

(No Model.)

J. W. GARLAND.
CHAIN LINK.

No. 472,166.

Patented Apr. 5, 1892.

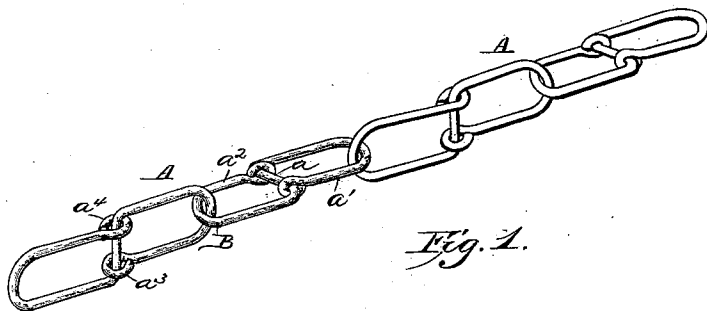


Fig. 1.

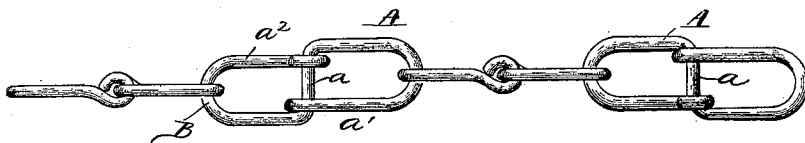


Fig. 2.

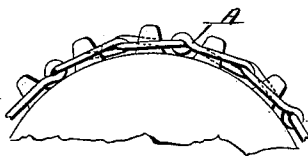


Fig. 3.

WITNESSES

Jno. Sanders Jr.
S. L. Johnson

INVENTOR

John W. Garland
By Butterworth Hall & Brown
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN W. GARLAND, OF PITTSBURG, PENNSYLVANIA.

CHAIN-LINK.

SPECIFICATION forming part of Letters Patent No. 472,166, dated April 5, 1892.

Application filed January 19, 1891. Serial No. 378,297. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. GARLAND, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Chain-Links; and I do hereby declare the following to be 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 present invention relates to chain-links, and is specially designed as an improvement upon the invention shown and described in a patent issued to me on April 22, 1890, No. 426,177. As illustrated in said patent, the links are each formed of a single piece of metal of uniform cross-section, one end portion of the piece being formed into a loop and the free end thereof being twisted around the central portion of the piece and the other end portion being formed into a loop and the free end thereof twisted around the first end portion near the point where the latter is bent to form the cross-bar which connects the central portion of the link, but said second end portion not engaging said central portion. As recited in my aforesaid patent, in order that a chain may possess the greatest strength with the least possible weight, be free from tendencies to kink up, and run smoothly over pulley-wheels, through guides, and over obstructions of any kind without catching it is necessary that the material of the link should be so disposed that it shall be subjected as nearly as possible to equal strains at all points, the space between the two sides of the link should be at all points a little greater than the thickness of the material forming the next link in the chain, and the width and thickness of each link at all points in its length should be as nearly as possible uniform, so that there may be no projections to catch upon obstructions.

The object of my present invention is to retain the several advantages thus enumerated with reference to my former invention and at the same time to form a link which shall embody features of construction which will give strength and rigidity to the link, in which the strain upon the parts will be more evenly divided, and in which the ends of the link will not be subjected to undue strain,

as is the case with links of somewhat similar construction heretofore in use, wherein the end portions of the link are caused to pull against each other. With these several objects in view I propose to form the link with loops and intermediate cross-bar similar to the construction shown in my aforesaid patent; but instead of forming the loops and cross-bar in the manner described in said patent I propose to bend the piece of metal of which the link is composed twice at right angles near the central portion thereof and form each end portion into a loop, the free end of which is twisted around said central portion, which latter portion forms the cross-bar which is arranged centrally of the finished link, and the link thus constructed constitutes my present invention.

In the accompanying drawings, in which like letters of reference are used to designate like parts, Figure 1 represents a perspective view of a section of a chain embodying my invention, the links in part being shown in outline. Fig. 2 is a plan of the same, and Fig. 3 is a detail representing a section of the chain applied to a cog-wheel.

The several links of the chain are designated by the letter A. Each link is composed of a single piece of metal, preferably circular and of uniform cross-section, such as wire or other suitable strip of metal, and of proper dimensions. The piece of metal is bent centrally thereof twice at right angles, so as to form a main central cross-bar a , and each end portion of the piece is formed into a loop, the free end of which is bent around the said cross-bar a , so that the looped ends will engage the cross-bar at opposite sides of the link, whereby the pull of the portion a' of the link will be at one end of the cross-bar a , while the pull of the other portion a^2 will be upon the opposite end of the cross-bar, and the cross-bar being formed integrally with the central portion of the link gives strength and rigidity to the structure and preserves the integrity of the link when subjected to severe strains. This arrangement also disposes the parts a' a^2 so that they will not pull against each other, and the result is a link in which each portion of the wire strip or metal A is subjected to nearly the same strain. The sides of the link are also nearly parallel

to each other, and at every point the space between them is greater than the thickness of the material which forms the bight, as at B, of the link, and danger of kinking is thereby avoided. Furthermore, the thickness of the link at different points is preserved as nearly as possible uniform, and the twisted portions $a^3 a^4$ are kept apart and not superimposed one upon the other. This construction also adapts the link to be used upon a cog-wheel, as indicated in Fig. 3 of the drawings, the loops being kept sufficiently open to readily admit the teeth or cogs of the wheel without binding, and the cross-bar being adapted to engage the teeth without injury to the link or liability to bend under ordinary strains by reason of the disposition of the portions $a' a^2$, at either side of the cog or tooth which engages said cross-bar. This form of link also has the advantage of running smoothly over any object—such as a windlass—and will bear evenly thereon. The link has the greatest possible strength for a given weight of material, is not nearly so subject to kinking and getting jammed in guide-ways as links heretofore commonly in use,

and withal is simple and may be manufactured at a moderately small cost.

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

1. As an improved article of manufacture, a chain-link composed of a single bar or rod of metal bent at or about its center to form a cross-bar, loops projecting in reverse directions forming the body of the link, and eyes on the free ends of the loops, which are secured to the centrally-disposed cross-bar, as set forth.

2. As an improved article of manufacture, the chain-link composed of a single piece of metal bent so as to form a centrally-arranged cross-bar and reversely-bent end portions formed into loops whose free ends embrace the said cross-bar at opposite sides of the link, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. GARLAND.

Witnesses:

JOSEPH BEATTY,
S. W. POWELL.