

(No Model.)

H. WEXEL.

Devices for Making Chains.

No. 234,444.

Patented Nov. 16, 1880.

Fig. 2.

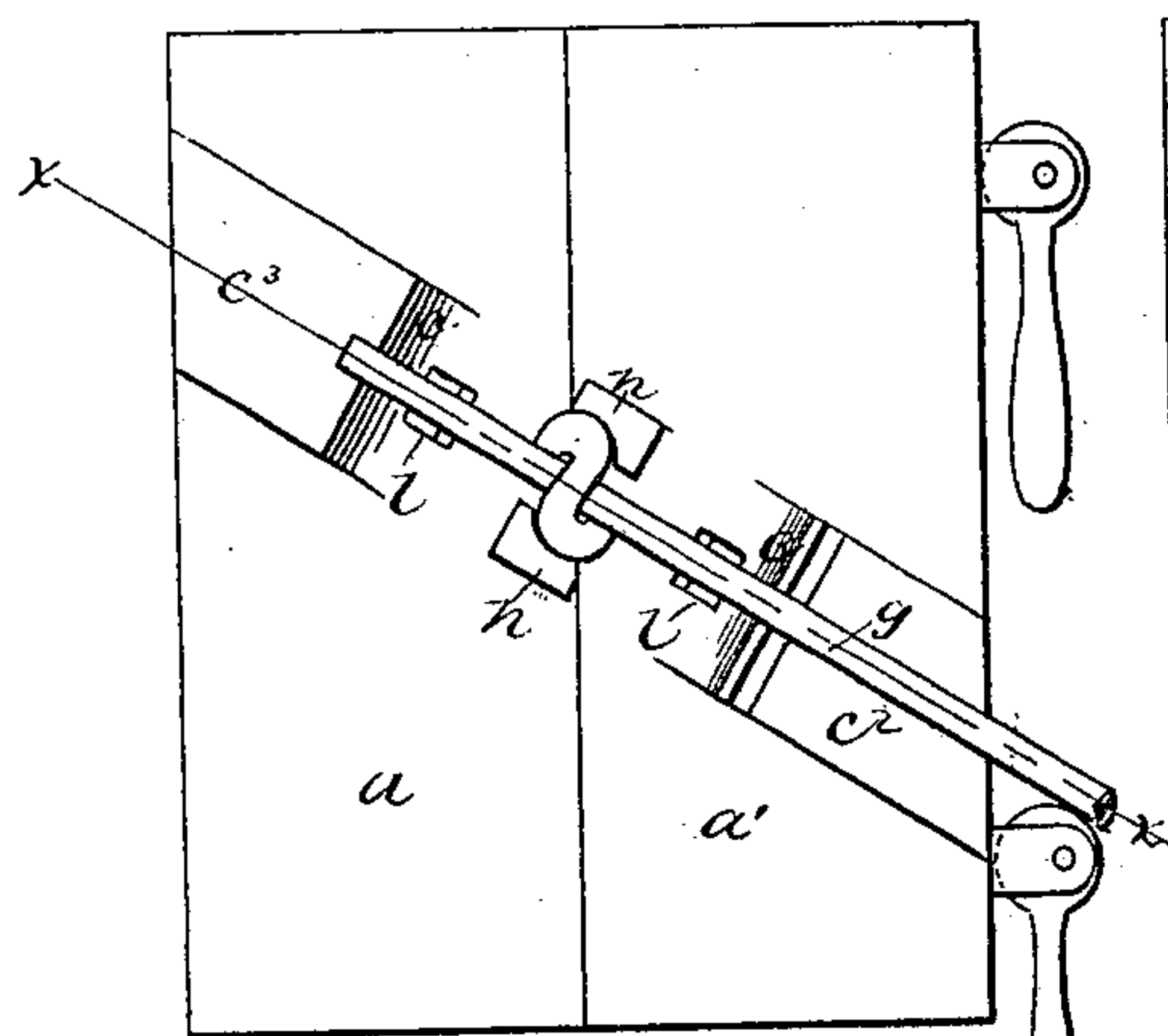


Fig. 1.

