

S. UREN.
Device for Forming Links.

No. 226,892.

Patented April 27, 1880.

Fig. 1.

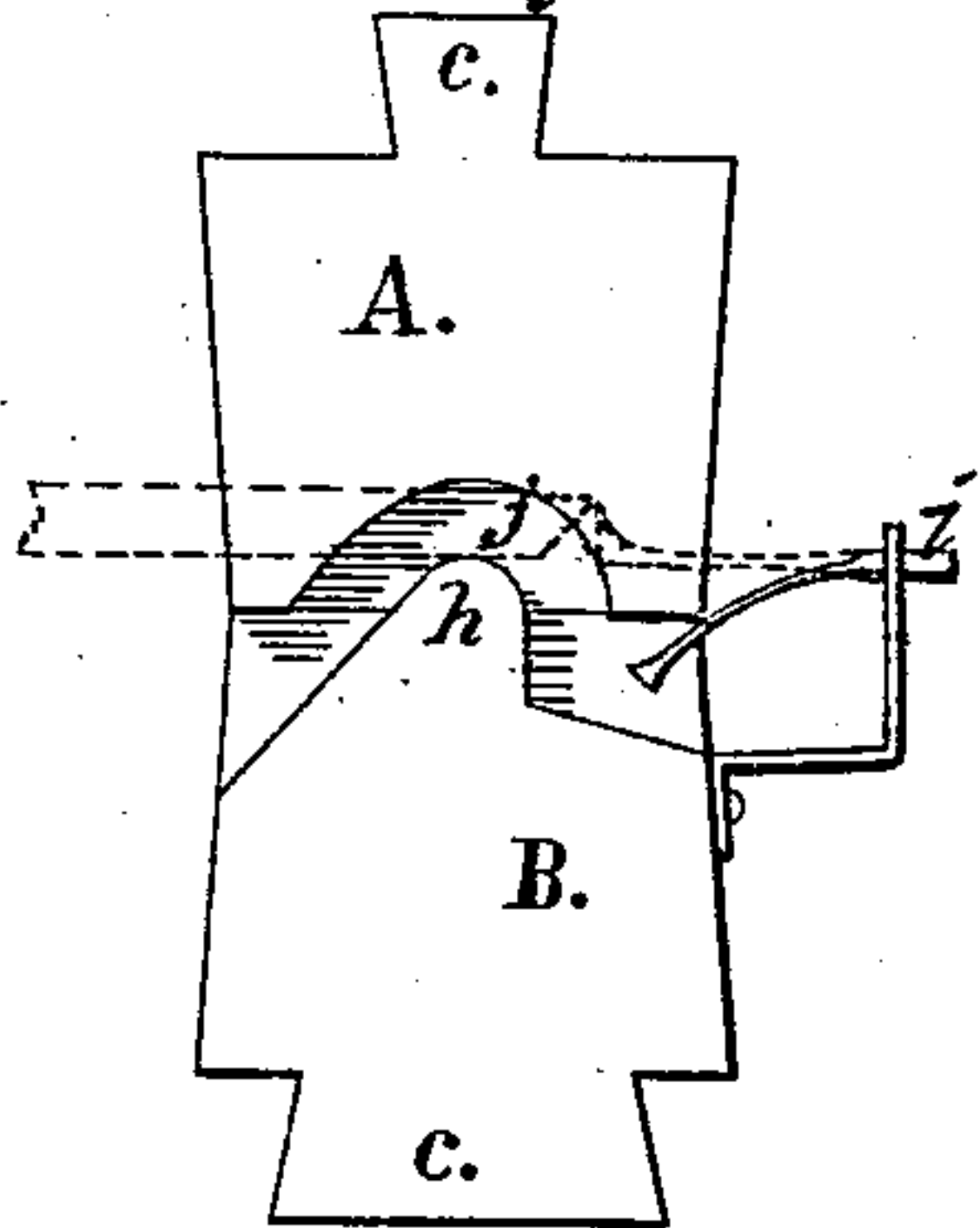


Fig. 2.

