

(No Model.)

J. KINDER.

METHOD OF MAKING CHAIN LINKS.

No. 355,455.

Patented Jan. 4, 1887.

Fig. 1.

OA



Fig. 3.

A

Fig. 4.



Fig. 5.



Fig. 7.



Fig. 6.



Fig. 8.

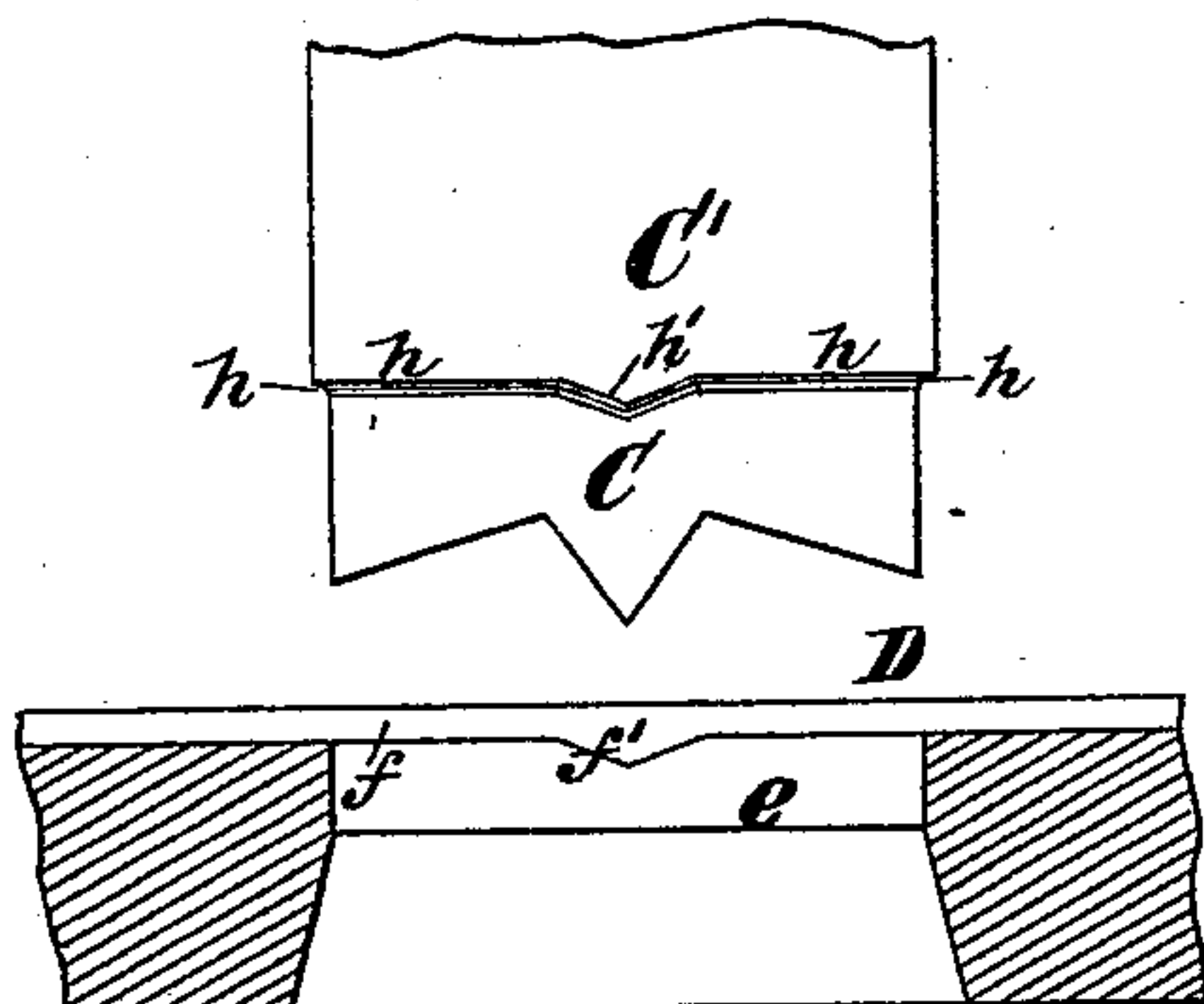


Fig. 9.