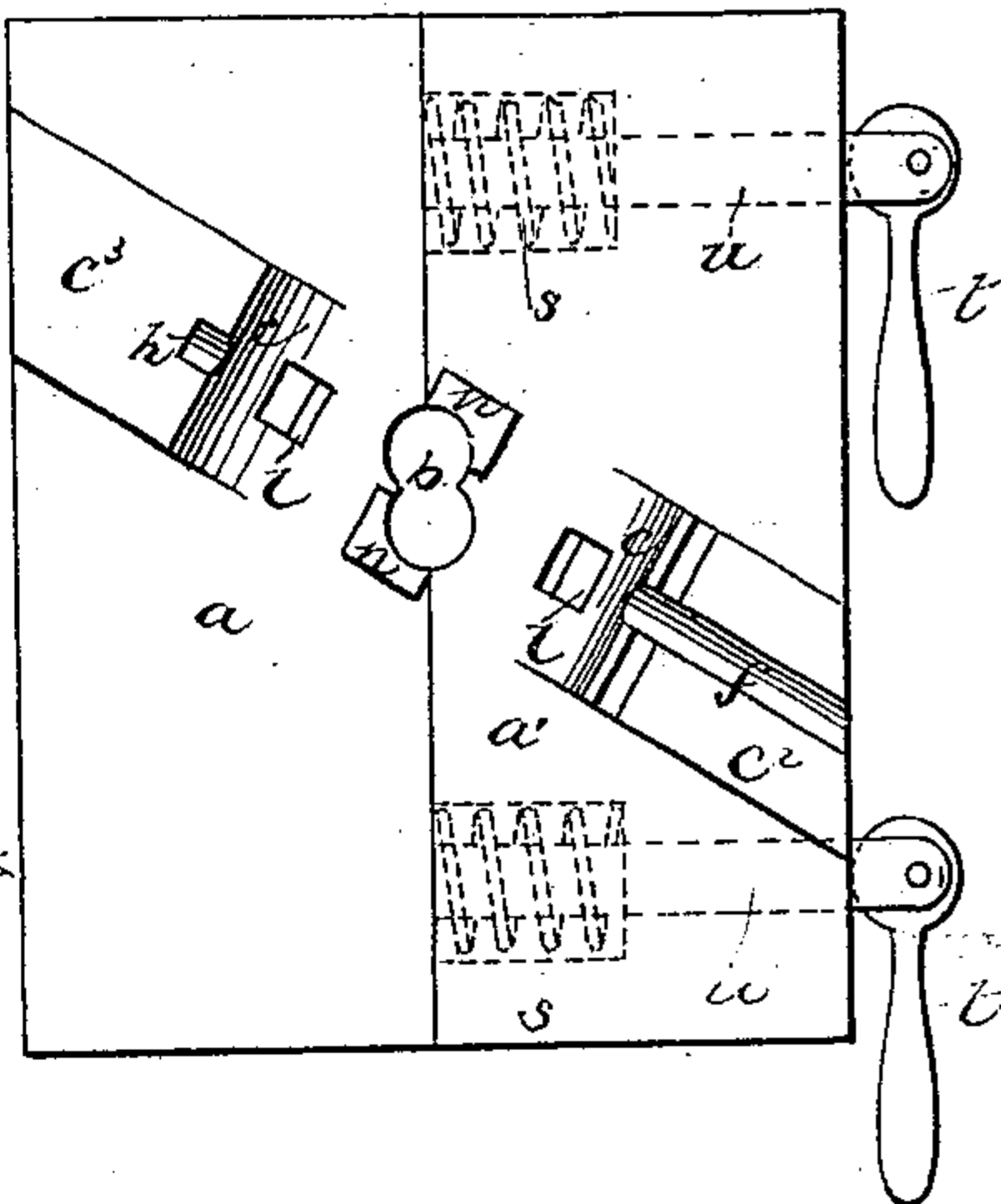


Fig. 3.