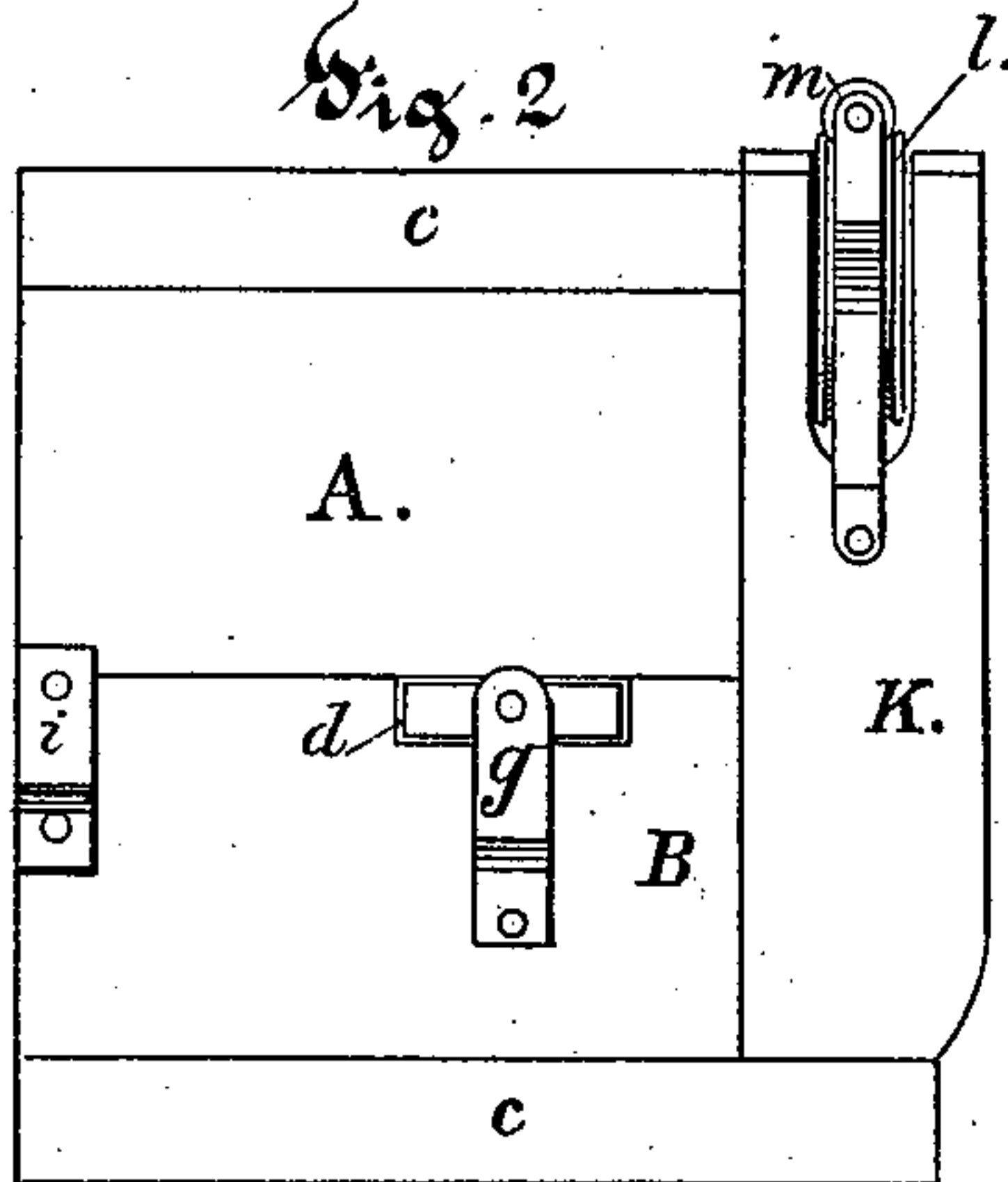


Fig. 3.