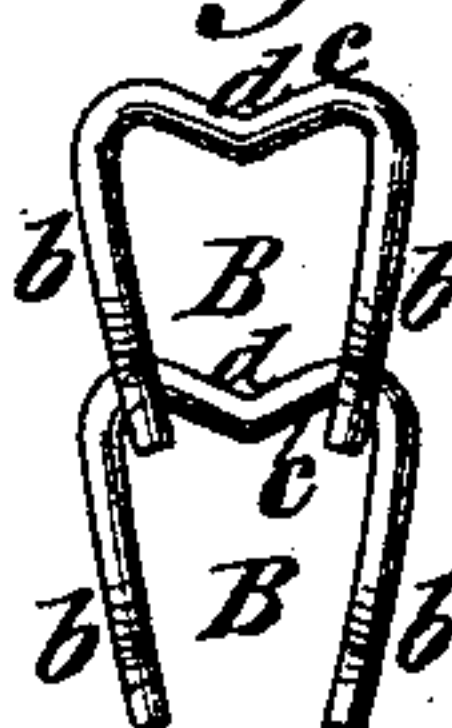


Fig. 10.

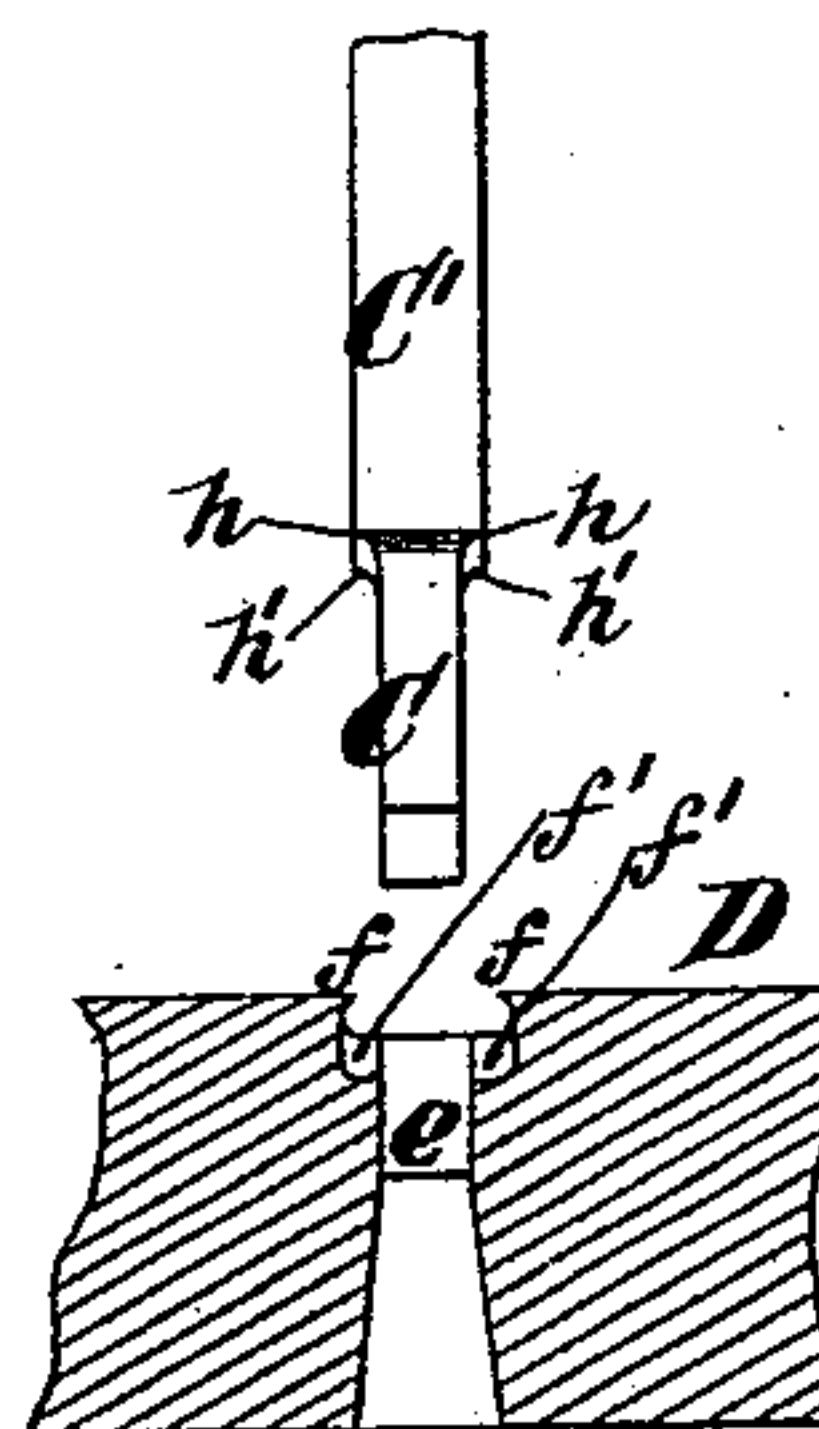
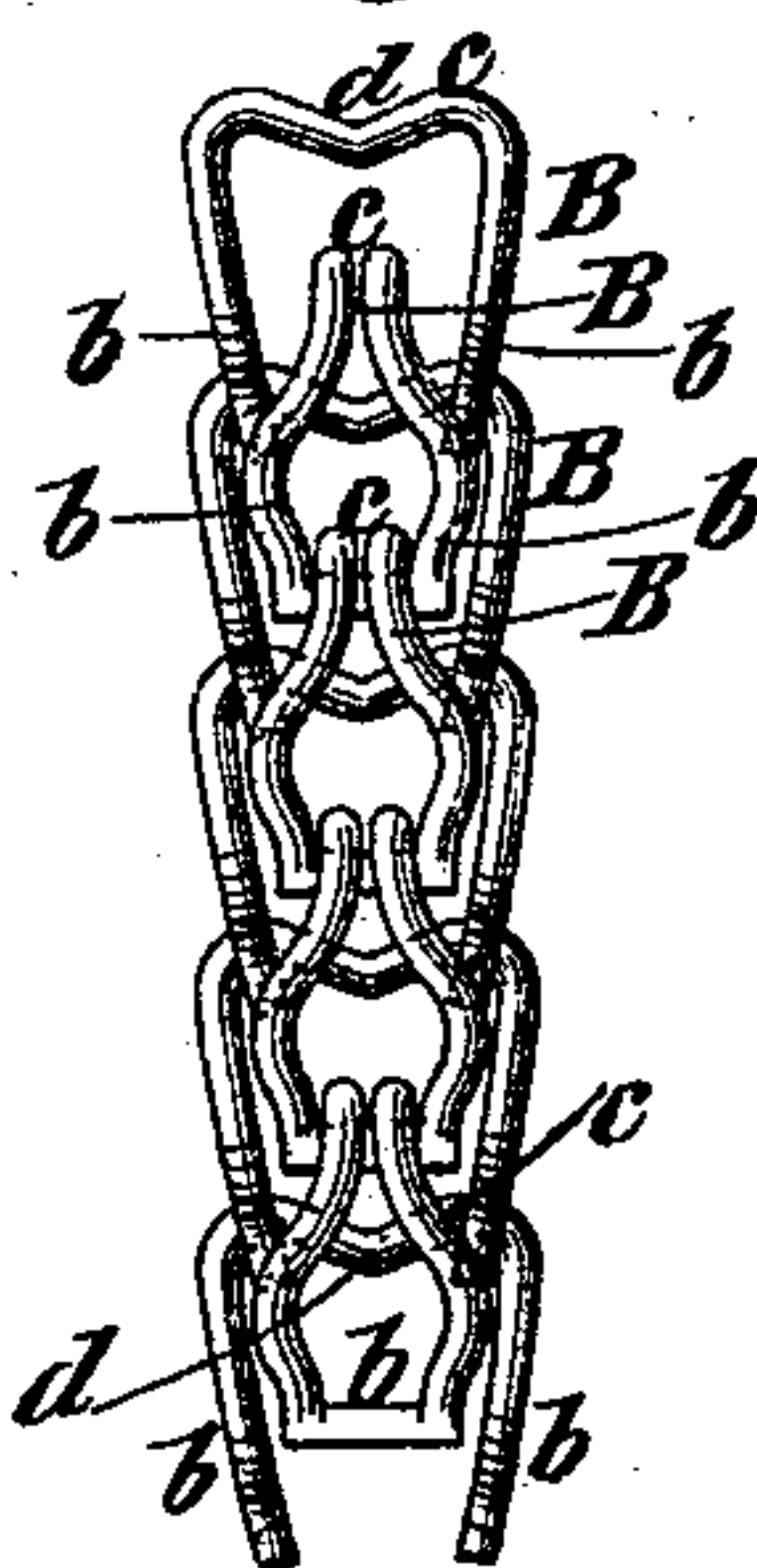


Fig. 11.



Witnesses:

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UNITED STATES PATENT OFFICE.

JULIUS KINDER, OF BROOKLYN, ASSIGNOR TO THE SOLID LINK CHAIN MANUFACTURING COMPANY, OF NEW YORK, N. Y.

METHOD OF MAKING CHAIN-LINKS.

SPECIFICATION forming part of Letters Patent No. 355,455, dated January 4, 1887.

Application filed July 1, 1886. Serial No. 206,860. (No model.)

To all whom it may concern:

Be it known that I, JULIUS KINDER, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in the Method of Making Chain-Links, of which the following is a specification.

My invention relates to the method of making solid links for chains, which are composed of two series of similar links arranged alternately in the chain and in planes which are transverse to each other.