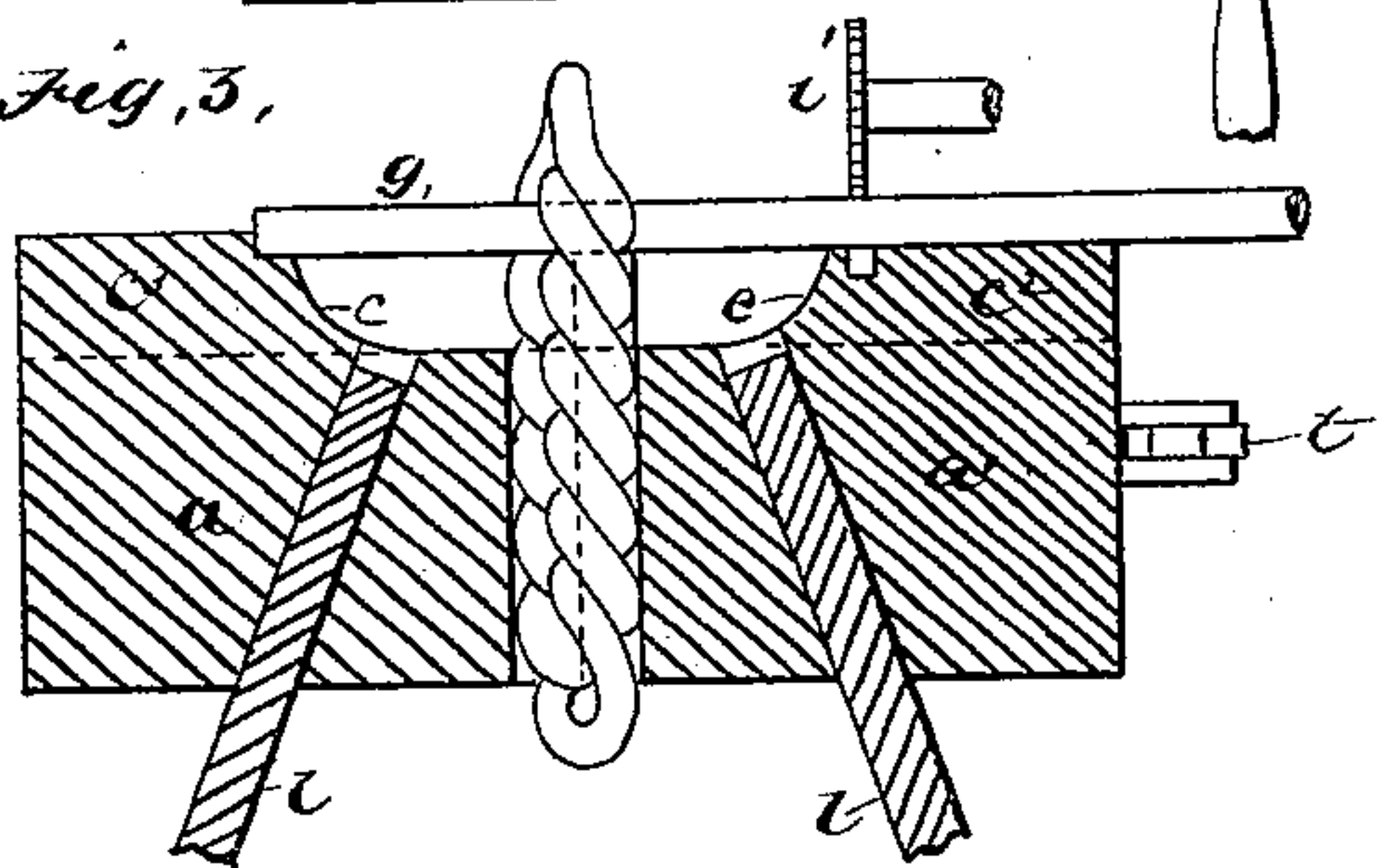


Fig. 4.