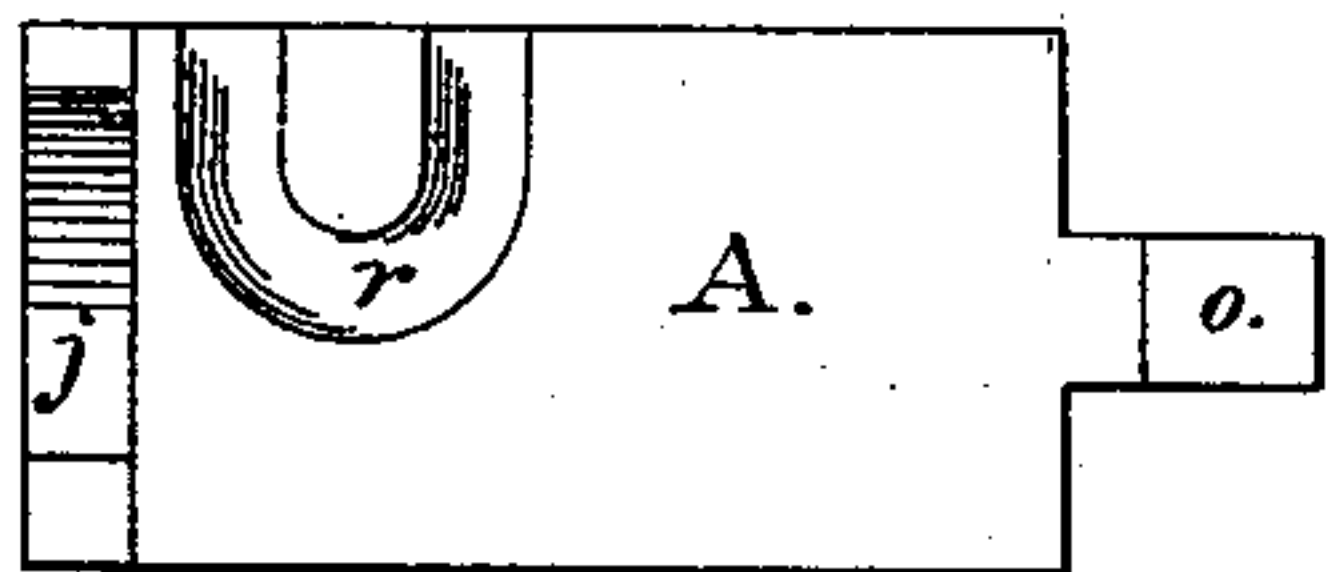


Fig. 4.

