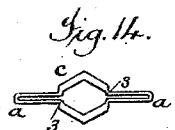
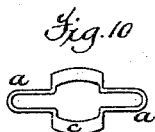
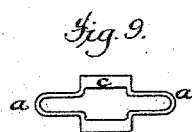
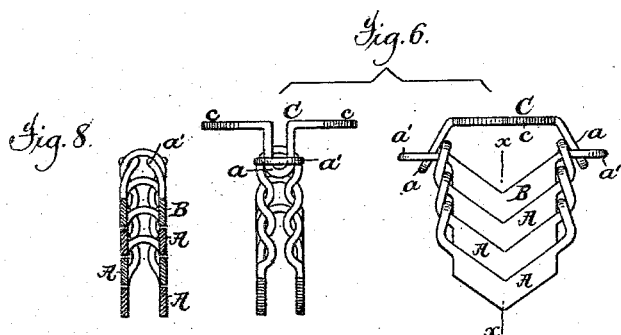
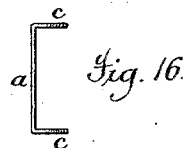
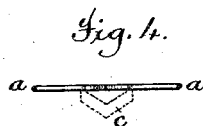
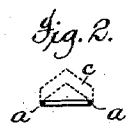
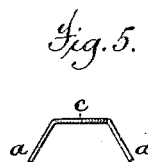
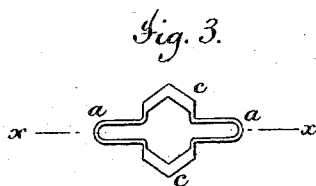
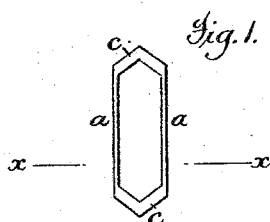


(Model.)

J. KINDER.  
ORNAMENTAL CHAIN.

No. 303,293.

Patented Aug. 12, 1884.



Attest:  
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# UNITED STATES PATENT OFFICE.

JULIUS KINDER, OF BROOKLYN, ASSIGNOR OF ONE-HALF TO FREDERICK W. GESSWEIN, OF NEW YORK, N. Y.

## ORNAMENTAL CHAIN.

SPECIFICATION forming part of Letters Patent No. 303,293, dated August 12, 1884.

Application filed February 20, 1884. (Model.)

### *To all whom it may concern:*

Be it known that I, JULIUS KINDER, a subject of the Emperor of Germany, residing at Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Ornamental Chains, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention relates to that class of ornamental chain in which the form of the links and the peculiar manner of interlocking them together give the ornamental appearance to the chain.

The ordinary "fox-tail" and "round" chains found in the market, which are made up of unbroken links of a uniform diameter and thickness cut from narrow strips of metal, have certain characteristics common to both—that is to say, the links are of the same shape and interlocked in a similar manner. The particular way in which the links are interlocked of necessity result in forming a very compact and closely built up structure, the center of which contains the ends of all the links, making practically a solid chain, consuming a large quantity of metal and inclosing a great portion of it within its exterior, serving no ornamental purpose, and adding to its weight as well as to its cost. These chains, moreover, can only be varied in their ornamental appearance in the very slightest degree, which necessarily limits the demand for them.

The object of this invention is, among other things, the production of a link formed of a single piece of metal for a chain of the class above described. The chain formed by using said link shall, in addition to the desirable qualities of the chains above named, consume a less quantity of metal in its manufacture and weigh less than an equal length of the aforesaid chains, and whose cost will, therefore, be correspondingly less; and, for a further object, the production of a link formed of a single piece of metal, the contour of certain portions of which, on being varied, will enable the making of as many different designs of chain as the contour of said portions is varied without materially changing the form of the link.

To this end the invention consists in the production of a novel form of link that is provided with certain enlarged portions which form the distinguishing design of a chain made thereof, and which is capable of taking any desired contour without materially changing its form, whereby the design of the chain may have many variations.