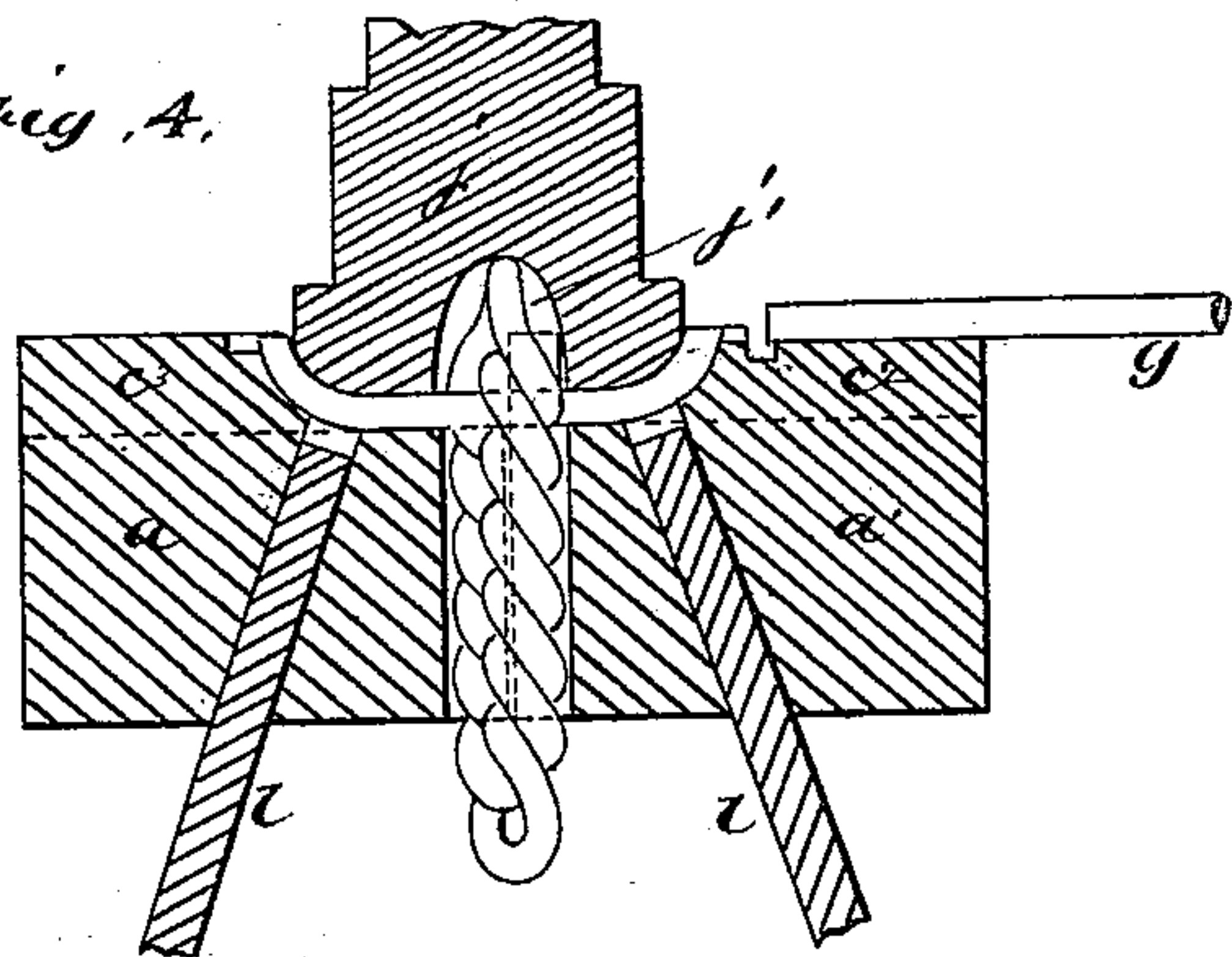


Fig. 5.