In my application for Letters Patent, Serial No. 206,859, filed herewith, I have described a novel construction of the link, which prevents the chain from losing its flexibility when subjected to strain; and I have also there described a solid link cut from metal having opposite flat surfaces, and which simulates the appearance of a link made of wire.

The first result, above referred to, is secured by making in the cross-portion of the link, and between the two loops which are formed by bending the end portions of the link in the same direction, an inward bend which extends in the same direction as the loops, and which serves when strain is applied to the chain to spread the loops which embrace said cross portion, and prevent them from drawing toward the middle thereof and bending the cross portion outward.

The second result, above referred to, is secured by cutting or stamping the blanks for the links from sheet or plate metal having opposite flat surfaces, and then subjecting the top of the links to pressure, in order to round their side bars or members transversely to their length; and the same result I secure in a more perfect degree by first rolling a wire down to the form of a flat strip, then cutting out the blanks therefrom, and finally subjecting the blanks to pressure in order to round the top surfaces of the side bars or members in a transverse direction.

In the accompanying drawings, Figures 1 and 2 are end and side views of a piece of round wire. Figs. 3 and 4 are end and plan views of the same wire after it has been rolled out flat, and of proper thickness and width. Figs. 5, 6, and 7 are respectively a side view,

a plan, and a transverse section of a blank for a link embodying my invention. Fig. 8 represents two links connected together. Figs. 9 and 10 are sectional elevations in planes at right angles to each other of a die, and a side elevation of a punch for forming the link-blanks; and Fig. 11 represents a piece of chain embodying my invention.

Similar letters of reference designate corresponding parts in all the figures.

A designates a piece of brass, steel, or other metal wire of proper caliber, and which is first rolled down, as shown in Figs. 3 and 4, so as to form a strip of sufficient width and thickness to form the link or link-blank B. By the operation of rolling the strip from a wire the edges of the strip will be allowed to retain their rounded or convex form, and the outer edges of the links or link-blanks B will have similar form, as shown in Fig. 7.

The links or link-blanks B might be cut from flat sheet or plate metal; but their outer edges would then be square and angular when cut out, and would be left so, or would require a separate operation to round them. The strip A from which the link-blanks are cut might be directly produced by drawing, of the form shown in Figs. 3 and 4, without first producing a round wire, and then rolling it down to flat form.

At about the middle of the length of each blank B, I form the bend *d*, which is pressed downward from the rounded top of the link or blank, as shown in Fig. 7, and which, when the end portions of the link or blank are bent to form the loops *b*, remains or comes in position at about the middle of the cross portion *c*, between the loops. This bend *d* extends in the same direction as the loops *b*, and its purpose is to spread the loops *b* of another link, which embrace the cross portion *c*, as shown in Fig. 8, and prevent said two loops from drawing toward the middle of the cross portion, and by bending it outward and wedging into it when strain is applied to the chain, destroying or impairing the flexibility of the chain. The bend *d*, therefore, not only braces the cross portion *c* against being drawn outward, but by spreading the loops *b*, which embrace the cross portion, it prevents them from drawing toward

the middle of the cross portion, where it has least strength.

The cutting of the link from the strip A, the formation of the bend d , and the rounding of the top of the link may all be produced by the punch C and die D. (Shown in Figs. 9 and 10.) The die has at the parallel longitudinal sides of its slot e overhanging or concave lips f , between and under which the strip A is fed forward, and midway of the length of the punch-slot e are the bends or approximately V-shaped recesses f' in the die. The lower edge of the punch C is shaped to give a shearing cut in removing the metal to form the slot in the link, and the shoulder h , where the punch proper joins the shank C' , is concave, so as to round off the upper and inner angle or corner of the side bars or members and ends of the link around the slot which is in the link. The shoulder h , at the sides of the punch, has approximately V-shaped projections h' , which, with the recesses f' , form the downward bends d in the link-blank B.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improvement in the method of mak-

ing solid chain-links, consisting in cutting the link from flat metal, and producing the bend or indentation d at about the middle of the length, and in subsequently bending the end portions to form loops, which extend in the same direction as the bend or indentation d , substantially as and for the purpose herein described.

2. The improvement in the method of making solid chain-links, consisting in cutting the link from flat metal and in then rounding the inner top edges of the link around the slot, substantially as and for the purpose herein described.

3. The improvement in the method of making solid chain-links, consisting in, first, producing a flat strip with rounded or convex longitudinal edges, in then slotting and cutting the strip transversely to form links, and in rounding the inner top edges of the link around the slot, substantially as and for the purpose herein described.

JULIUS KINDER.

Witnesses:

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