

(No Model.)

J. BRIDGE.

MACHINE FOR MAKING LINKS.

No. 264,132.

Patented Sept. 12, 1882.

Fig. 1

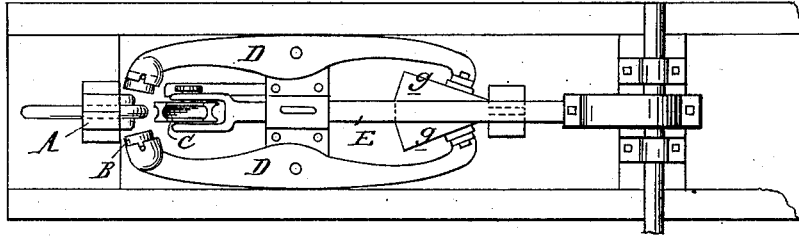


Fig. 2

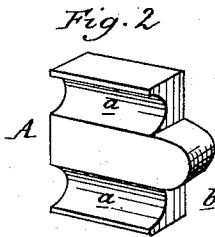


Fig. 3



Fig. 4

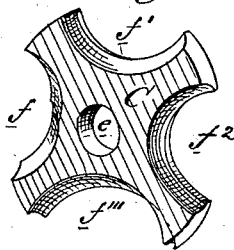


Fig. 5



Fig. 6

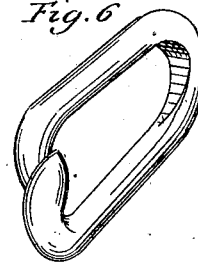


Fig. 8

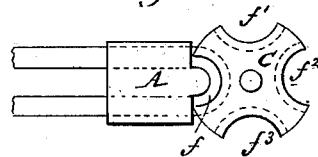
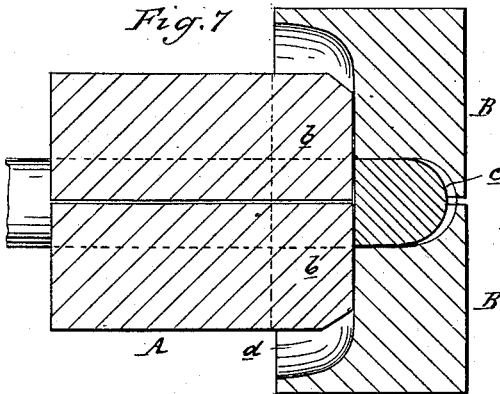


Fig. 7



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MACHINE FOR MAKING LINKS.

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Application filed February 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN BRIDGE, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Machines for Making Railway-Car Links; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The nature of this invention relates to certain new and useful improvements in devices for the manufacture of links such as are used, for instance, for car-coupling purposes or for chain-making; and the invention consists in the peculiar construction and operation of the dies in the machine for the purpose, all as more fully hereinafter described.

Figure 1 is a plan view, showing the dies in position attached to the machine. Fig. 2 is a perspective of one of the set or stationary dies removed from the machine. Fig. 3 is a perspective of one of the set of side dies, also detached. Fig. 4 is a sectional perspective of the end die detached. Fig. 5 is a face view of the same. Fig. 6 is a perspective of a link lapped by the end die. Fig. 7 is a horizontal central section of the stationary die, illustrating the action of the side die. Fig. 8 is a side view of the stationary and end dies in the position assumed in upsetting the ends of the link.

In the drawings which accompany this specification are shown, attached to a suitable machine for operating them, three sets of different dies. The dies A consist of two like halves, one of which is shown in perspective in Fig. 2. Each half contains two parallel grooves, *a*, and the rounding projection or nose *b*. The dies B consist of two like halves, one half thereof being shown in perspective in Fig. 3. Its face is shown to be provided with the semi-circular-shaped recess *c*, and is cut away, as at *d*, and if the two halves are closed together, as in Fig. 7, the recesses *c* form a space of the desired shape to form the rounded sides of the end of the link. In Fig. 4 is shown a one-half section of the third die, C, which is provided with a central opening, *e*, and four indentations or recesses, *f f' f² f³*, upon the circular face of the die, and are for the purpose of shaping the ends of the link. It will be noticed in the drawings that these indentations enter

the die in different degrees of depth—that is to say, the recess *f* enters toward the center of the die the farthest and the recess *f'* the least.

In practice the three dies are combined and operate as follows: The dies A are clamped together and used in a stationary position. Each of the dies B is held or set in the end of the vibrating levers D, or in any other manner which gives them a lateral movement. The die C is journaled through the central opening, *e*, at the end of the reciprocating bar or rod E. This bar E is shown in the drawings to be provided with the inclined planes *g*, which are made to operate the levers D in the manner of a pair of jaws, forcing the dies B to close together whenever the bar E moves away from the dies A.

The dies are used in the following manner: The bar for forming the link is bent in the proper U shape, and then inserted, with its parallel sides, into the grooves *a* of the dies A, with its bent end lying against and around the nose *b* thereof. Then the two dies A are clamped together, or are clamped upon the bed of the machine, by any suitable device—such as a pair of wedges, for instance, one on each side—holding the link fast and in proper position for being acted upon by the other dies. If the machine is now set in motion, the levers D will force the dies B to close upon the end of the link, shaping it in the desired manner upon its outer sides, while the die C is operating with one of the recesses *f* to *f³*, shaping the end of the link. This is done first with the recess *f³*, following up with recesses *f²* and *f'*, if desired. The different distancing or depth of the recesses from the center of motion naturally will upset the end of the link. Suitable mechanism (not shown in the drawings) may be employed to turn the die C automatically a quarter of a revolution at each stroke of the bar E in order to present a different recess in said die for action. After one end of the link is finished—and which can be done with the same heat used for bending the bar—the link is taken out of the dies A, and its free ends are then properly heated, whereupon the link is put back into the dies A, the free ends being this time allowed to protrude through the grooves *a* a sufficient length to form around the nose *b* the other end of the link. The dies A being again properly clamped upon the bed

of the machine so as to hold the link fast, the die C, with its lapping recess *f*, is allowed to act upon the projecting ends of the link. This recess *f* is differently shaped from the others. In Fig. 5 a face view of it is shown, and its action upon the free ends produces the lap necessary for proper welding, as shown in Fig. 6. After the ends are lapped the link is finished by using the dies B and the die C, as hereinbefore described. In the drawings, the nose *b* upon the die A will produce a link, D, shaped in cross-section upon its end; but it is obvious that the proper modification of this nose will allow of producing any desired shape in cross-section of the end.

What I claim as my invention is—

1. In a machine for forming the ends of a link, the dies A, B, and C, constructed and operating substantially as described, in combination with suitable mechanism for operating them, as set forth.

2. As a means of forming the inner bend of a link, the pair of dies A, constructed and operating substantially as set forth, in combination

with suitable mechanism for operating them.

3. As a means for forming the sides of the bend, the dies B, constructed and operating substantially as specified, in combination with suitable mechanism for operating them.

4. As a means of forming the outer bend of the end of the link, the die C, constructed and operating substantially as described, in combination with suitable mechanism for operating it.

5. As a means of forming the lap, the die C, provided with the lapping recess *f*, substantially as set forth, in combination with suitable mechanism for operating it.

6. The combination, with the dies A B C, constructed substantially as described, of the levers D, traveling rod I, and the inclines *g g*, as set forth.

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Witnesses:

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