(No Model.)

G. M. JEWETT.

SHEET METAL CHAIN.

No. 377,076. Patented Jan. 31, 1888.

Fig. 1.

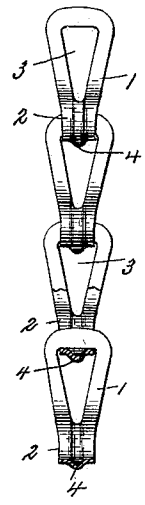


Fig. 2.

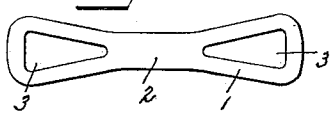


Fig. 4.

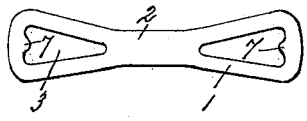


Fig. 3.

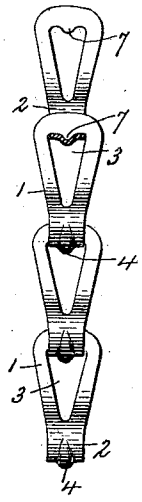


Fig. 5.

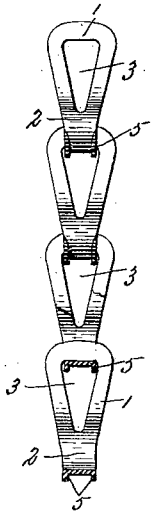


Fig. 7.

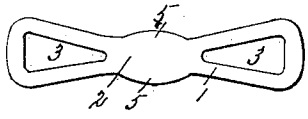


Fig. 8.

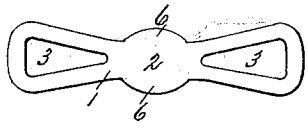
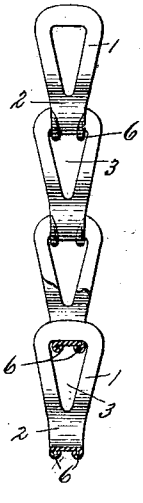


Fig. 6.



Witnesses.
E. D. Smith
C. E. Ruggles.

Inventor.
George M. Jewett
By A. M. Wooster
Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GEORGE M. JEWETT, OF BRIDGEPORT, CONNECTICUT.

SHEET-METAL CHAIN.

SPECIFICATION forming part of Letters Patent No. 377,076, dated January 31, 1888.

Application filed May 10, 1887. Serial No. 237,779. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. JEWETT, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Sheet-Metal Chains; 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 invention relates to the manufacture of sheet-metal chain—that is to say, chain of the class in which each link is formed from a blank of sheet metal having an eye at each end, the blank being doubled upon itself so that the eyes are in line with each other, the metal at the two ends of the blank being in contact and forming one end of the link, and the central portion of the blank being curved into a loop, which constitutes the other end of the link.

It will of course be apparent that in this class of chain each link is strongest at the end formed by the two eyes. Attempts have been made to overcome the weakness of the loop end of the link by increasing the thickness of and also by hardening the metal used. As the metal is increased in thickness, however, the weight of the chain, and, consequently, its cost, is greatly increased. Moreover, the difficulties of producing it are also greatly increased by either hardening the metal or by increasing its thickness, as the dies and other portions of the machine are frequently broken when either very thick or very hard metal is used. It is found in practice that the breakage in this class of chain is entirely at the loop end of the link, unless serious flaws should happen to occur at the end formed by the eyes. The breakage at the loop end occurs as the chain passes over the pulley. When the loop of the link is either passing onto or off from a pulley, just before reaching or just after it has passed from the vertical position, there is great crushing strain upon the loop as it is drawn against the surface of the pulley. At this instant the entire pull of either sash or weight is exerted to crush or flatten out the loop, so that breakage always occurs at this end of the link—that is, the portion formed by the central portion or shank of the blank.

My present invention has for its object to, and does, wholly overcome the only serious objection to sheet-metal chain. This important result I accomplish by slight changes in the construction of the loop of the link, with but slight increase in the weight of the chain, without any waste whatever of metal, so that the cost of material is not increased and without in any way increasing the cost of production.

