

No. 628,754.

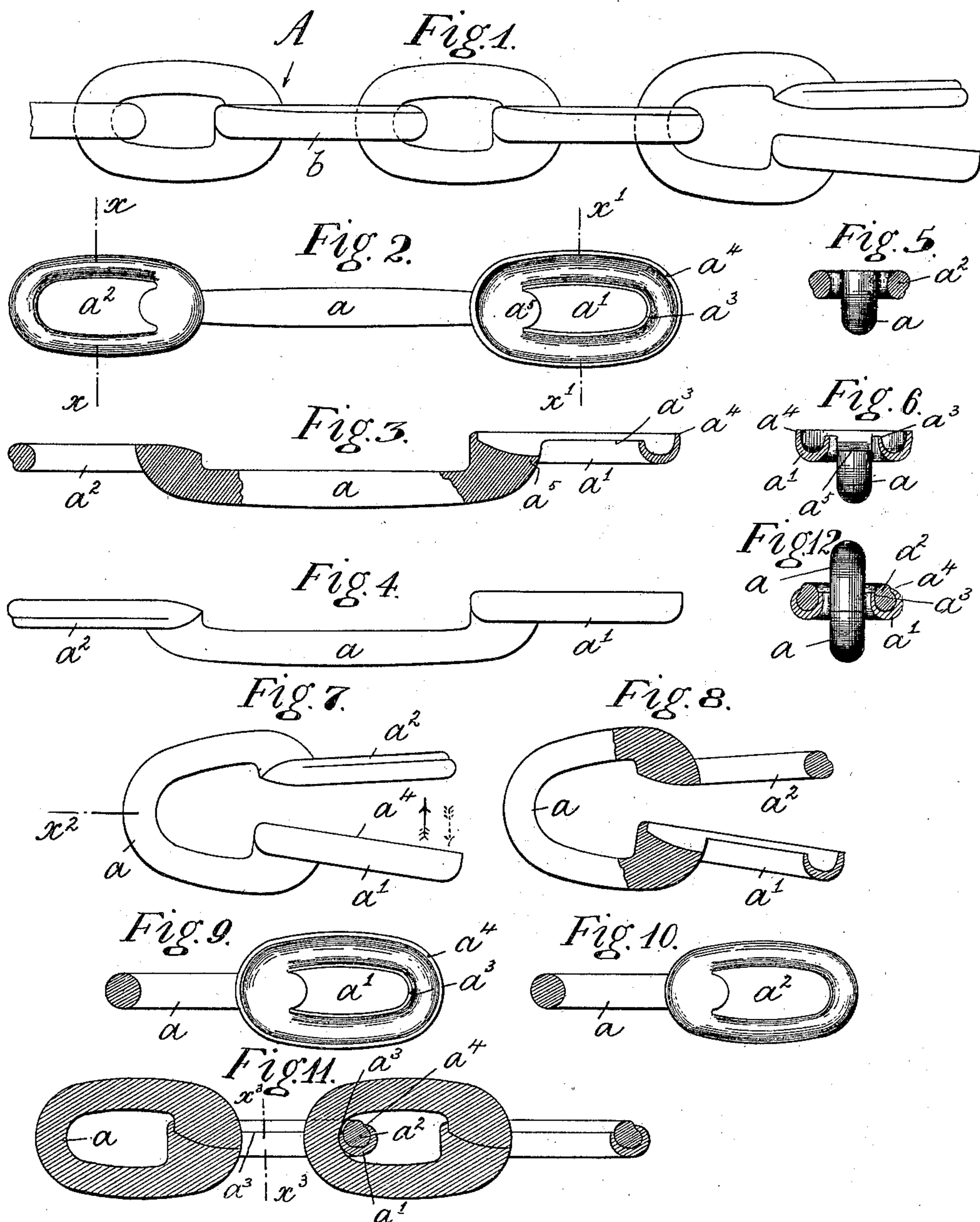
Patented July 11, 1899.

E. G. CAMELINAT & P. TAILLANDIER.

CHAIN.

(Application filed Dec. 5, 1898.)

(No Model.)



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## CHAIN.

SPECIFICATION forming part of Letters Patent No. 628,754, dated July 11, 1899.

Application filed December 5, 1898. Serial No. 698,355. (No model.)

*To all whom it may concern:*

Be it known that we, EUGENE GEORGE CAMELINAT, metal-spinner, residing at 31 Murdock road, Handsworth, near the city of Birmingham, and PAUL TAILLANDIER, enamel-painter, residing at 289 St. Vincent street, Ladywood, Birmingham, England, citizens of the Republic of France, have invented certain new and useful Improvements in Chains, of which the following is a specification.

This invention relates to metallic chains and cables and also to the production of the chain principally of that type in which pierced-ended blanks are folded nearly upon themselves about their middles, so as to bring the said pierced ends coincident and through which the next link-blank is passed or threaded prior to being folded upon itself in like manner to the preceding link.

The principal object of our invention is to provide a weldless-lock connection for the brought-together pierced ends or eyes of the link-blanks and also to produce chain which when made up resembles an ordinary flexible chain or cable, in which the alternate links are at right angles to the intermediate ones.