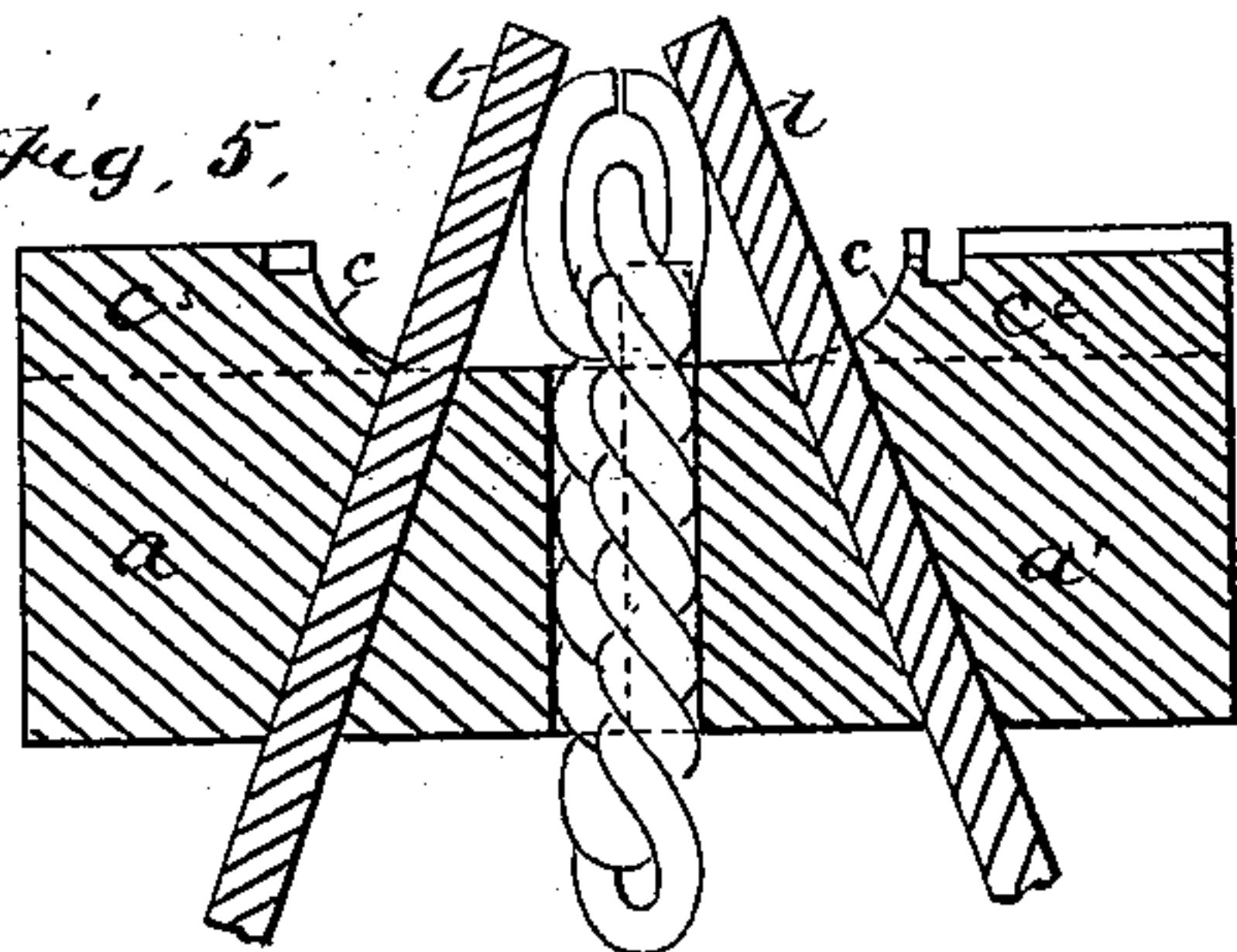
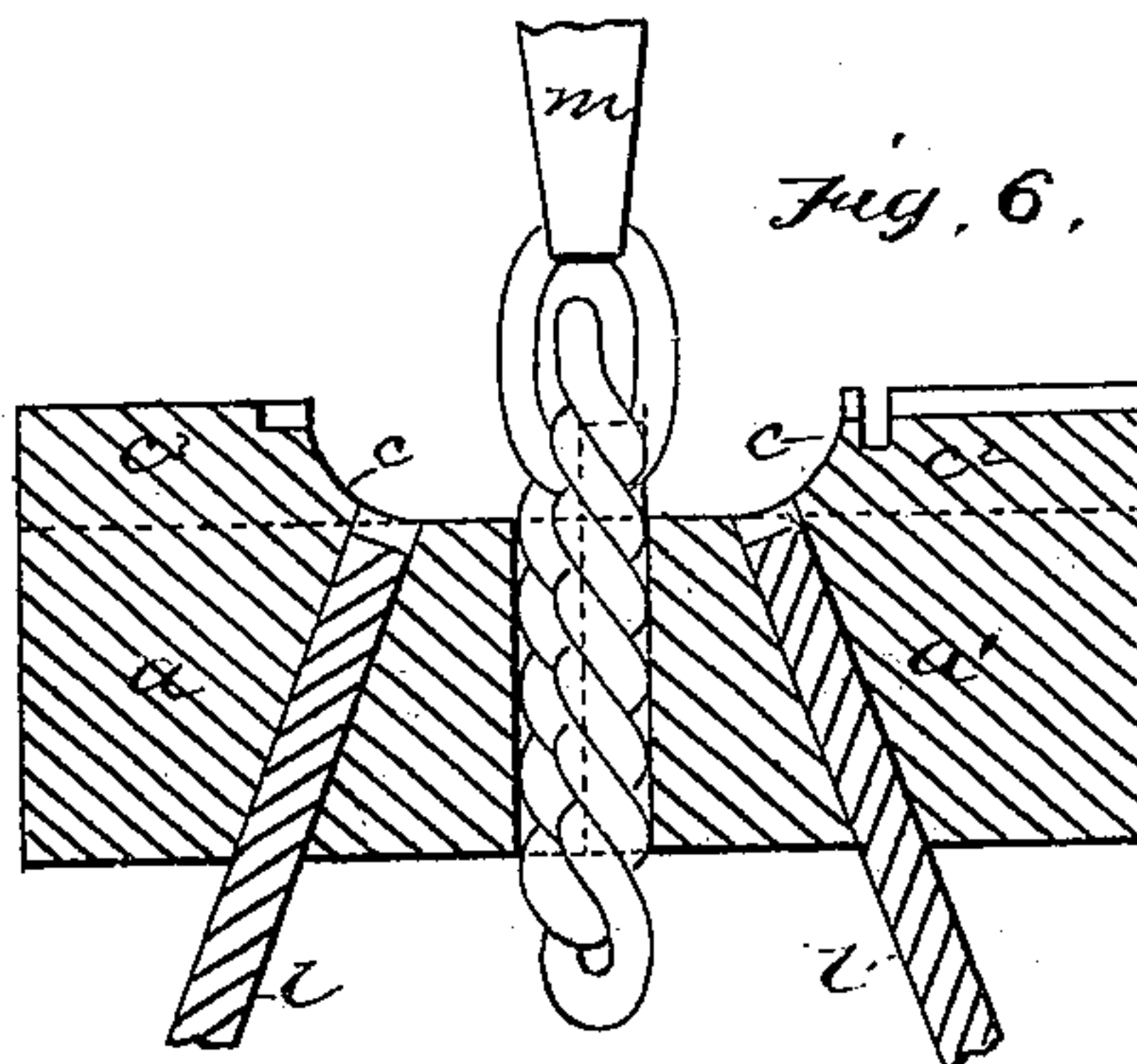


