

(No Model.)

W. D. EWART.
Drive Chain.

No. 239,750.

Patented April 5, 1881.

Fig. 1.

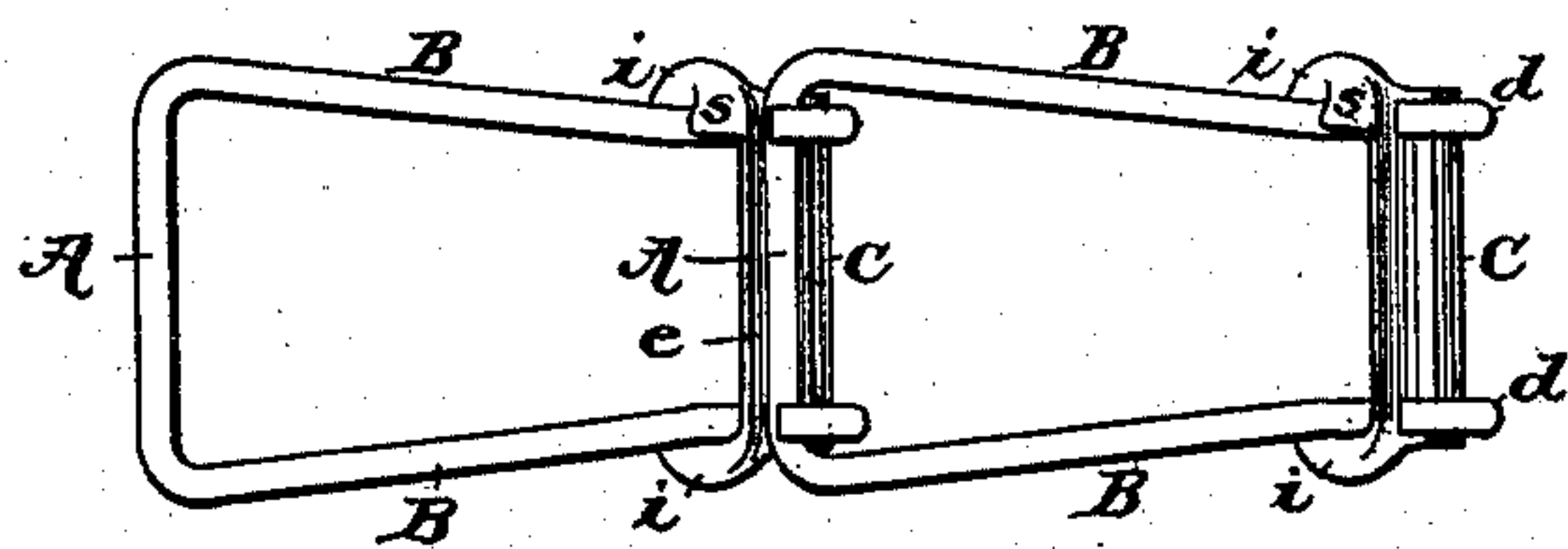


Fig. 2.