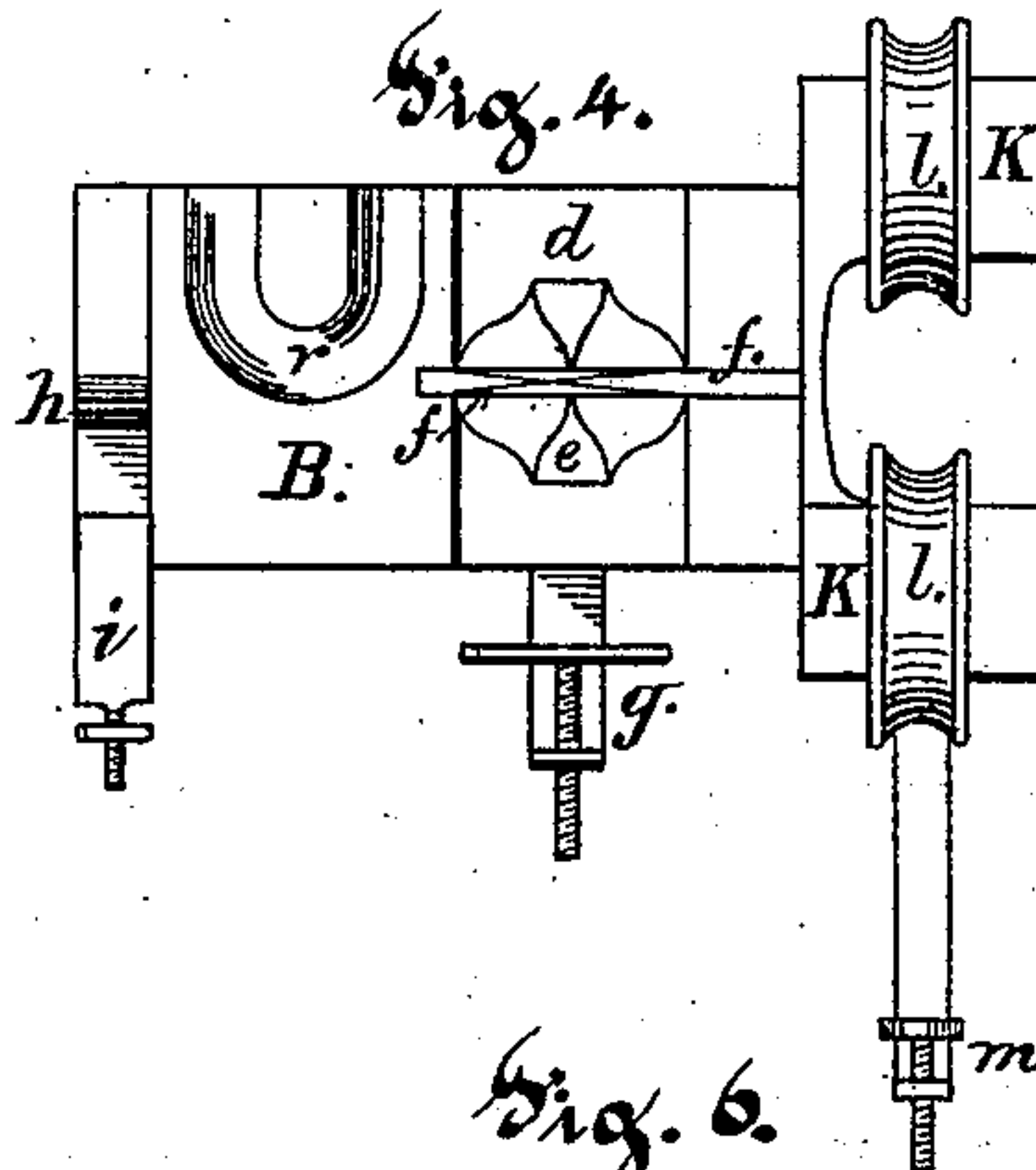


Fig. 5.