Figure 1 of the accompanying drawings represents an elevation of a short length of cable-chain comprising a series of rigid twin links and made up from a number of blanks, which are first folded about their middles nearly upon themselves and then threaded in succession through the outer eye of the last-formed link, with the brought-together pierced ends of the folded blanks afterward locked by a he-formed part of the end socketing into a she part of the other in accordance with our invention. Fig. 2 is a plan of a blank from which a rigid twin link embodying our improvements is formed. Fig. 3 is a longitudinal vertical section of the blank, but with the middle or fetter part in elevation. Fig. 4 is an edge view of the said blank. Fig. 5 is a cross-section of the one end of the blank upon the dotted line  $x$ . Fig. 6 is a like section of the other end upon the dotted line  $x'$ . Fig. 7 represents a rigid twin link made from the said blank and produced by folding the fetter part about its middle, so as to bring the looped ends opposite to but separate from

each other, so as to admit of the passing of one of them through the end eye of a previously-coupled-up link. Fig. 8 represents the said link, Fig. 7, partly in vertical section and partly in elevation. Fig. 9 represents a section of Fig. 7 upon the dotted line  $x^2$  looking in the direction of the full arrow, showing the bottom eye in plan. Fig. 10 represents a section also upon the dotted line  $x^2$ , Fig. 7, but looking in the direction indicated by the dotted arrow, showing the upper eye in plan. Fig. 11 is a complete longitudinal vertical section of two of the said rigid twin links coupled together. Fig. 12 is a cross-section of Fig. 11 upon the dotted line  $x^3$  and looking in the direction indicated by the arrow.

The same letters of reference indicate corresponding parts in the drawings.

The blank represented in Figs. 2 to 6 is fashioned, preferably, from steel and preferably by drop-stamping by taking a piece of metal and when in a heated and soft state operating upon the same between dies.

$a$  is the set-down shank or fetter of the blank, terminated at one end by a rigid and annularly-cupped loop  $a'$ , the trough of which is adapted to receive socketwise within it the solid annular loop or eye  $a^2$  at the other end of the fetter, which said solid loop is locked within its seating by the turning or closing of the edges  $a^3 a^4$  of the cupped loop partly over the outside and inside boundary edges of the solid loop, less the projecting part  $a^5$ , thereby coupling the one loop to the other without welding and forming the complete twin link, as represented in chain form in Figs. 1, 11, and 12, having no cross-seams liable to be opened by the pull or strain which comes upon chain.

By dropping or setting down the shank-bar or fetter  $a$  of the blank to a lower (or dissimilar) plane than that of the looped ends to an extent equal to one-half the breadth of an eye the said shank admits of being folded into a link coming at right angles to and of the same figure as the link formed by the bringing together of the opposite-eyed ends  $a' a^2$ .

It is understood that the ends of the dropped or set-down fetter-bar or shank come and terminate at the back or under side of the ends



of the loops, so as to give the correct figure to the link formed from the said fetter-bar.

Assuming that a length of chain such as represented in Figs. 1 and 11 is to be made up, then a blank, as in Figs. 1 to 4, is taken and made, as previously described, into a complete twin link, as marked A in Fig. 1. An open link, such as represented in Fig. 7 upon itself, is then taken and the end eye  $a^2$  thereof is then threaded through the eye  $b$  of the complete link A, after which the eyes  $a'$  and  $a^2$  are closed together and made to socket one into the other, after which the boundary edging of the cupped end is closed over the adjacent metal of the solid-loop end, thereby locking the loop to the other and completing the second twin link. A third link is added to the second in the same manner, and so on until a chain of the desired length is obtained.

The turning and closing over of the edges of the cup-sectioned eye over the solid eye seated within it is performed by closing-tools.

In some cases the opposed faces of the brought-together looped ends may be welded, thereby producing a solid homogeneous link without any welded seams crossing the direction of and liable to be opened by the pull that comes upon the chain.

Before the U-shaped links are assembled into a length of chain we propose to galvanize them or otherwise cover them with a protective coating of metal.

Having fully described our invention, what

we desire to claim and secure by Letters Patent is—

1. A blank for a metallic chain or cable, consisting of a straight shank or fetter having at each end an eye or loop, above the plane of the straight shank, one of said eyes having a socket to receive the other eye, substantially as described.

2. A metallic chain or cable composed of a series of links each having a shank provided at each end with an eye or loop, one of the latter having a socket to receive the other, the shank being inserted through the united eyes of an adjacent link and then bent to bring the eyes at its ends together, substantially as described.

3. A metallic chain or cable, composed of a series of links each consisting of a shank or fetter having at each end an eye or loop, one of which is provided with a socket continuous over the whole of its face, to receive the other eye, said shank being inserted, when straight, through the united eyes of an adjacent link and then bent to bring the eyes at its ends together, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

EUGENE GEORGE CAMELINAT.  
P. TAILLANDIER.

Witnesses:

HENRY SKERRETT,  
ARTHUR T. SADLER.