(No Model.)

J. C. COONLEY.

Drive Chain.

No. 237,489. Patented Feb. 8, 1881.

Fig. 1.

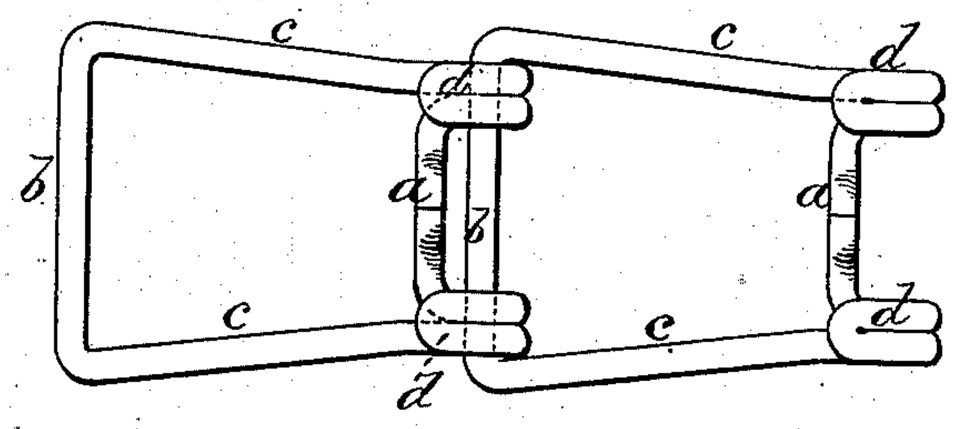


Fig. 2.

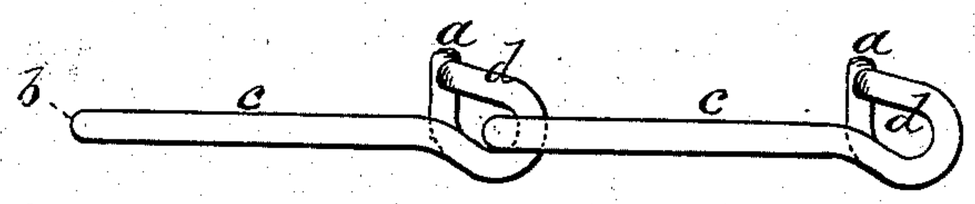


Fig. 3.

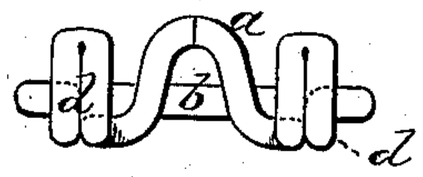


Fig. 4.

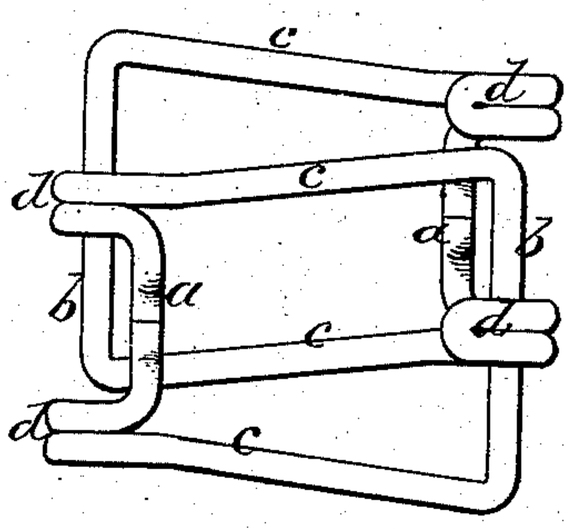
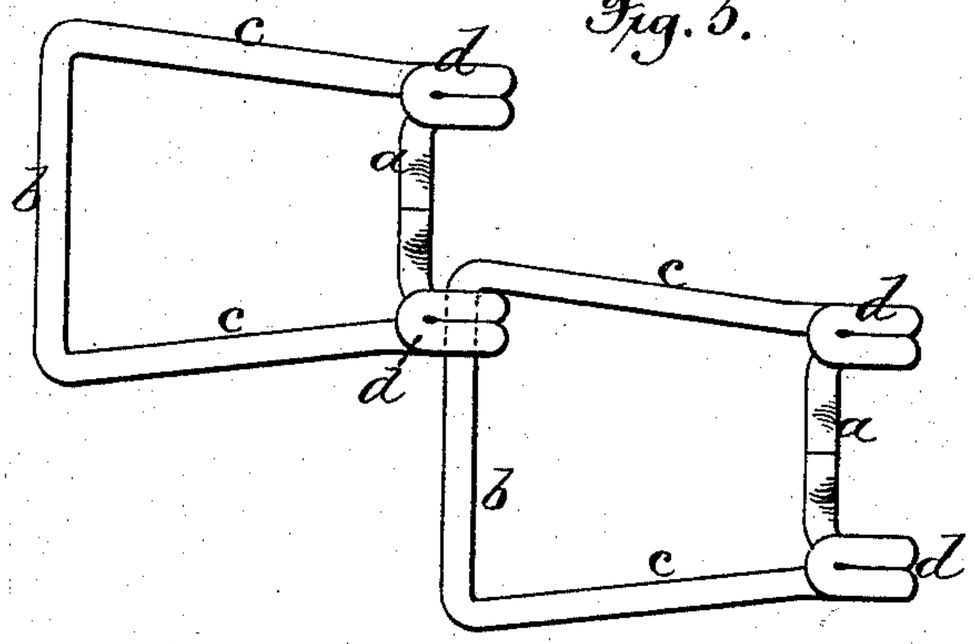


Fig. 5.