In order that others may understand and use my invention, I will proceed to describe the same, referring by numbers to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of several links of my improved chain, certain of the loops being in section in order to make the construction more clear; Fig. 2, a plan view of the blank from which a link is formed, the blank being the ordinary one used in this class of chain; Fig. 3, a view corresponding with Fig. 1, illustrating a form in which lugs or teats are formed in the blanks at the center of each eye, so that when the link is formed increased bearing-surface is provided at the eye end thereof. I have also in this figure shown the ribs or corrugations in the loops of the links as made shorter than in Fig. 1. Fig. 4 is a plan view of the blank from which the links in Fig. 3 are formed. Figs. 5 and 6 are views corresponding with Fig. 1, showing the loop end of the link as strengthened in a slightly different equivalent manner; and Figs. 7 and 8 are plan views of blanks corresponding, respectively, with the completed links illustrated in Figs. 5 and 6.

1 denotes blanks from which the links are formed; 2, shanks at the central portion of the blanks, and 3 eyes at each end thereof.

I have invented special machinery for making my improved chain, but make no description thereof in this application, as it forms no portion of my present invention. It is sufficient for the purposes of this application to say that the formation of the blanks and the manipulation of the blanks in forming the chain may be performed in any ordinary or preferred manner.

The gist of my present invention lies in strengthening the loops of the links by corrugating, ribbing, bending, or rolling the metal, so that in passing over pulleys when the strain comes upon the loops of the links it will not have to be withstood, as heretofore, by a simple

flat loop, but will, on the other hand, be resisted by metal disposed in the form of corrugations, ribs, flanges, or rolls. By so doing I increase the strength of the loop end of the link, so that it is fully equal to the eye end and will stand any possible strain that can be brought to bear upon it under ordinary circumstances. With a given number of metal I am enabled to produce a chain that will stand very much greater strain than has heretofore been possible, or if a certain strength is required I am able to produce it with a very much lighter metal than has heretofore been possible.

Turning now to Fig. 1, 4 denotes a corrugation or rib formed in the center of each loop. This corrugation or rib may be formed in any suitable manner—as, for example, by dies in bending the blanks upon themselves to form the links. In Fig. 1 the corrugation or rib is shown as extending from eye to eye. It is not, however, necessary for it to extend the full length of the shank; and in Fig. 3 I have shown the rib or corrugation as formed at the center of the loop, but not extending clear to the eyes.

In Fig. 5 I have shown the loop of the link as strengthened in an equivalent manner by flanges 5, bent up on opposite sides thereof. The wings of metal on the shank of the blank from which these flanges are formed are clearly shown in Fig. 7.

In Fig. 6 I have shown a form in which the loop of the link is strengthened by a roll, 6, of metal at the opposite sides thereof. The blank for this style of link is shown in Fig. 8, it being the same as that in Fig. 6, with the exception that the shank of the blank is made wider, so as to furnish sufficient metal for the roll. These forms have all been tried in practice and are found perfectly successful in that they produce a chain in which the loop end is quite as strong as the eye end and will stand all strain that can possibly be brought to bear upon it in ordinary use. The forms illustrated in Figs. 1 and 3 are, however, the preferred forms.

In Fig. 4 I have shown the blanks as provided with lugs or teats 7 at the center of the outer ends of the eyes. When the blank is formed into a perfect link, these lugs or teats are in line with each other, as indicated in Fig. 3, and in use project into and engage the hollow of the corrugation or rib of the next link, thus increasing the bearing-surface at that end of the link.

It will of course be understood that the shape and style of the links may be changed greatly without departing from the principle of my invention.

I claim—

1. Sheet-metal chain formed from blanks having eyes at opposite ends, which are bent into line with each other in the completed chain, the loop of each link being strengthened by corrugating or bending the metal.

2. Sheet-metal chain, each link of which is formed from a blank having eyes at opposite ends which are provided with lugs or teats 7, which are bent into line with each other in the completed link, the loop of the link being provided with a corrugation or rib, 4, which is engaged by the lugs or teats upon the next link, thereby increasing the bearing-surface.

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

GEORGE M. JEWETT.

Witnesses:
A. M. WOOSTER,
C. E. RUGGLES.