

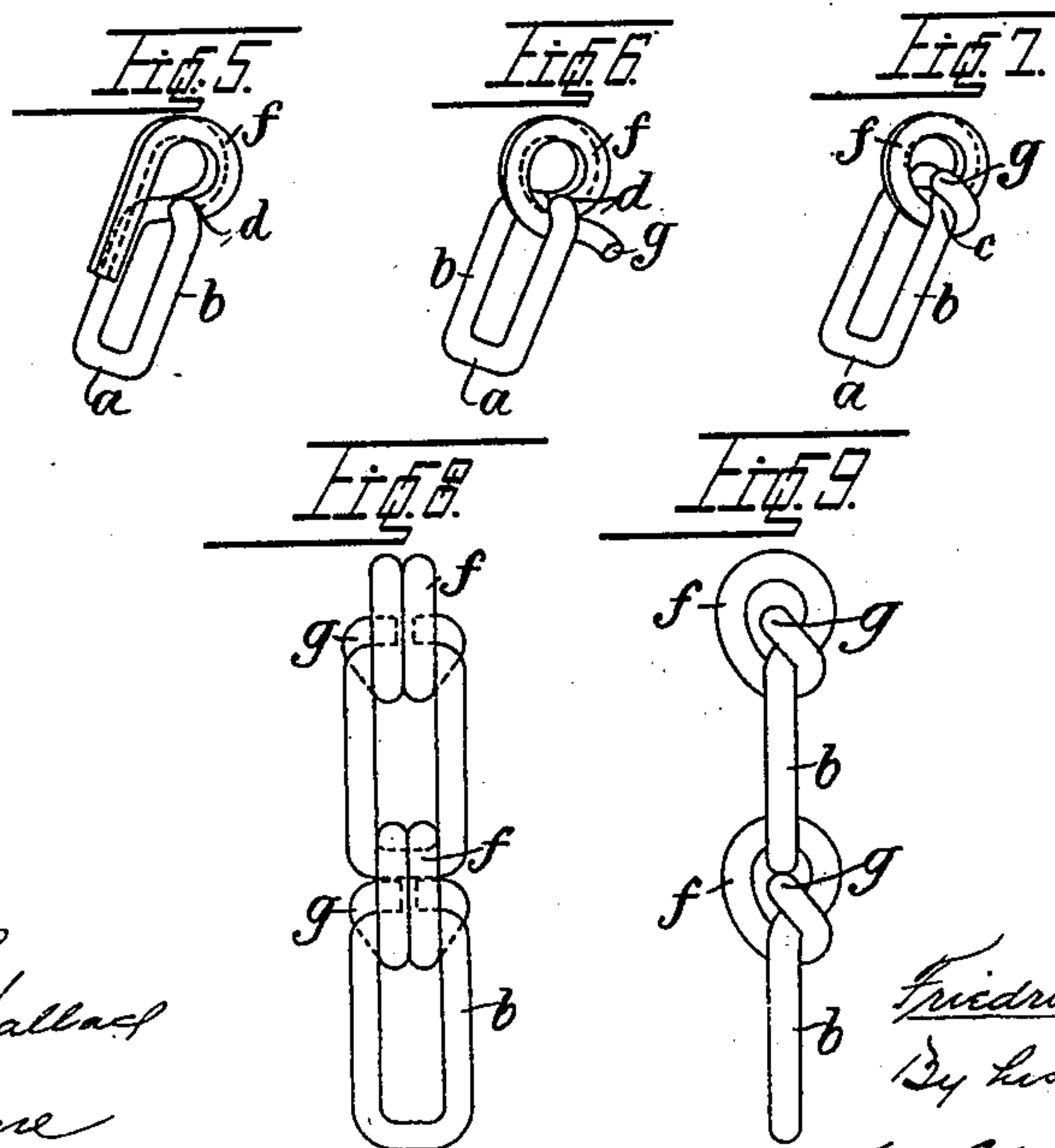