The invention also consists in a novel mode of forming the links, whereby economy of material and certain other advantages are obtained; and it further consists in the chain produced by this novel form of link, and in the various processes by which the links are formed into chain, all of which will be hereinafter fully set forth and claimed.

In the drawings, Figures 1 and 2 illustrate, by face view and cross-sectional elevation, the result of the first operation of forming the improved link. Figs. 3 and 4 illustrate, by similar views, the shape of said link when completed. Fig. 5 illustrates, by a side elevation, the way the ends of the completed link are bent preparatory to being formed into chain. Fig. 6 illustrates, by side and end elevations, a series of links formed into chain, and showing a link in position to be interlocked with the preceding one. Fig. 7 is an end view, looking from the top of the chain seen in Fig. 6, but with the link C omitted; and Fig. 8 is a vertical cross-section on the line *xx* of Fig. 6. Figs. 9 to 14, inclusive, illustrate some of the forms which the ornamenting portions of the link may take. Fig. 15 is an end view similar to that of Fig. 7, but showing a slight modification thereof.

In carrying out my invention, I take a thin strip of metal of uniform thickness provided with rounded edges and of a width equal to that of the incomplete link to be cut from it, and by suitable dies and punches cut up said strip of metal into links of the required length having the form shown in Fig. 1, wherein *a* are the side and *c* the end portions thereof. The links thus formed are then by suitable mechanism bent in such a manner that the side portions, *a*, will be distended outwardly, and each bent centrally, drawing the end portions, *c*, inwardly and in closer relation with each other, the result of which will be that the side portions, *a*, will become

the ends, and the end portions, *c*, the side or intermediate portions of the completed link, as is seen in Fig. 3. The object of thus forming the links is twofold—in utilizing the rounded edges of the metal strip by finally using the sides of the incomplete link as the ends of the completed one, and for the purpose of economizing material and making less waste, it being obvious that should the link be cut from the strip in its completed form much wider material would be necessary, the waste would be increased, and more complicated dies and punches be used in cutting it. These rounded ends are a very desirable feature, and one that adds much to the finish of the chain, and gives the interlocked ends a light, open appearance. The portions *c* of the link are preferably made slightly larger on their face than the remaining portions, so that when made into chain they will form an even continuous surface on opposite sides thereof, which may be highly polished, engraved, or otherwise treated, and from the fact of being larger will tend to keep their ends farther apart and make a more open and flexible chain, as will presently appear. These portions *c*, when the links are made into chain, aided to a certain extent by the latter's flexibility, and from the tendency of the links, when the chain is presented in a curved or other form, to assume various angles, one to the other, will, by their peculiar contour, give a distinguishing design partaking of said contour to the chain. As represented in Figs. 1 to 8, these portions *c* are of angular contour forming a centrally-projecting point and an interior opening partaking of said contour, whereby as the links are interlocked and these portions *c* are turned into position each portion will fit snugly against one similarly shaped on the adjacent link; and it is obvious, by changing the contour of these portions, that any distinguishing design may be imparted to a chain without materially varying the shape of the link, its ends always remaining the same, so that the particular mode of interlocking the links will not have to be changed to suit the change in the contour of its portions *c*, as will be seen by reference to Figs. 9 to 14, inclusive.

Supposing, for the purposes of this description, that a length of chain has so far advanced in being formed that a series of links have been interlocked one with the other in succession, and that the uppermost link, or the one last interlocked, has had, among other things, its end portions, *a*, bent out straight, as seen in Fig. 6, and had its said ends spread open, as seen in Fig. 7, the mode of continuing the formation of the chain will be as follows: The ends of a link, as C, which have been given a preparatory bend, as in Fig. 5, are inserted through the distended ends of the uppermost link, B, so that the side portions, *c*, will overlie the center of said link. (See Fig. 6.) While the link C is in this position the ends

