

(No Model.)

T. H. McCRAY.
LINK BELT CHAIN.

No. 465,142.

Patented Dec. 15, 1891.

Fig 1.



Fig 2.

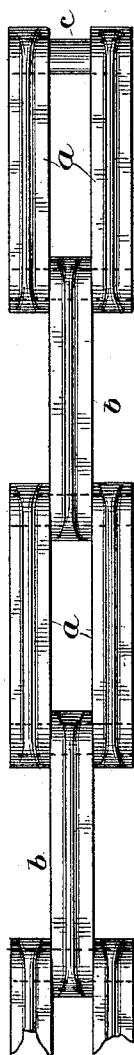
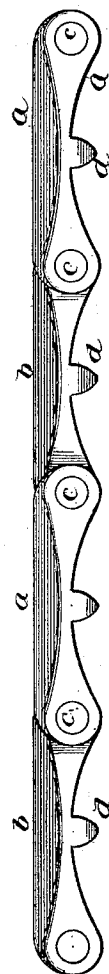


Fig 3.



Witnesses:
John L. Jackson
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UNITED STATES PATENT OFFICE.

THOMAS H. MCCRAY, OF CHICAGO, ILLINOIS, ASSIGNOR TO LESTER L. BOND,
OF SAME PLACE.

LINK-BELT CHAIN.

SPECIFICATION forming part of Letters Patent No. 465,142, dated December 15, 1891.

Application filed January 7, 1891. Serial No. 377,057. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. MCCRAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Link-Belt Chains, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a bar rolled into form for making chain-links. Fig. 2 is a plan view of a chain made of bars so formed, and Fig. 3 is a side view of the chain.

The object of this invention is to construct a flat or detachable link chain in which the bars may be formed by the process of rolling, and to connect the links together, so as to form a strong chain composed of single and double links, which I accomplish in the manner shown in the drawings, and hereinafter described.

That which I deem to be new will be pointed out in the claims.

In the drawings, *a* indicates the double-bar links; *b*, the single-bar links; *c*, the link-pins; *d*, the driving-teeth formed on the under surface of the links, and *e* the link-blank rolled into form. The link-bars are preferably made of bar-steel rolled into the form shown in Fig. 1 by suitable rollers, which are so easily made that they do not require description or illustration, it being common to form rollers adapted to various different articles capable of being rolled. As shown, the blanks are rolled with a curve on the under side adapted to fit against the rim or periphery of a sprocket-wheel, and midway between the ends a tooth or projection *d* is formed of sufficient size to take into a depression in a sprocket-wheel and furnish a bearing-point for driving the chain. The upper surface is also depressed in the middle, and the necessary strength provided by forming a rib on the back or upper surface of each link-bar, which is the best method of making the link-bars for chains of the size shown and for larger sizes; but for smaller ones it will be best to omit the rib and continue the back or upper surface straight across or in straight lines without the depression shown, the ribbed form being adopted to give the requisite strength without excessive or unnecessary weight of metal, which form,

as stated, is not essential for small chains.

When rolled in this manner, the link-bars are connected together by a neck or fin, which is to be broken off or otherwise removed in finishing the links. The holes for the pins *c* are best made by drilling; but for the larger sizes they may be punched, either hot or cold.

In order to keep the wear upon the greatest wearing-surface and to hold the pins properly, I make the holes for the bars to be used as single links, slightly smaller than those for the double links, so that the turning in passing around a curve, as on a sprocket-wheel, will be by the side links instead of in the single link, so as to bring the wear caused by turning upon the double bars instead of the single ones; otherwise the wear would usually come upon the single links, so as to wear them out or unduly stretch the chain between the double links, which is not desirable in use. In order to secure the double links properly upon the pins they may be slightly upset at the ends, so as to act also as rivets, in which case the links will not be detachable; but when the upsetting is only sufficient to hold the double links in place (which will be very slight, if the links and pins are properly made) the pins may be driven out in case any one or more of the links require exchanging or removing. This upsetting can be done at the place where the chain is to be used, so that chains may be put together of the lengths required, and sections of the chain may be put together and upset at the factory, leaving only such links free as are necessary to lengthen or shorten the chain. By constructing the chain in this manner the teeth or projections *d* take a portion of the strain caused in turning, preventing undue wear of the links by the projecting portion of a sprocket-wheel, and by curving the under side of the links I also reduce the strain upon the link-pins and obviate the danger of breaking the link-bars, so as to make a durable chain with less metal than has heretofore been used in making chains of this class, and by causing the wear to come upon the pins in the side bars I prevent the stretching of the chain injuriously and produce a chain which is adapted to use in connection with sprocket-wheels, which may be tightly placed upon them, as

the connecting-link may be put together after the chain is in place, so as to avoid the slack, which is a necessary attendant in link belt-chains where an entire link is to be used in
5 connecting the ends together, and thereby do away with many of the difficulties which have heretofore inhered in chains of this class, and also in detachable link chains.

I do not claim, broadly, a link belt-chain or
10 flat chain made of double and single bars; but

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

1. The method of forming links, which consists in rolling blanks into the form shown by
15 suitable roller-dies, and then separating the

sections of the blanks and adapting them to be connected together, substantially as specified.

2. Chain-links composed of bars having 20 their under surface curved and provided with a tooth or projection *d*, substantially as described.

3. A chain composed of double and single bar-links, having pins *c*, close fitting or tight 25 in the single bar-links for causing the wear to come upon the double bar-links, substantially as set forth.

THOMAS H. MCCRAY.

Witnesses:

JOHN L. JACKSON,
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