

No. 669,109.

Patented Mar. 5, 1901.

F. W. WOOD.
METHOD OF MAKING CHAIN LINKS.

(Application filed July 3, 1900.)

(No Model.)

Fig. 1.

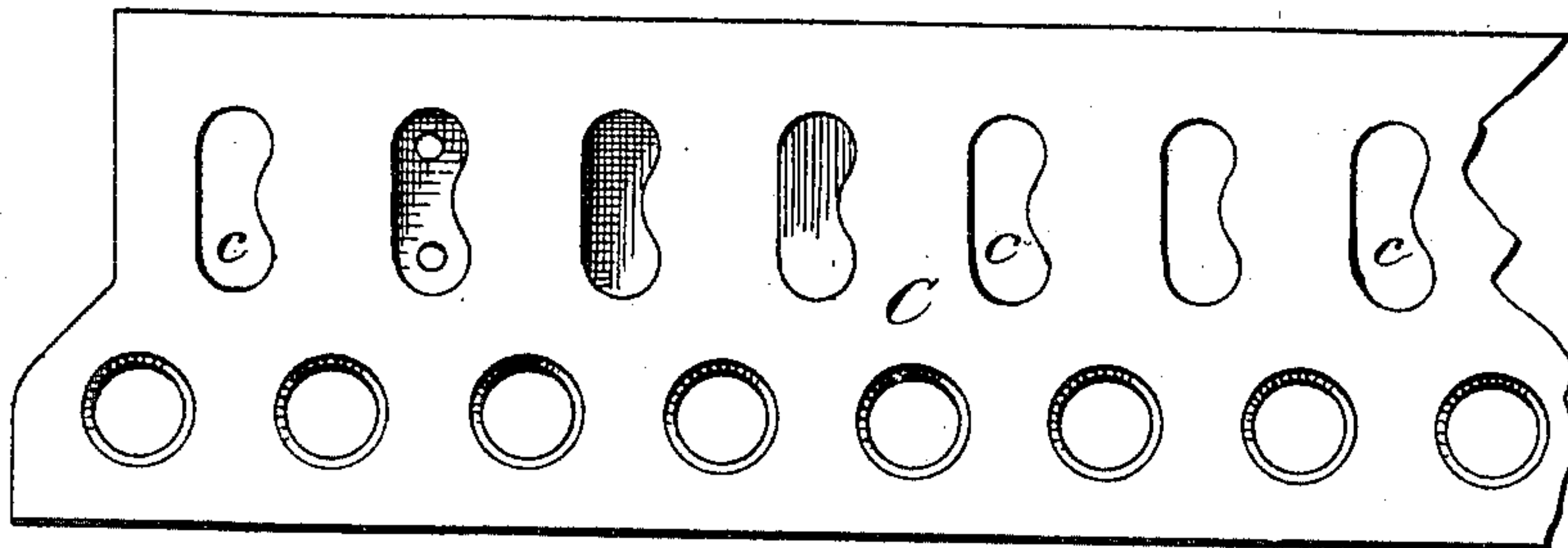
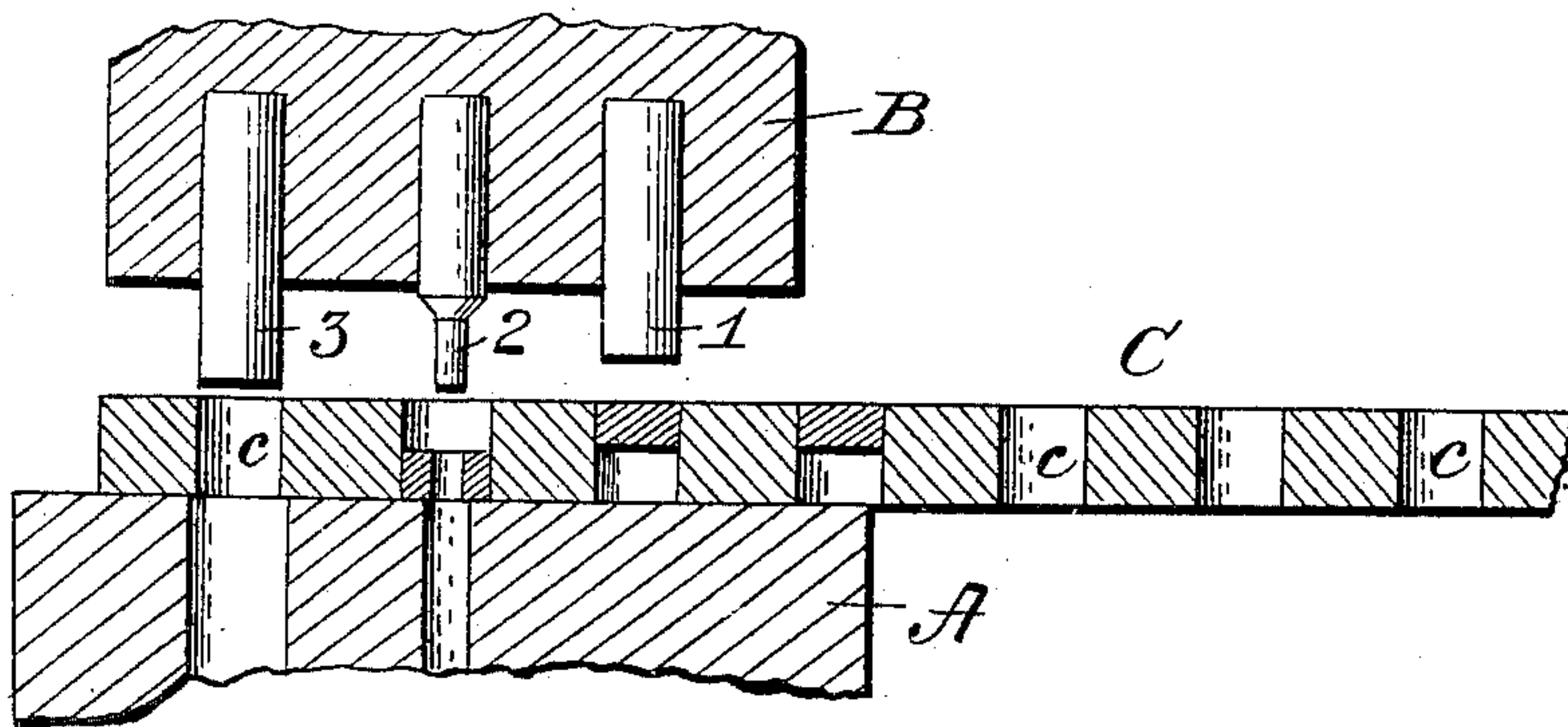


