

No. 669,108.

Patented Mar. 5, 1901.

F. W. WOOD.
CHAIN MAKING MACHINE.

(Application filed June 22, 1900.)

(No Model.)

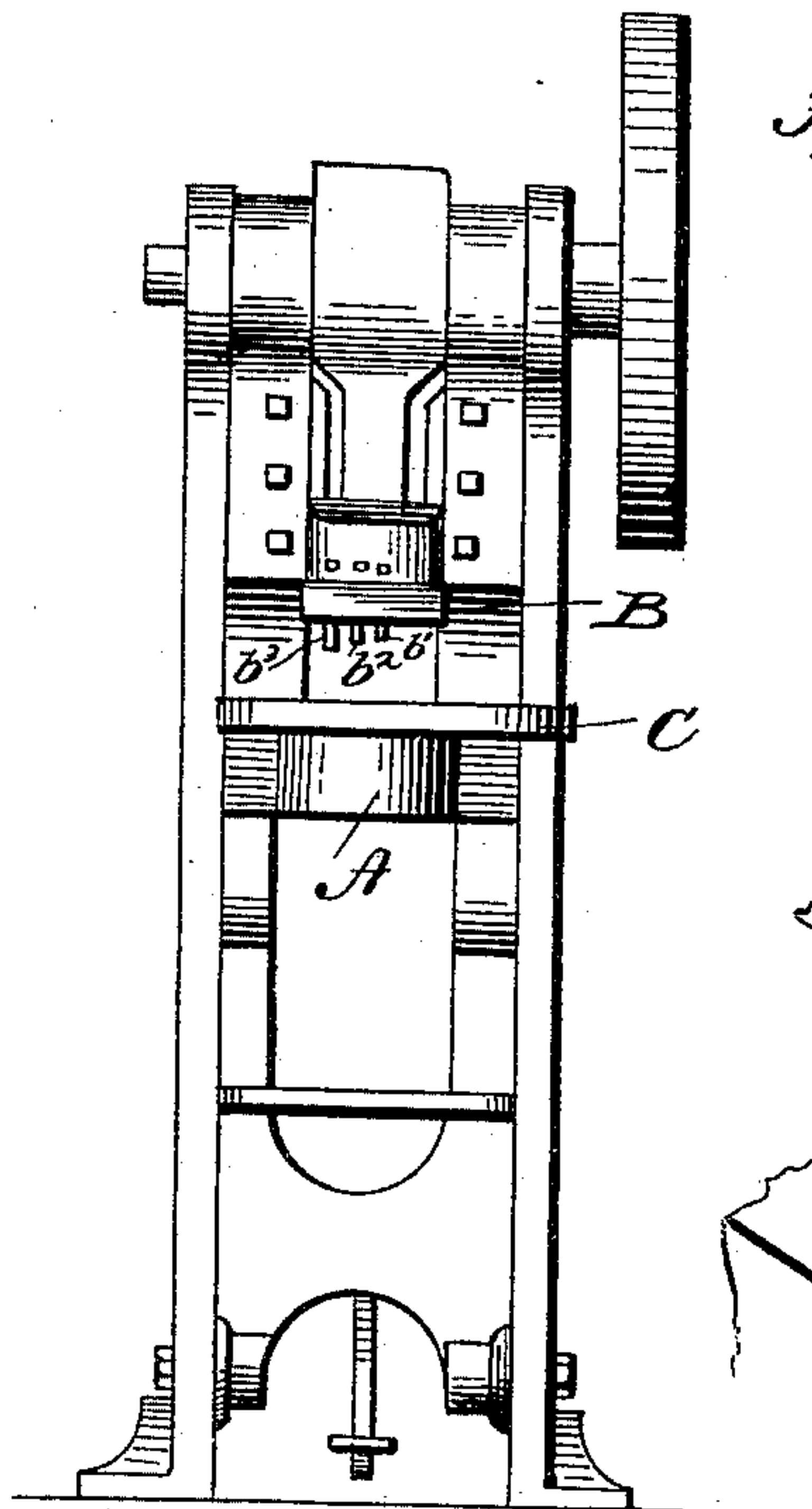


Fig. 1.

