** to pass through the opening **35** presented between the side members **20** and **21** of the head in the manner shown in Fig. 2 with the nose **31** being disposed on the same side of the pivotal center provided between the fork and the head as is the opposite end **28** of the head. The parts, in other words, being in over-center relationship in this position as will be clearly evident from Fig. 2.

To provide a stop for holding the parts in this over-center relationship with the chain tightened as is shown in Fig. 2, a stop bar **36** is rigidly connected between the side members **20** and **21** closely adjacent the handle member **33**.

To use the binder, the initial position is similar to that shown in Fig. 3 wherein the arcuate portions of the head and fork are in substantially nested relationship with the head being disposed substantially between the legs of the fork and with the handle **33** overlying the bight portion **14** of the fork. When the parts are in this position, the chain hooking means **19** is attached to one end **37** of the chain and the nose **31** is hooked over one of the links of the opposite end **34** of the chain. The handle **33** is then manipulated to swing the parts toward the position shown in Fig. 2, thus tightening the chain. After the nose **31** has passed the dead center relationship, further movement of the handle **33** will cause the same to be pulled over the dead center relationship to the other side of center until the stop bar **36** engages upon the chain end **34** so that the parts are self locking. As a safety feature, a securing hook member **38** is fixed to the free end of the handle **33** and the hook **39** thereof is engaged about the chain in the manner shown in Fig. 2. To release the chain, the opposite manipulation is accomplished and it will be readily apparent that when the chain is released, it will freely fall from between the notched portion of the nose **31**. Thus, it will be seen that this assembly is not only self locking but is also self releasing in that the nose **31** will release the chain without effort on the part of the operator.

I claim:

1. A chain binder comprising an elongate head having a pair of spaced side members joined at opposite ends to present an opening therebetween, a nose at one end of said head for gripping a chain, a handle extending axially from the other end of said head, and a fork pivotally connected to said head, said fork having a pair of spaced legs joined at one end, said head being received between the free ends of said legs, separate pivot means at opposite sides of said head pivotally connecting the same to said legs with there being a free space between said pivot means, and means at said one end of the fork for connecting a chain thereto, said nose being disposed midway between planes containing the side members of said head and said head being curved from end to end whereby a chain may pass through the opening between the side members with said handle lying closely adjacent the chain.

2. A chain binder comprising a head of generally U-shaped profile having a pair of spaced side members connected at opposite ends to present an opening therebetween, a nose formed at one end of said side members and presenting an outwardly opening notch at one end of the nose for receiving a chain link therein, a handle rigid with the opposite end of said side members and extending generally parallel to the intermediate portions of said side members, a fork of arcuate profile, said fork having a pair of spaced legs connected at one end and provided thereat with means for connection to a chain, means pivotally connecting said head, adjacent said nose, between the free ends of said legs with the curvatures of said head and said fork in profile facing oppositely when the two are extended and facing similarly when the head is nested within said fork with the said handle overlying the connected ends of said legs, said means comprising separate pivot members joining said legs to said head with there being a free space between such pivot members, said nose being disposed substantially midway between planes containing the side members of said head so that the chain may pass through the opening between the side members with said handle lying closely adjacent the chain when the said head and fork are in the stated extended position.

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