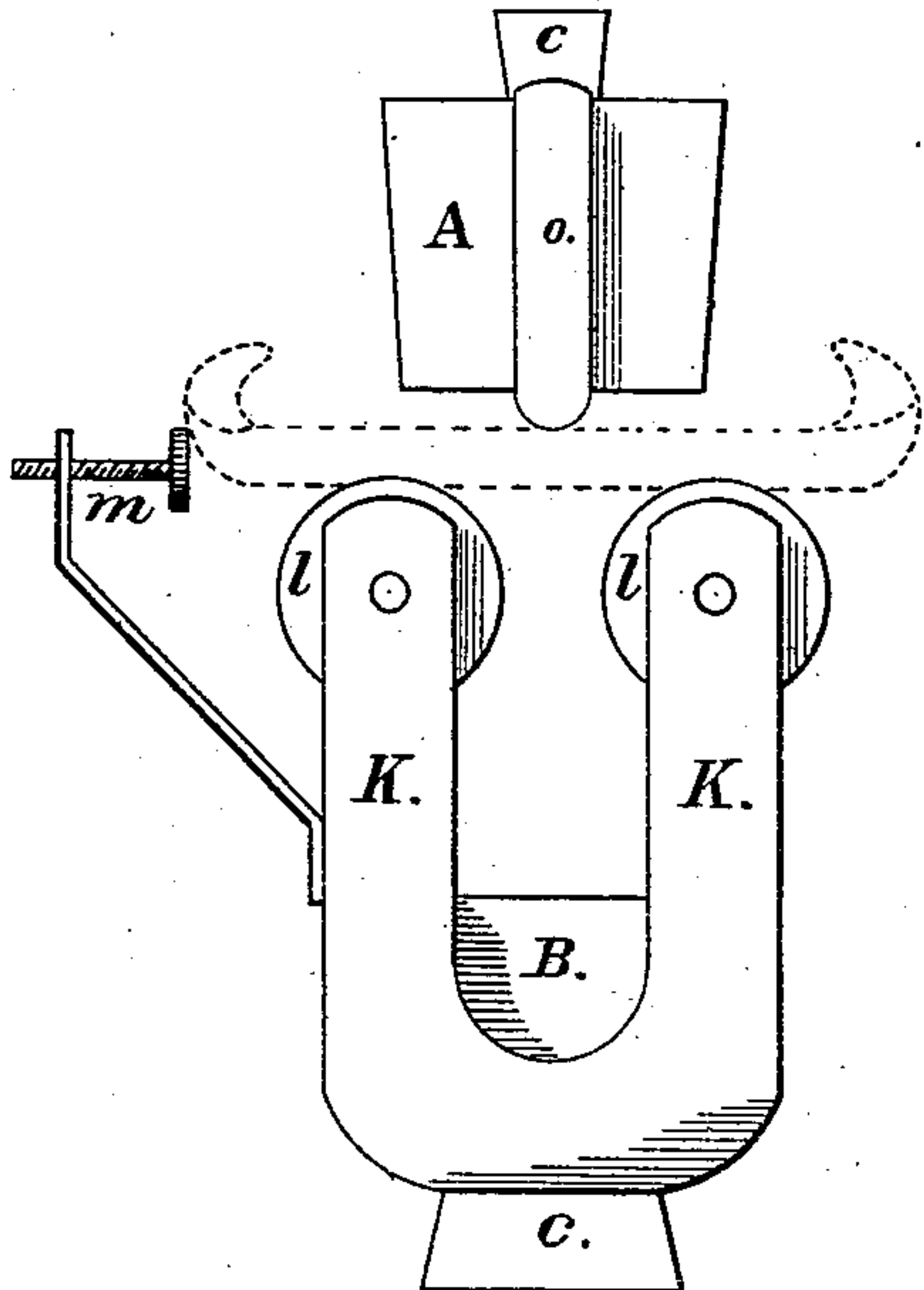


Fig. 6.

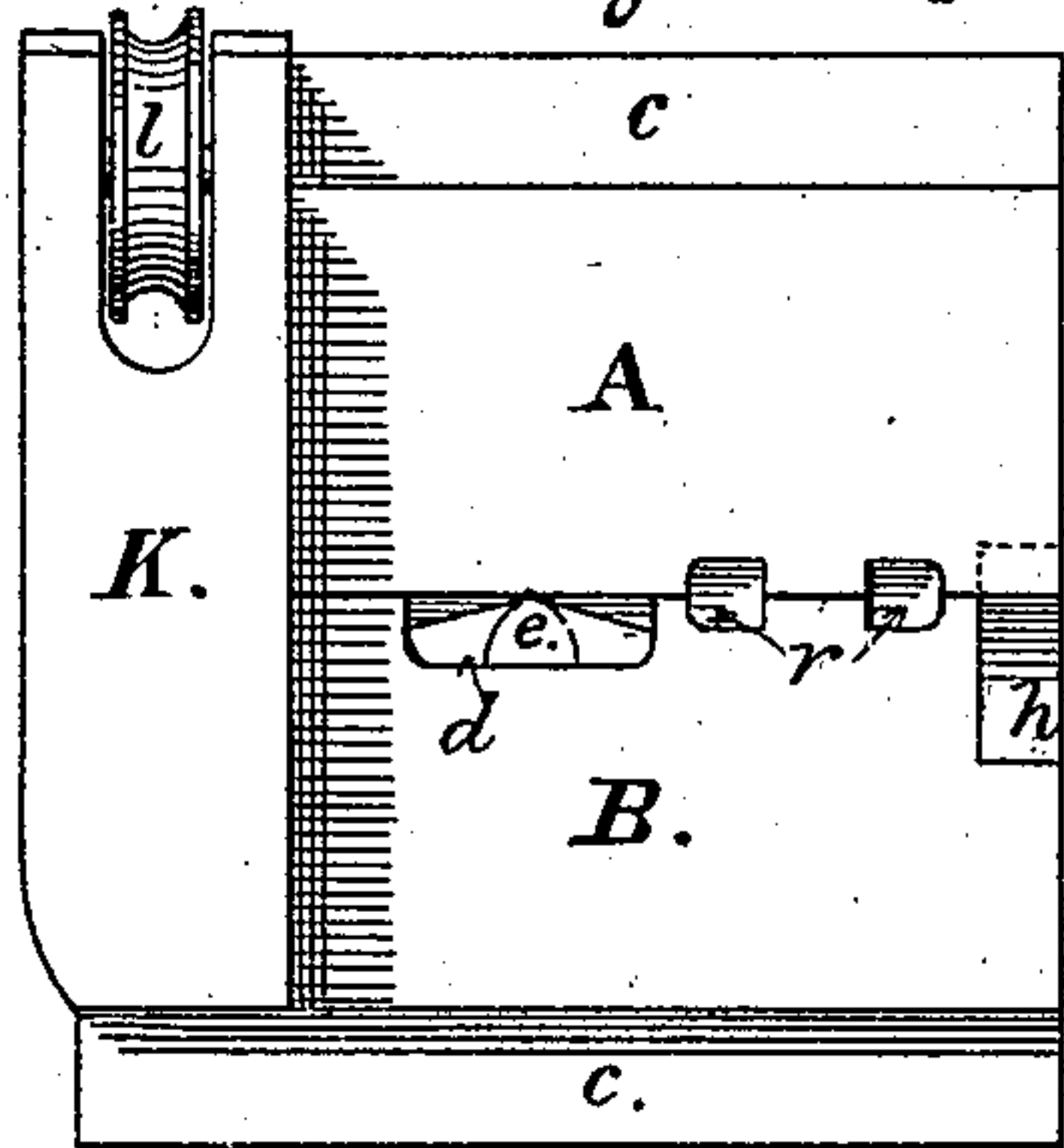
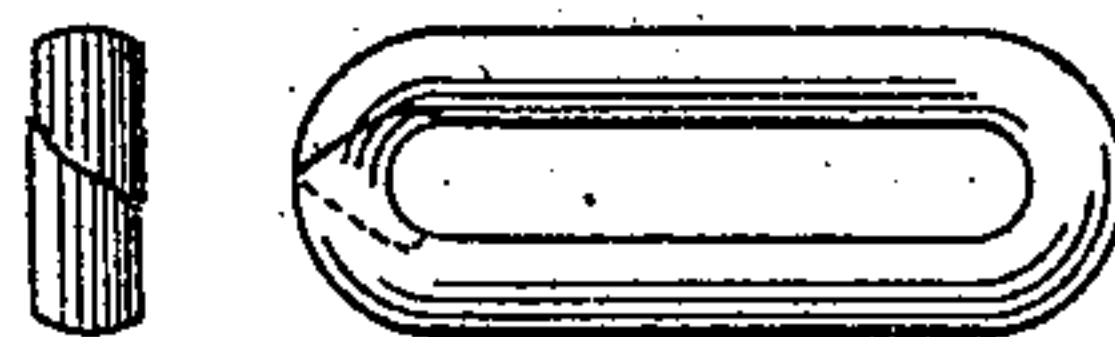