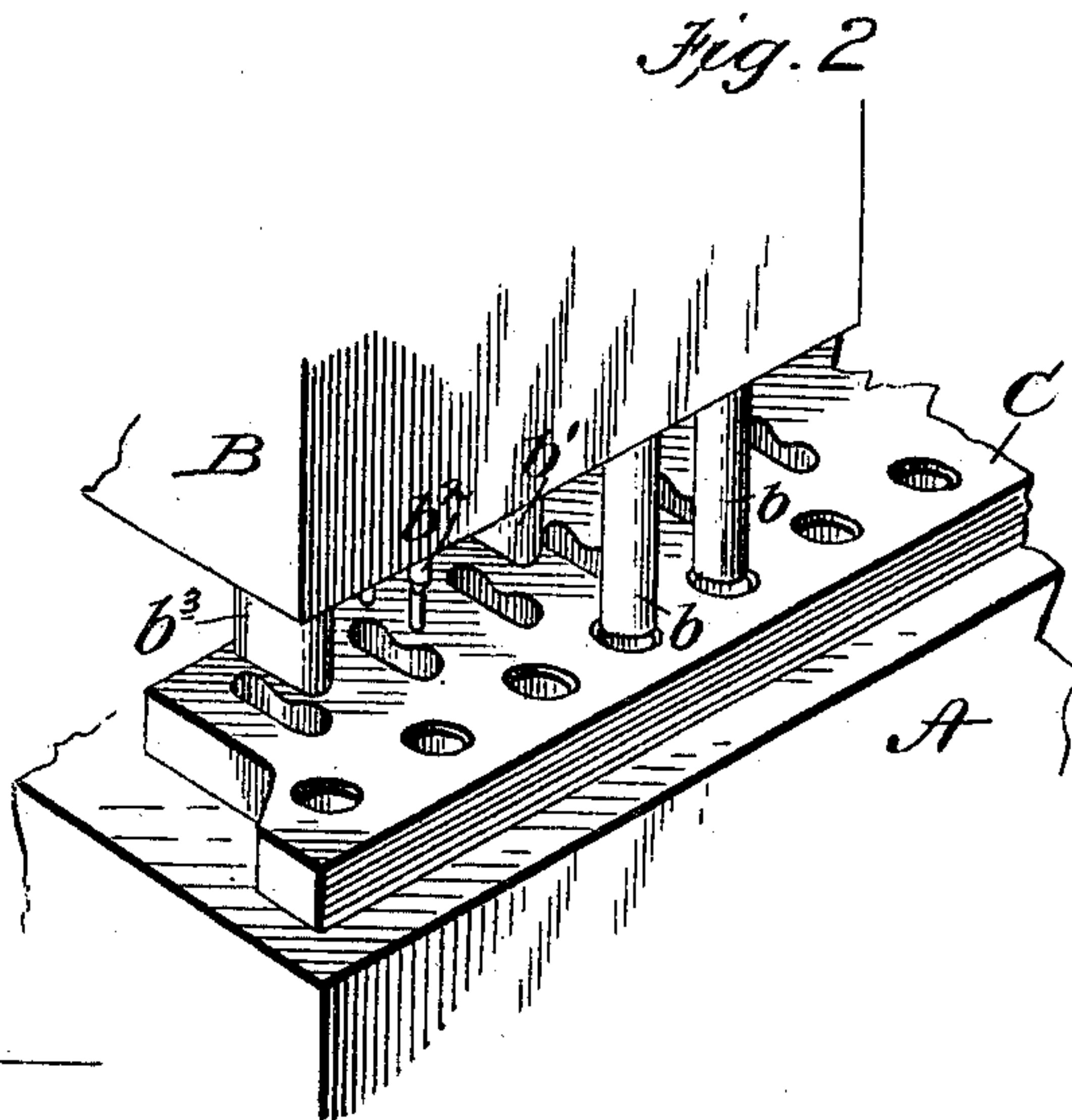


Fig. 2.