Fig. 6.



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DEVICE FOR MAKING CHAINS.

SPECIFICATION forming part of Letters Patent No. 234,444, dated November 16, 1880.

Application filed August 13, 1880. (No model.)

To all whom it may concern:

Be it known that I, HENRY WEXEL, of Attleborough, in the county of Bristol and State of Massachusetts, have invented certain
5 Improvements in the Manufacture of Double-Curb Chains, of which the following is a specification.

This invention relates to the manufacture of the improved ornamental chain patented to
10 me April 24, 1877, No. 190,105; and it has for its object to provide an improved method of and means for making said chain.

The improved method consists in the following steps: first, clamping a short section
15 of double-curb chain between two clamping-blocks, which are grooved out on their proximate sides to form an orifice to hold the chain and gripe it tightly; secondly, passing a
20 straight wire through the second link from the end and cutting said wire into a blank of the proper length for a link; thirdly, curving the ends of the link; fourthly, bending the blank at its center until its curved ends meet, thereby forming an elliptical link; and, fifthly,
25 twisting the link to give it the proper spiral form, said clamping-blocks being formed to firmly support the previously-formed links, so that they will not be injured by the strain exerted by the twisting of the last link.

30 Of the accompanying drawings, Figure 1 represents a plan view of the metallic blocks before the chain is placed therein. Fig. 2 represents a similar view with the chain in place and the wire inserted ready to be cut off. Fig.
35 3 represents a section on line *xx*, Fig. 2. Fig. 4 represents a similar section, showing the blank cut off and curved at its ends. Fig. 5 represents a similar section, showing the blank bent; and Fig. 6 represents a similar section,
40 showing the link grasped by rotary nippers to be twisted.