Fig. 7.



Witnesses:
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UNITED STATES PATENT OFFICE.

STEPHEN UREN, OF SACRAMENTO, CALIFORNIA.

DEVICE FOR FORMING LINKS.

SPECIFICATION forming part of Letters Patent No. 226,892, dated April 27, 1880.

Application filed June 2, 1879.

To all whom it may concern:

Be it known that I, STEPHEN UREN, of the city and county of Sacramento, State of California, have invented certain new and useful
5 Improvements in Devices for Forming Links; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

10 My invention consists in providing the hammer and anvil of a power hammer or press with certain dies and formers by means of which a rod of iron can be cut, bent, and lap-welded into a link suitable for connecting rail-
15 road-cars, making chains, &c., all as herein-after more fully described.

Referring to the accompanying drawings, Figure 1 is a side elevation of the hammer and anvil blocks, and Fig. 2 a back view of the same.
20 Fig. 3 shows the under side or face of the hammer-block. Fig. 4 shows the upper side or face of the anvil-block. Fig. 5 is a detached view of the blocks, the hammer being raised ready to bend a link, which is indicated by
25 dotted lines. Fig. 6 is a front view of the two blocks, and Fig. 7 is a view of a finished link.

A represents the detachable block that forms the face of the hammer or drop-weight, and B the detachable block that forms the
30 face of the anvil of a power-hammer. Each of these blocks I provide with a dovetail rib, *c*, corresponding to the dovetail ribs of the ordinary plain-faced blocks that form the faces of the hammer and anvil, so that when the
35 ordinary blocks are removed the blocks A and B can be substituted for them.

Across the face of the anvil-block B, near one end, I make a channel or depression, *d*, the depth of which at both sides of the block
40 is equal to the diameter of the rod to be cut. In the middle of this depression or channel I make a semi-globular boss, *e*. Directly through the middle of this boss I make a narrow channel or groove transversely across the channel
45 or groove *d*, and extending into the metal a short distance on each side. Into this narrow transverse groove I secure a straight cutter, *f*, with its edge upward, so that it cuts the
50 boss into two parts and forms a partition across the channel. This forms four angles, two on each side of the cutter *f*, each of which

is formed by the side of the channel, side of the cutter, and convex side of the boss. The portion of the hammer-face A which is above this groove *d*, boss *e*, and cutter *f* is plain, 55 so that when the end of a heated rod is placed across either end of the cutter and the hammer is dropped the cutter will sever the rod and the hammer will flatten and draw out the severed ends upon the curved and angular 60 sides of the boss to the proper shape to form a lap-weld.