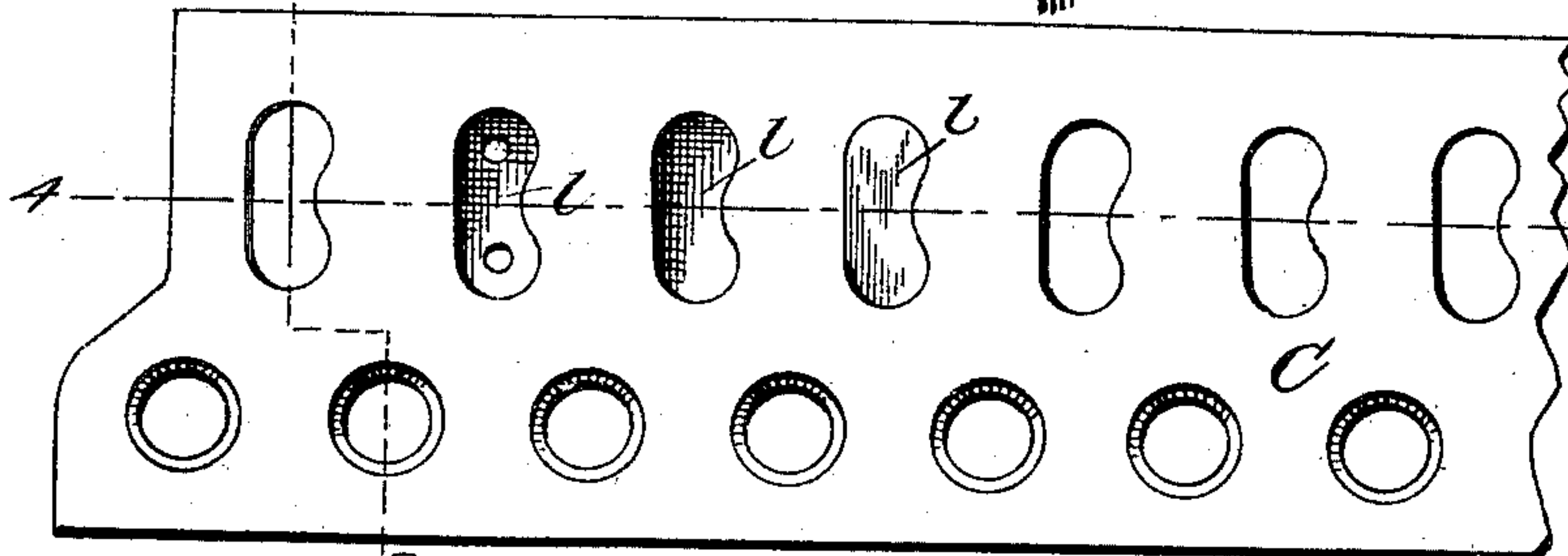


Fig. 3.

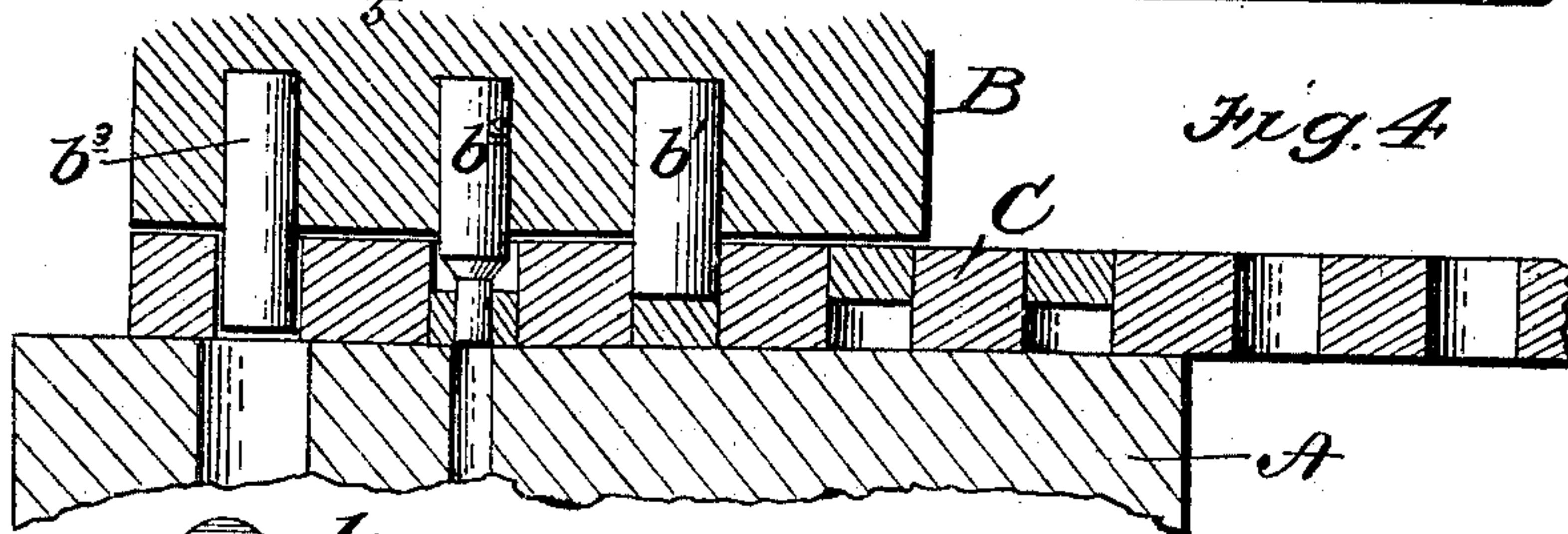


Fig. 4.

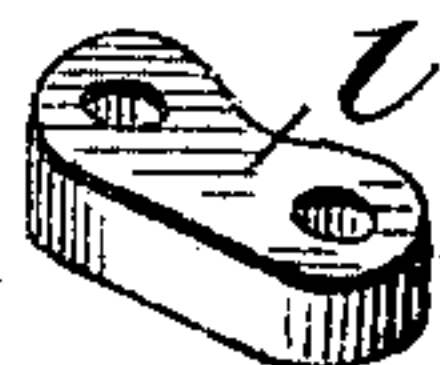


Fig. 5.