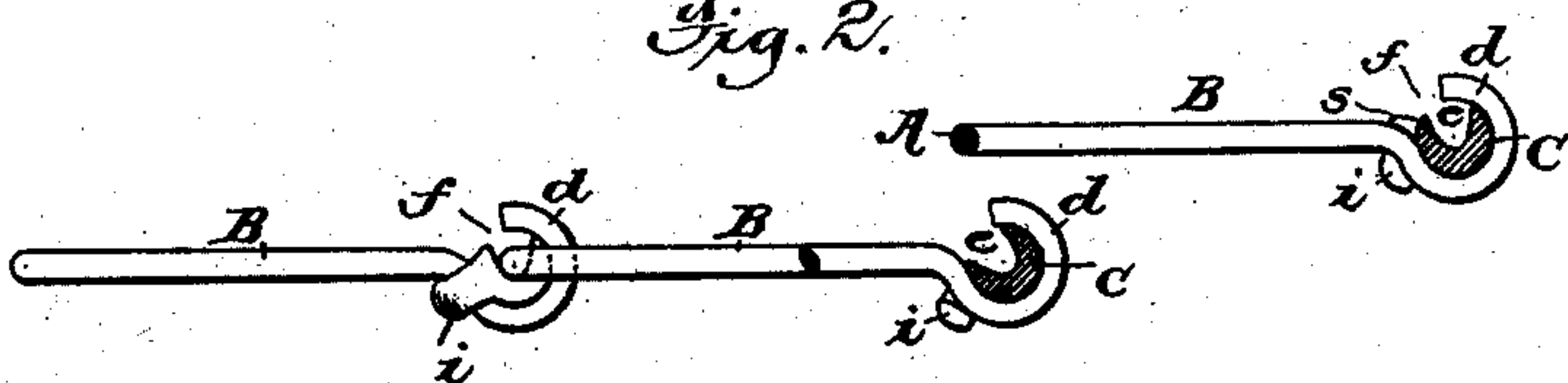


Fig. 3.

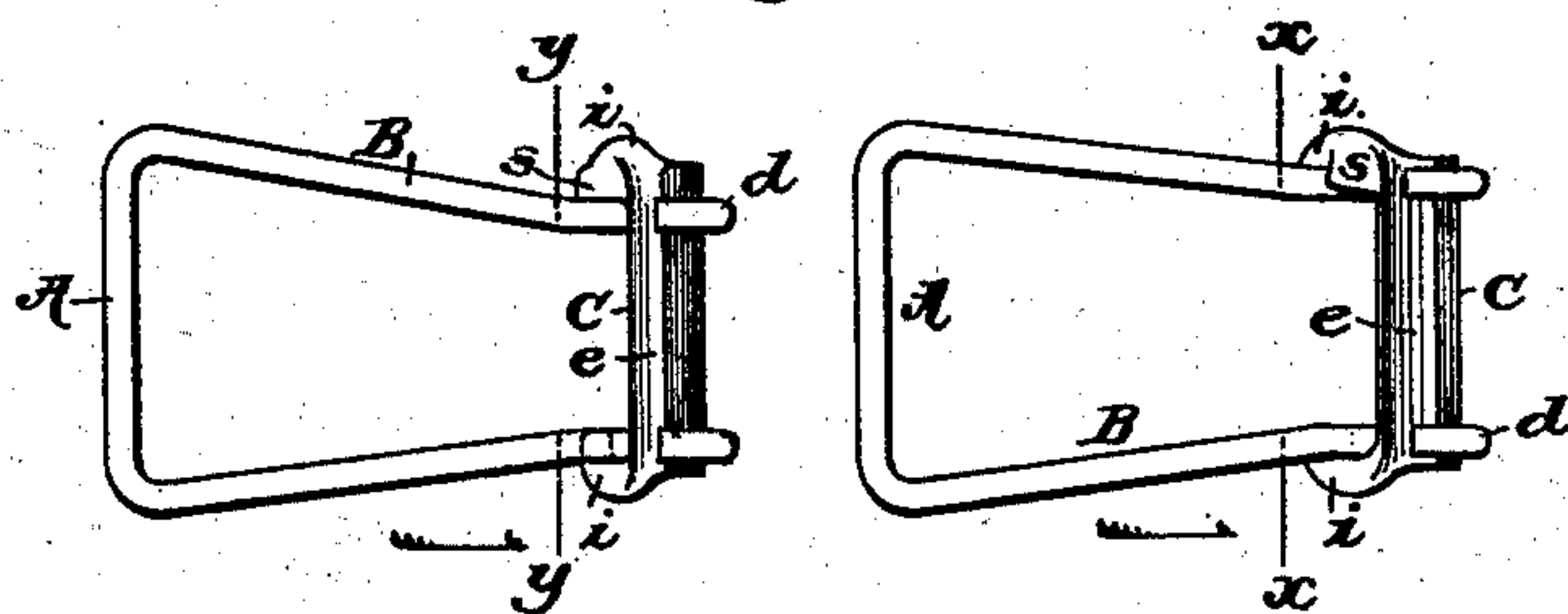


Fig. 4.