Fig. 2.



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METHOD OF MAKING CHAIN-LINKS.

SPECIFICATION forming part of Letters Patent No. 669,109, dated March 5, 1901.

Application filed July 3, 1900. Serial No. 22,434. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. WOOD, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Methods of Making Chain-Links, of which the following is a specification.

In the manufacture of chains of that character wherein the links are connected by rivets, such as bicycle-chains, it has been customary to form the rivet-holes in the links by drilling, such method being necessary to preserve the shape, size, and strength of the link.

My said invention consists in a method of forming said rivet-holes by punching, whereby not only all danger of any injury to the link is obviated, but it is made more perfect and of greater strength, while produced with much greater rapidity and at much less expense, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar characters of reference indicate similar parts, Figure 1 is a plan view of a holding-die for containing the links while being punched, and Fig. 2 is a sectional view through the operative parts of a power-press fitted to punch links in accordance with my improved method.

In said drawings the portions marked A represent the bed containing the female dies, B the reciprocating head carrying the male dies, and C the link-holding form or die.

The various parts of the machine, except the die C, are or may be of a common or any appropriate construction and need no detailed description herein. Said die C is a hardened-steel plate containing a series of perforations or die-forms *c* of the exact shape and size which it is desired the finished link shall have. This die is, however, the leading feature of another application filed June 22, 1900, and will not, therefore, be further described herein.

The method of forming the links consists in placing them in the forms *c* of plate C and subjecting them to the action of the dies or punches, the plate being suitably fed along under said punches as the operation proceeds.

The first punch 1 operates to force the link

down to the bottom of the form *c* firmly onto the bed. The next die or punch 2 operates to form the rivet-holes, and the next die or punch 3 operates to force the finished link out of the die C. In operation, as will be seen, the three punches or dies operate simultaneously after the first link has reached the last one. By this method the rivet-holes are formed rapidly and with absolute accuracy. The links are not spread on the under side, as when punched by the usual method, and their form and size are maintained with absolute uniformity, as if there are any irregularities in the links before punched, as is often the case, such irregularities will be removed by the process, small links being expanded to fill the forms and links slightly large or irregular being reduced to the size of the forms as they are driven through. Actual test has also demonstrated that the process subjects the link to a swaging operation of a degree that the link is toughened to such an extent that the tensile strength of the chain is considerably increased over that of similar chains formed by the drilling process.

It will be understood, of course, that while I have particularly designed this method for making chain-links, yet it may be found desirable for punching other articles, and I therefore do not desire to be understood as limiting my invention to chain-making.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

The method of forming chain-links which consists in placing the link-blanks in a die of the form and size desired for the finished article formed in a solid block or plate of unyielding character and then driving the dies and punches upon and through said blanks to form, compress and perforate them, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 28th day of June, A. D. 1900.

FRANK W. WOOD. [L. S.]

Witnesses:

D. S. BRAY,
DELLA DE HART.