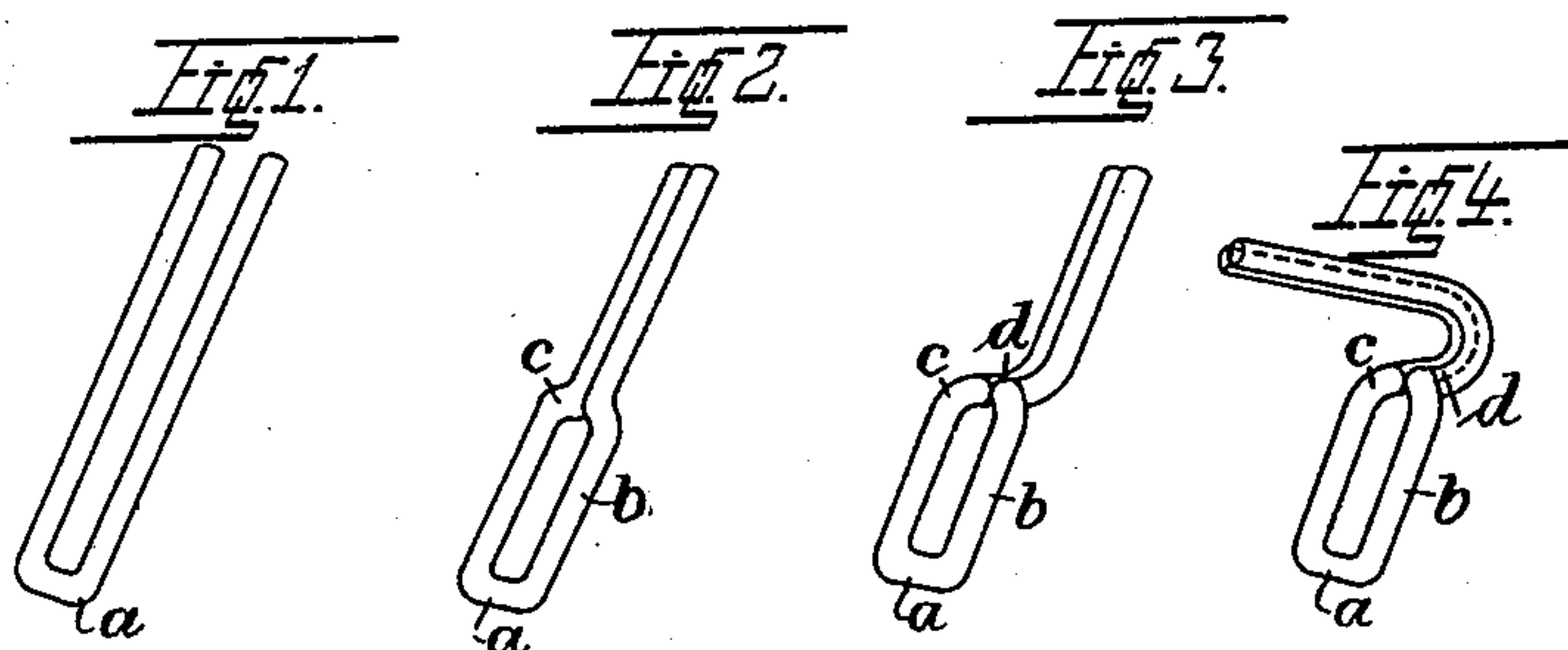
No. 665,709.