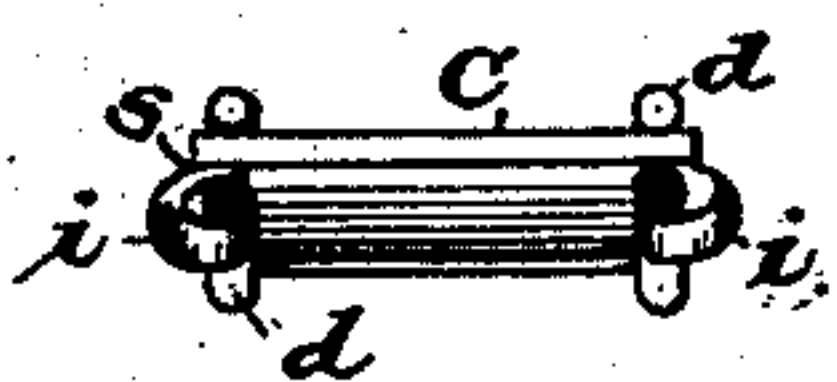


Fig. 5.



Attest;
Geo. H. Graham
G. W. Smith

Inventor,

W. D. Ewart
My Atty.

Atty.

UNITED STATES PATENT OFFICE.

WILLIAM D. EWART, OF CHICAGO, ILLINOIS.

DRIVE-CHAIN.

SPECIFICATION forming part of Letters Patent No. 239,750, dated April 5, 1881.

Application filed January 20, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DANA EWART, 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 present invention relates to a novel construction of wire chain-link for what are known as "detachable" drive-chains.

Previous to my invention this kind of chains has been made usually with some sort of hook-like devices at one end of the link, composed of the wire forming the link, though I have devised a wire link having combined with its hook-like devices a tubular end bar, (preferably of cast metal,) whereby a longer and better bearing-surface is afforded at the point of articulation between any two adjacent links. That novel construction devised by me constitutes the subject-matter of another application for Letters Patent by me, and the invention made the subject of this application relates to an improvement in that construction of links.

My present invention consists, primarily, in having the nearly tubular end-bar device that is combined with the retaining-hooks of a wire link made adjustable, so that when turned into one position its contained end bar (of another link) may be extricated therefrom, and when turned into another position said end bar cannot be removed, all as will be hereinafter more fully described; and my invention consists, secondarily, in having the tubular device either constructed or provided with means through the medium of which said device may be held in either or both positions to which it may be adjusted by the spring of the wire side bars of the link, all as will be hereinafter more fully explained.

To enable those skilled in the art to make and use my invention, I will now proceed to more fully describe the construction and operation of a chain-link and chain embodying my invention by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a top view of a chain made according to my present invention. Fig. 2 is a

sectional edge view, showing two links coupled and a third uncoupled. Fig. 3 shows, in top view, two separated links, one of which (that to the right) has the tubular adjustable end bar set in the position that the device is in when adjusted to retain an end bar, and the other of which has said device adjusted to the position it must be put in to permit the extrication from it of the plain end bar of an adjacent link. Fig. 4 is a vertical section at the line *x x* of Fig. 3, looking in the direction indicated by the arrow; and Fig. 5 is a similar sectional view at the line *y y* of Fig. 3.

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

In a chain embodying my invention each link, as clearly illustrated, is composed of a piece of wire bent or shaped to form the two side bars, *B B*, and one (plain) end bar, *A*, and a nearly tubular device, *C*, preferably of cast metal, which forms the other end bar of the link, and which, as seen, is embraced at either end by the hook-like portions *d d* of the wire portion.

The device *C* has a longitudinal opening or throat at *e*, running its entire length, and of a width sufficient to permit the easy insertion laterally through it (and into the bore of *C*) of the plain end bar, *A*, of a link, while each of the hook-like devices *d d* has an opening, *f*, of equal width, through which also the plain end bar, *A*, of a link is passed in either coupling or uncoupling any two links. But in the normal condition of the chain parts the throat or slot *e* is not in line with the openings *f* of hook *d*, and therefore, although each of said openings *e* and *f* is slightly wider than the diameter of an end bar, *A*, the overhanging ends of hooks *d* prevent the uncoupling of said end bar. This is most plainly shown at Fig. 1, at the left-hand coupling of Fig. 2, and at the right-hand coupling device of Fig. 3.