Witnesses
F. L. Ourand
Forsberg Brown

Inventor
Frank W. Wood,
per, E. W. Bedford
Attorney

UNITED STATES PATENT OFFICE.

FRANK W. WOOD, OF INDIANAPOLIS, INDIANA.

CHAIN-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 669,108, dated March 5, 1901.

Application filed June 22, 1900. Serial No. 21,223. (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 Chain-Making Machines, of which the following is a specification.

My said invention consists in an improvement in machines for making chain-links, particularly links containing holes for connecting rivets; and it relates especially to means for punching said holes, whereby the links may be rapidly produced at small expense and their quality at the same time improved, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a front elevation of a machine for punching chain-links embodying my said invention; Fig. 2, a detail perspective view showing the operative parts on an enlarged scale; Fig. 3, a top or plan view of a portion of the link containing or holding die; Fig. 4, a longitudinal sectional view through the parts shown in Fig. 2, and Fig. 5 a cross-section through the part shown in Fig. 3.

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

The bed A and head B are the usual bed and die-head of any appropriate power-press, mounted and operated in the usual or any suitable manner, and need no special description herein.

The die C consists of a bar or plate of hardened steel containing a series of apertures or holding-dies of the form desired for the finished link. The length of the bar may be made to suit the character of machine, and the number of apertures will of course depend upon its length. They are fed through the machine by any suitable mechanism or by hand, being moved the distance from the center of one aperture to the center of the next at each movement. Guide pins or pilots *b* are carried on the head B and are adapted to engage with guide-holes *c* along the edge of the plate. Said pilots being in fixed relation to the punches and the holes in fixed relation

to the link-dies, an absolute uniformity of location of the rivet-holes in the links is assured.

In the head B are three punches or dies *b'*, *b*², and *b*³, each arranged to engage with one of the apertures for the links in the die-plate C. Said die-plate is mounted on the bed A in position so that its apertures will register with the apertures in said bed, and the links are placed therein by hand or in any approved manner. As the first link reaches the punch *b'* said punch operates to force it down to the bottom of the aperture in die-plate C, containing it, to rest on the top of the bed-plate. The next movement of said plate C brings said link under the double punch *b*², which operates to punch the rivet-holes while die *b'* is forcing down the next link to position to be punched. The next movement of plate C brings the first link, now finished, under punch *b*³, which forces said link out of its apertures in plate C while punch *b*² is punching the rivet-holes in the link in the next aperture and die *b'* is forcing the link in the next aperture down onto the bed-plate in position to be punched. The operation of the three dies or punches is then simultaneous, and by feeding the holding dies or "sticks" C end to end through the machine the operation is continuous and very rapid. The operation also has a swaging effect upon the links, which toughens them to a degree and increases the strength of the chain formed therefrom. The containing or holding die C prevents any spreading of the link during the operation of punching upon the under side more than on its top side, and any irregularities as to size or shape in the link are cured by the process, as they all come out of the die of uniform size and shape, those that were small being expanded to fill it and those that were large being compressed to pass through it, as will be readily understood.

While I have described a machine especially adapted for punching rivet-holes in chain-links, it will be readily understood that my invention may be adapted to punching many other articles, and I therefore do not wish to be understood as limiting my invention to any particular line of work or use.

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

1. In the manufacture of chain-links, the combination with a punch, of a plate or block movable in relation to the bed and punch of the punching-machine containing a
5 holding-die in which the article to be punched is placed, said die being of the size to fit and hold said article to the desired finished size and form, substantially as set forth.

2. In a punching-machine, a die-plate containing a series of holding-dies in which the
10 articles to be punched are placed, said dies being of a size to fit and hold said articles to the desired finished size and form, substantially as set forth.

15 3. In a punching-machine, the combination, of the bed-die, the head carrying the punching-dies, the die-plate C containing apertures for holding the articles to be punched mounted between them, and the operating
20 mechanism, substantially as set forth.

4. In a punching-machine, the combination, of the bed-die, the reciprocating head carrying a series of punches of different lengths, the die-plate C containing a series of apertures of the form of the finished article to be
25 punched, said articles being mounted and held therein during operation, whereby said series of punches operate successively upon each article, first to place it on the bed for
30 punching, then to punch it and then to discharge it from the die-plate, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 18th day of June, A. D. 1900.

FRANK W. WOOD. [L. S.]

Witnesses:

DELLA DE HART,

CHARLES C. SCHUMAKER.