Patented Jan. 8, 1901.

F. W. WESNER.
WIRE CHAIN.

(Application filed Aug. 27, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

FRIEDRICH WILHELM WESNER, OF CHARLOTTENBURG, GERMANY.

WIRE CHAIN.

SPECIFICATION forming part of Letters Patent No. 665,709, dated January 8, 1901.

Application filed August 27, 1898. Serial No. 689,712. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH WILHELM WESNER, a subject of the German Emperor, residing in Charlottenburg, Germany, have
5 invented certain new and useful Improvements in Wire Chains, of which the following is a specification.

This invention relates to a chain the single links of which are bent from wire. Said invention relates specially to such chains the
10 links of which form at one end a curve and at the other end two eyes which lie in a rectangular plane to that of the curve.

Chains hitherto known have the drawback
15 that the eyes of the single links of the chain do not lie close enough to each other and that the outer ends of wire remain unprotected. If the chain is pulled, the eyes give in such a way that they press against each other,
20 thereby causing a stretch of the link and elongation of the chain. The unprotected ends of the wire have the disadvantage that rough and fibrous parts remain attached to it. It has, for instance, been shown that in
25 using such chains for fastening animals the hairs of the latter have been found caught between the wire ends and the link-eyes. The first-named drawback is caused by the incomplete formation of the curve, in which
30 only after completion the eyes are pressed together. In the chain according to my invention the curve is formed by bending the wire ends sharply inward before the eyes are formed, so that at the inner end of the curve
35 two shoulders are formed, while the free ends, which are formed into eyes, lie close together. The second-named drawback is obviated by bending the outer ends of the links into the eyes.

40 In Figures 1 to 7 of the drawings are shown the perspective views of the different shapes the wire piece assumes during the different stages of manufacture until it becomes a finished link. Figs. 8 and 9 are respectively a
45 a front and a side elevation of a section of the finished chain.

Fig. 1 shows the wire piece bent to U shape, so that the lower or outer bend of the loop *b* is formed. At a certain defined distance from
50 the bend *a* the sides of the U-shaped wire piece are bent inward, so that the shoulders *c* are formed, as shown in Fig. 2.

Fig. 3 shows the bent part *d*, from which the free ends of the wire piece are in their different stages of progress shaped into eyes *f*. 55

Figs. 4, 5, 6, and 7 show the successive stages whereby the wire ends drawn through the loop *b* close to the shoulders *c*. Finally the free ends *g* are bent inward in such a manner that their outermost ends or points
60 enter into the eyes *f*, thus being covered by the latter. As the ends are drawn underneath the shoulders and after that are only bent around the wire which forms the eyes, the whole knot receives a breadth which is
65 not greater than the fourfold diameter of the wire. Preferably the loop *b* is only so broad that in the inner part only two thicknesses of wire find room, so that the whole of the finished wire link is only as broad as four
70 thicknesses of wire. By this means is avoided any curve which on under strain is elongated, thus preventing a stretching of the chain.

Fig. 8 shows a front elevation, and Fig. 9 a side elevation, of the complete chain, in which
75 two links are connected.

I claim as my invention—

1. A wire chain in which the links have a loop and two opposing eyes, and where the
80 extremities of the wire project into the eyes.

2. A wire chain in which the links have a loop and two opposing eyes, and in which the loop at its inner end has abrupt shoulders, around which the extremities of the wire are
85 passed, so that the width of the knot thereby formed is substantially equal to a fourfold thickness of the wire.

3. A wire chain in which the links have a loop and two opposing eyes, and in which the loop at its inner end has abrupt shoulders
90 and in which the extremities of the wire protrude into the eyes, so that the knot thereby formed does not exceed the fourfold thickness of wire.

4. A wire chain in which the links have a
95 loop and two opposing eyes, in which the loop has at its inner end abrupt shoulders, and which is only so broad that within it only two thicknesses of wire find room alongside each other and in which the extremities of the
100 wire protrude into the eyes.

5. A wire chain each link of which consists of one piece of wire formed into a loop and two eyes, the loop having two abrupt

shoulders, and the eyes being close together, the ends of the wire extending through the loop and around said abrupt shoulders, and being turned into the eyes, substantially as set forth.

5 6. A chain comprising a series of wire links each link being formed of one piece of wire bent to form a loop into eyes, said loop having substantially parallel sides separated a distance substantially equal to twice the thickness of the wire, the inner end of said loop having abrupt shoulders around which the ends of the wire are passed, so that the knot thereby formed is substantially equal to 10 a fourfold thickness of the wire.

15 7. A chain comprising a series of wire links, each link being formed of one piece of wire

bent to form a loop and two eyes, said loop having substantially parallel sides separated a distance equal to twice the thickness of the wire, and the inner end of said loop having abrupt shoulders, around which the ends of the wire are twisted, said ends extending into the eyes, whereby all the parts are firmly held and stretching is prevented, substantially as set forth. 20 25

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRIEDRICH WILHELM WESNER.

Witnesses:

CARL ALBRECHT,
MAS. C. STAEHLER.