A short piece of the end of the rod is first cut off on the right-hand end of the cutter, so as to get the proper form of lap to accommo- 65 date the lap which is to be formed on the opposite end. After that the full length of the rod can be cut at the left-hand end of the cutter.

g is an adjustable stop or gage, which is at- 70 tached to the anvil-block, and against which the end of the rod is thrust in cutting a length, so as to make the lengths and links uniform. On the opposite end of this block B is a projection, *h*, the front side of which is inclined, 75 while its opposite or rear side is vertical, the top being rounded.

i is an adjustable gage or stop supported in a bracket or support attached to the part B, and disposed about in line in a horizontal plane 80 with the top of the projection *h*, with its free end extending under the hammer A, and so as to permit one end of the blank to rest against it, when the blank is placed upon the projection *h* to have its ends bent, which bends are 85 indicated by dotted lines in Fig. 5. This gage is concaved upon both its upper and under surfaces or thinned out between its ends to provide its free end with a head, but more particularly to permit the gage to have sufficient 90 spring to yield to the action of the descending hammer and return to its normal position as the hammer is elevated without breaking. In the hammer-face A, directly above this projection, is a corresponding recess, *j*, which drops 95 over it.

After the bar or blank has been cut into uniform lengths, the ends of which have been treated to the scarfing process, it is placed upon the projection *h*, with one end resting 100 against the stop or head of the gage *i*, and the hammer allowed to fall upon it. The other

end of the bar or blank is likewise acted upon by subsequently or immediately afterward presenting it to the action of the hammer. This gives to each end a short bend in the proper direction, as indicated by dotted lines in Fig. 5.

It will be observed that the blanks are of such length that while the unbent end of the blank is being subjected to the action of the hammer the bend on the already bent end will extend out beyond and not be exposed to the action of the opposite face of the hammer, and thus permit of the proper bending of both ends preparatory to taking the next step in the making of the link.

At the opposite end of the block B are two upright standards, K K, which are connected together at their lower ends by a U-shaped connection. In the upper end of each standard is a groove-faced pulley, *l*. An adjustable stop or gage, *m*, is also secured to one of the standards in line with the upper edges of the pulleys.

After the ends of the rod have been bent in the last-described operation, I lay the rod upon the pulleys *ll*, with its middle half-way between them and with its bent ends presented upwardly, as represented in Fig. 5.

The drop or hammer block A has an extension, O, on its end, which passes down between the standards K K when the hammer falls. When the rod is resting upon the pulleys, as above stated, and this extension strikes it, the rod is bent at its middle and forced down between the standard, so that it assumes the form of a link, with the forged ends, which were previously bent, lapped upon each other, as seen in Fig. 7.

In the faces of both the upper and lower blocks a semicircular groove, *r*, is made on one side, so that they exactly correspond and register with each other. This groove is of the same shape and size as the bent and lapped end of the link. After the link has been bent to the desired shape, as heretofore described,

I place the lapped end in the fire in order to obtain a welding-heat. I then place it in the curved groove of the anvil-block and drop the hammer upon it, thus welding the lap and shaping the link at a single blow.

I thus produce a complete link from the straight rod in five successive operations, each operation being accomplished by a single blow. At the same time I produce a more complete and perfect weld and a neater link than can be turned out by hand, as this work has heretofore been done.

I do not claim any relative position for the dies and formers, as they may be arranged to suit the convenience.

I can thus make links for the manufacture of chains and for other purposes; but the chief importance of the machine is for making railroad links for connecting railroad-cars.

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

1. The anvil-block B, provided with the transverse channel *d*, with its semi-globular boss or projection *e* and transverse cutter *f*, in combination with the drop or hammer block A, substantially as and for the purpose described.

2. The anvil-block B, provided with the transverse channel *d*, semi-globular boss *e*, cutter *f*, adjustable gages *g i*, projection *h*, and the U-shaped standards K, provided with the grooved pulleys or rolls *l* and adjustable gage *m*, in combination with the drop-weight or hammer A, provided with the extension O and recesses *r j*, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand and seal.

STEPHEN UREN. [L. S.]

Witnesses:

W. F. CLARK,

W. FLOYD DUCKETT.