The device *C* has at or near one end a small curved claw or arm, *i*, that lies below and partially embraces the wire hook-like device *d* near its root; and at the other end of *C* a similar claw is supplemented with a projecting part, *s*, which overlies the root portion of the hook-like device, and which, together with the device *i*, (at the last-mentioned end of *C*,) forms a sort

of partially encircling or clasp device round about the root of the hook. (See Figs. 4 and 5 and right-hand coupler of Fig. 3.)

In order to adjust the parts to permit an uncoupling of the end bar, A, from the hooks *d* and tubular device C of another link, the ends of the piece of wire composing a link—that is, the hooked ends of two side bars, B—have to be sprung toward each other, as seen, for instance, at Figs. 3 and 5, so as to entirely free one of the hooks *d* from the embracing devices *i* and *s*, (see Fig. 5,) when the device C may then be partially rotated within the hooks *d d* until its slot *e* comes in line with the openings *f* of hooks *d*, as seen best at the middle coupler C of Fig. 2, at the left link of Fig. 3, and at Fig. 5. When turned to this relative position the hook ends of side bars, B, if released, will hold the device C by their spring force against the device *i* at one side and the device *s* at the other while the coupling or uncoupling is done. By slightly springing together the side bars, B, to relieve the parts of this pressure, the device C may be returned to its normal condition.

The conformation of the several parts and their co-operative action are, I think, clearly illustrated in the drawings, where, at Fig. 1, the coupled links have their adjustable devices C set in the position necessary to a perfect hinging together of the links, while at Fig. 2 the devices C to the left (in elevation) and to the right (in section) are shown in a similar normal position; but the one in the middle (from which the end bar, A, of the right-hand link appears to have been uncoupled) is shown (in section) turned to the position, seen also at Fig. 5, and at the left-hand link of Fig. 3, in which the slot *e* is made to coincide with the openings *f* of the hooks *d*, so that a free ingress and egress of a plain end bar, A, may readily occur.

It will be understood that when a series of my improved links are coupled together, as shown, to form a chain, the articulated parts will be inseparable in any position which the coupled links can assume relatively, but that by slightly springing together the hook ends of the side bars, B B, of any link, and then adjusting the device C of that link in the described manner, as seen at Fig. 5, the end bar, A, contained in the bore of said tubular device C can be moved bodily and laterally of itself out of said device C. Thus it will be seen any two links can be easily uncoupled

without turning the links relatively about their axes of articulation, and hence while the chain may be in a taut condition, which is often a great desideratum.

By making one end (or both) of the device C with the claws *i s*, between which the free hooked ends of the wire composing the sides and one end, A, of the link can enter and remain, by reason of the tendency of said ends to spring farther apart a very simple and efficient means is provided for effecting the certain retention of the hooks *d d* and the slotted hollow end bar, C, in their working relative positions.

Of course the size, shape, and proportions of the parts shown may be varied without departing from the spirit of my invention, so long as the described principles of construction and modes of operation be retained; and it will be seen that the first part of my invention might be used in a chain-link and chain provided with some other means for the retention in working condition of the hooks and hollow end bar than that forming the subject of the second part of my invention.

Having now so fully described my invention that those skilled in the art can understand and practice it, what I claim as of my invention, and desire to secure by Letters Patent, is—

1. A drive-chain link having hook-like devices *d d* at two adjacent ends of its side bars and a hollow end-bar device, C, the said device C having an opening, as at *e*, and the said device and hooks *d d* being capable of adjustment relatively to set the openings of C and *d d* in and out of line, all substantially in the manner and for the purposes hereinbefore described.

2. In a chain-link, the combination, with the adjustable slotted hollow end bar, C, and retaining-hooks *d d*, of side bars, B, adapted to be sprung toward each other, (and having a tendency to spring back to their normal relative positions,) and suitable devices in the hollow end bar for the ends of bars B to engage with, for the purpose of holding the parts of the link in their normal relative positions, substantially as set forth.

In testimony whereof I have hereunto set my hand this 1st day of December, 1880.

WILLIAM DANA EWART.

In presence of—

EDWARD F. GORTON,
JAMES M. DODGE.