In the drawings, *a a'* represent two metal blocks having grooves in their proximate
45 sides, said grooves coinciding when the blocks are placed in contact and forming an orifice, *b*, of the form shown in Fig. 1, said orifice extending from the upper to the lower side of the blocks *a a'*, and being of such form that it will fit closely against the sides of a section of
50 double-curb chain.

On the upper surfaces of the blocks *a a'* are

shoulders or formers *c c*, which are the curved ends of blocks *c² c³*, above the surfaces of the blocks.

The block *c²* has a groove, *f*, to guide a wire, 55
g, from which the chain is to be made, and the block *a* has a groove, *h*, terminating in a stop to limit the movement of the wire when it is fed forward.

i is a saw or other suitable cutter to sever a 60
section or blank of proper length from the wire *g*.

j represents a die to force the blank against the formers *c c* and bend its ends.

l l represent benders to form the blank after 65
its ends are curved.

m represents a pair of nippers to twist the blank.

Operation: A previously-made section of chain is first placed in the orifice *b*, with its 70
upper end projecting above the top of the blocks *a a'*, as shown in Fig. 3, the blocks being pressed together by suitable means so that they clamp the chain tightly. I prefer to interpose springs *s s* between the blocks *a a'* to 75
normally force said blocks apart, and provide cam-levers *t t* to force the blocks together against the pressure of the springs, said levers being pivoted to rods *n n*, attached to the block *a*, and passing loosely through the block 80
a'. The wire *g* is then fed forward and passed through the second link of the completed chain, as shown in Fig. 3. A piece of proper length for a link is then cut from the wire by the saw
i. The cam-levers are then turned so as to 85
allow the springs *s s* to slightly separate the blocks *a a'*, so as to release the chain, and the die *j* is forced down, pressing the blank into the cavity *c c* and bending its ends, as shown in Fig. 4, the chain slipping down through the 90
orifice *b* as the die descends. The die *j* is provided with a cavity, *j'*, which receives the upper link of the chain, as shown in Fig. 4, the inner surface of said cavity bearing upon the upper surface of the last link and pressing the 95
ends of the wire composing said link closely together in case an opening occurs between said ends, so that all the links will be uniform. The blocks *a a'* are then pressed together to gripe the chain, and the benders *l l* 100
are forced up by any suitable means and bend the blank at its center, where it is held by the

link of the chain, through which it passes. The blank is thus bent into an elliptical link, as shown in Fig. 5. The nippers *m* then grasp the link and twist it into the spiral form of the completed links, the link being supported laterally while being twisted by shoulders *n n*, projecting upwardly from the cavity *c c* and arranged, as shown in Figs. 1 and 2, with relation to the orifice *b*, so that the twisting operation exerts no strain on the previously-completed links. The blocks *a a'* are then separated to allow the chain to be fed downward, so as to bring its second link in position to receive the wire *g*; and the operation described is repeated, and so on as long as desired.

By this improved method double-curb chains can be rapidly and cheaply made, all the operations described being capable of performance by an automatic machine.

By gripping and laterally supporting the completed links while twisting the last link I avoid any possibility of injuring the links or separating their ends, so that a perfect double-curb chain is produced without using solder. The invention is also adapted to the manufacture of single-curb chains by passing the wire at the commencement of the operation through

the last-completed link instead of the second link.

I claim as my invention—

1. The improved method herein described of making double-curb chains, consisting in the following steps in the order specified, viz: first, inserting a wire through one of the links of a section of completed chain; secondly, cutting off the portion of wire so inserted to form a blank; thirdly, curving the ends of the blank; fourthly, bending the blank at its center to form an elliptical link; and, fifthly, twisting the elliptical link into a spiral form, as set forth.

2. The combination of the blocks *a a'*, grooved on their proximate sides to form an orifice, *b*, adapted to be pressed together and separated, and provided with shoulders *n n* and formers *c c*, with a cutter, *i*, die *j*, benders *l l*, and twisting-nippers *m*, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of August, A. D. 1880.

HENRY WEXEL.

Witnesses:

WILLIAM CLIMO,
C. F. BROWN.