Attest;

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UNITED STATES PATENT OFFICE.

JOHN C. COONLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO EWART MANUFACTURING COMPANY, OF SAME PLACE.

DRIVE-CHAIN.

SPECIFICATION forming part of Letters Patent No. 237,489, dated February 8, 1881.

Application filed December 24, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. COONLEY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Drive-Chains; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to a novel construction of that kind of drive-chains the links or parts of which are made wholly of wire, and has for its main object to provide for use a chain of this class which, while it shall have its links readily detachable, shall at the same time involve a principle of construction such that the links will be stronger and wear longer than usual, and can be separated only by an intricate relative movement of the coupled parts.

To these main ends and objects my invention consists in a wire chain-link composed of a single piece bent so as to form the desired contour for the link of a sprocket-wheel chain, and also so that two hook-like devices, each formed of two strands of the wire and arranged longitudinally of the link, and one transversely-arranged arch-like device composed of one strand of the wire, shall occur at that end of the link with which the plain end bar at the opposite end of a duplicate link is adapted to be coupled and uncoupled, all as will be hereinafter more fully explained.

To enable those skilled in the art to which my invention appertains to make and use the same, I will proceed to more fully describe it, referring by letters to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a top view of a chain embodying my invention. Fig. 2 is an edge view of the same. Fig. 3 is an end view of one of the links of the same. Fig. 4 is a top or plan view, showing the right-hand-side link of Fig. 1 turned over and moved sidewise relatively to the adjacent link, as it would be necessary to move it in initial movements for uncoupling. Fig. 5 is another top view, showing the same link turned back to its original plane and still further moved sidewise to that relative position with the adjacent link in which the parts may be slipped apart.

In the several figures the same part will be found designated by the same letter of reference.

As the links of my improved chain are duplicates, a description here of the construction of a single link will suffice.

Each link of the chain is composed of one piece of wire of a size or number properly proportionate to the size of the link and the designed strength of the chain, and this piece of wire is bent into the shape illustrated in the drawings, with its ends meeting at the crown or apex of the arch-like transverse portion or end bar, *a*.

One end bar, *b*, and the two side bars, *c c*, are preferably straight, and these parts form three sides of a figure substantially rectangular in contour, the fourth side being bounded by the arched bar *a*, which lies substantially in a plane which is about transverse to the nearly parallel side bars, *c c*.

At each end of the arched end bar, *a*, the wire is turned so as to form an open hook-like coupler device, *d*, which, as seen, is composed of two strands of the wire, and lies lengthwise in a direction substantially the same as the direction of length of the side bar, of which it forms a sort of extension. By having each hook-like coupler device *d* thus made of two strands of the wire arranged side by side, a broader wearing-surface is presented where the interior of said hook comes into contact with the plain end bar of a link coupled to said hooks, and both the hooks and the end bar coupled therewith are capable of enduring more draft-strain and wearing longer than if the hooks were composed of only a single strand of the wire; and if the sprockets of the chain-wheels should work toward the plain end-bar portions of the links these double-strand hooks will serve to strongly bear the strain and wear of the sprockets.

The arched bar *a* not only serves to necessitate a sort of intertwining and intricate relative movement of the parts of two links to couple or uncouple them, but also practically affords a larger or broader surface for the bearing of the sprocket than could be afforded by

an end bar composed of the same size wire running straight across the end of the link—as runs the end bar *b*, for instance.

In order to uncouple any two adjacent links of the chain, substantially the following operations have to be performed, viz: One link must be turned over almost face to face with the other, and then the two moved sidewise relatively until the side bar of the one shall have been passed through the throat of one of the hooks *d* of the other, all as illustrated at Fig. 4. Then the said link must be turned back toward and nearly to the plane originally occupied by it relatively to the other link, so that the same side bar which was passed through the throat of one of the hooks *d* will move clear of the arched bar *a*, when the said link is further moved sidewise into about the position seen at Fig. 5. In this relative position of the parts the two links, it will be seen, may be easily separated, since the throat or opening of each hook *d* is of a size very slightly greater than the diameter of the wire composing the link. To couple or recouple any two links, the reverse of the manipulation or movements just explained is, of course, necessary.

It will be observed that a detachable chain composed of wire links made as described will not only require a comparatively complex movement of the parts to uncouple the links, and is therefore not liable to have its parts accidentally uncoupled, but will possess, in an eminent degree, a capacity to stand great tensional strain, in proportion to the size of the wire and the frictional wear to which the parts of a drive-chain are subjected, where the parts turn and work against each other and against the sprockets; and it will be understood that the sizes and shapes of many of the parts may be varied without departing from the shown and described novel principle of construction of the link. The ends of each link where they meet may be fastened together, if desired, and the links might be made with the ends meeting at some other point; but in the precise form and condition shown the chain-links work successfully and advantageously.

Having so fully explained my invention that any one skilled in the art can make and use a chain embodying it, what I claim as new, and desire to secure by Letters Patent, is—

A wire chain-link having at one end two open coupler-hooks, each composed of at least two thicknesses of the wire and an arched end bar, and adapted to have coupled with and uncoupled from it the plain end bar at the opposite end of a duplicate link.

In testimony whereof I have hereunto set my hand this 26th day of November, 1880.

JNO. C. COONLEY.

In presence of—
T. S. FAUNTLEROY,
GLENN. G. HOWE.