*a'* of the link B are bent upward and slightly inward until they lie pressed against the base of the end portions, *a*, of the link C in the same way as the ends of the links A. This accomplished, the ends *a* of the link C are then bent out straight, and afterward spread or distended, as were the ends of the link B, to permit the easy insertion through them of the ends of the next link. During this manipulation of the links B and C, but before the ends of the latter are distended, its portions *c* have remained in the same position as they were when the ends of the link were first inserted in those of the link B, but are now turned or bent downward at right angles to said position, so as to lie in the same plane with and fit into and against the corresponding portions of the link B. The ends of another link having the preparatory bends, as seen in Fig. 5, are now inserted in the distended ends of the link C, and the various manipulations of interlocking it therewith in the manner just described will be repeated, and as many links may be similarly interlocked and bent into position as may be required, it being of course understood that in manufacturing large quantities of chain it may be made in long lengths and afterward severed into shorter lengths for use.

A chain thus formed presents a continuous flat surface on opposite sides, formed by and carrying the distinguishing contours of the portions *c* and on its edges (or other two sides) an open wire-looking appearance made up of the interlocked ends *a* of the links; and, as before observed, this continuous flat surface may be treated in any manner deemed desirable, and may be pressed into various shapes by passing the completed chain between pairs of rollers provided with suitable forming-grooves—such, for instance, as would press the chain into the shape seen in the end view, Fig. 15, wherein the portions *c*, forming the continuous flat surface on opposite sides of the chain, are pressed inward from the position shown in Fig. 7, so as to form a continuous depressed or sunken central portion extending lengthwise of the completed chain, and thus leaving its edges formed by the interlocked ends *a* standing or projecting out from said depressed surface, and of the open character described. By this operation on the completed chain another effect is given to it without changing the form of the links or departing from the mode of interlocking them together previously described. This same result, however, may be accomplished in the forming of the link and making up of the chain by simply bringing the bend 3, connecting the portions *c* with the end portions, *a*, of the link, down close to the point where the enlargement of the portions *c* begins, as seen in Fig. 14.

Still another way of modifying the style of the chain may be accomplished by forming the side portions, *c*, wide enough on their face, so that they will slightly overlie one an-

other, and thus form an uneven surface partaking of the design given to it by the contour of the portions *c*.

5 The chain may be varied in width by simply increasing or lessening the width of the side portions, *c*, in which case the strip from which the links are cut would necessarily have to be wider or narrower, as the case may be. A link of increased width is shown in Fig. 13, 10 which also shows a further modified form of the side portions, *c*.

It may be found desirable in the manufacture of this improved chain to bend the portions *c* (which has been heretofore described 15 as being done during the interlocking process) at right angles to the portions *a*, while the link is in the shape seen in Fig. 1; and in Fig. 16 I have shown a link thus bent, as well as by dotted lines in Figs. 2 and 4, it being ob- 20 vious that the bend might be made at the time found best suited for it.

What I claim is—

1. The herein-described improved link, consisting of the ordinary portions, *a*, and the en- 25 larged portions *c*, the contour of which latter may be varied within wide limits, substantially as described.

2. The herein-described method of forming links for ornamental chain, consisting of, first, cutting the link from a strip of metal; and, 30 second, in bending said first-formed link into its completed shape for use, whereby the sides of the first become the ends of the second or completed link, substantially as described.

3. The herein-described method of forming 35 links for ornamental chain, consisting, first, in cutting the link from a strip of metal having rounded edges; and, second, in bending said first-formed link into its completed shape for use, whereby the rounded sides of the first be- 40 come the rounded ends of the second or completed link, substantially as described.

4. The herein-described improved chain, consisting of the broad surfaces formed by the portions *c* of each link, and the interlocked 45 ends formed by the portions *a* of each link, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J. KINDER.

Witnesses:

F. W. GESSWEIN,  
REUBEN W. ROSS.