A. M. & B. F. GEORGE.

Machines for Making Chain-Links.

No. 151,773. Patented June 9, 1874.

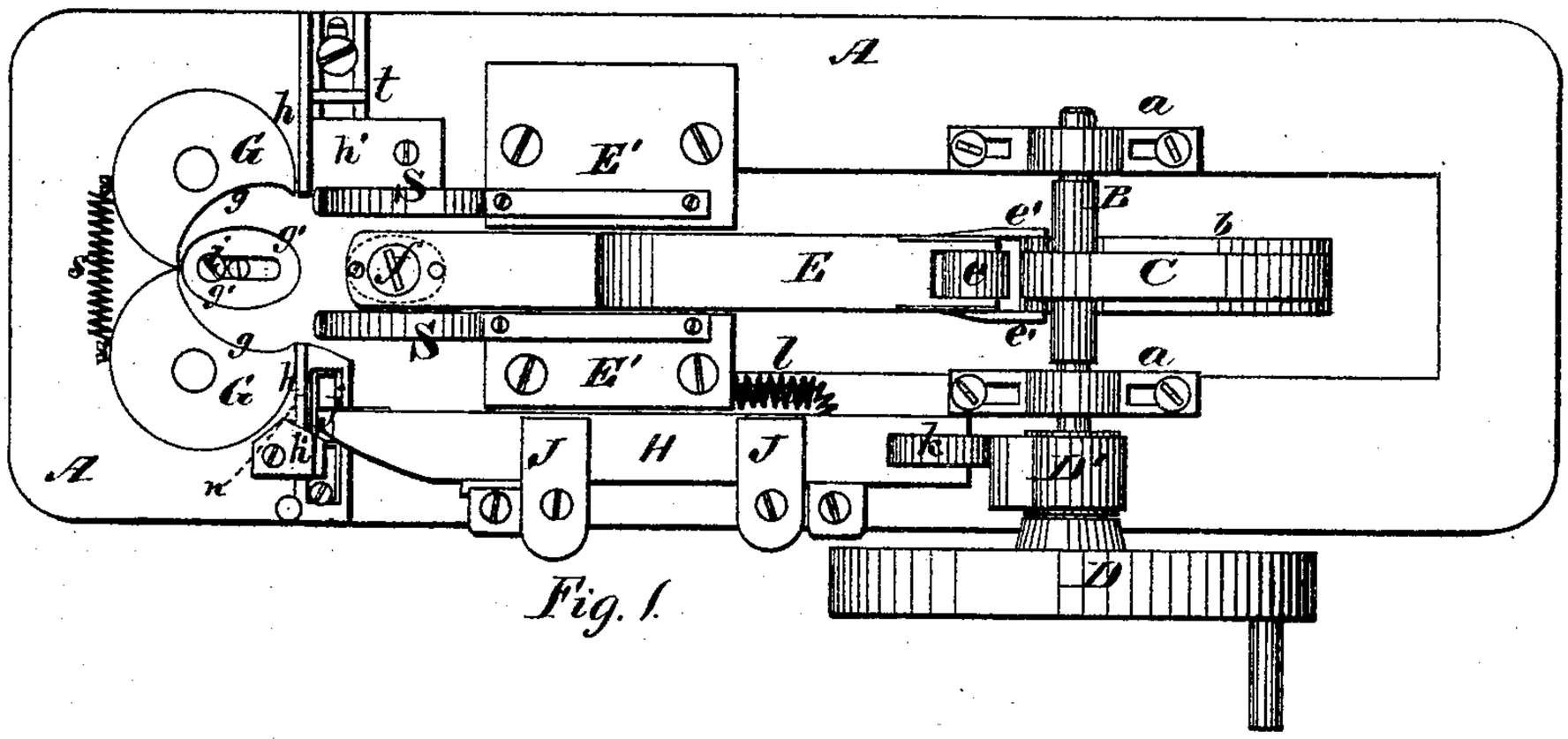


Fig. 1.

Fig. 2.

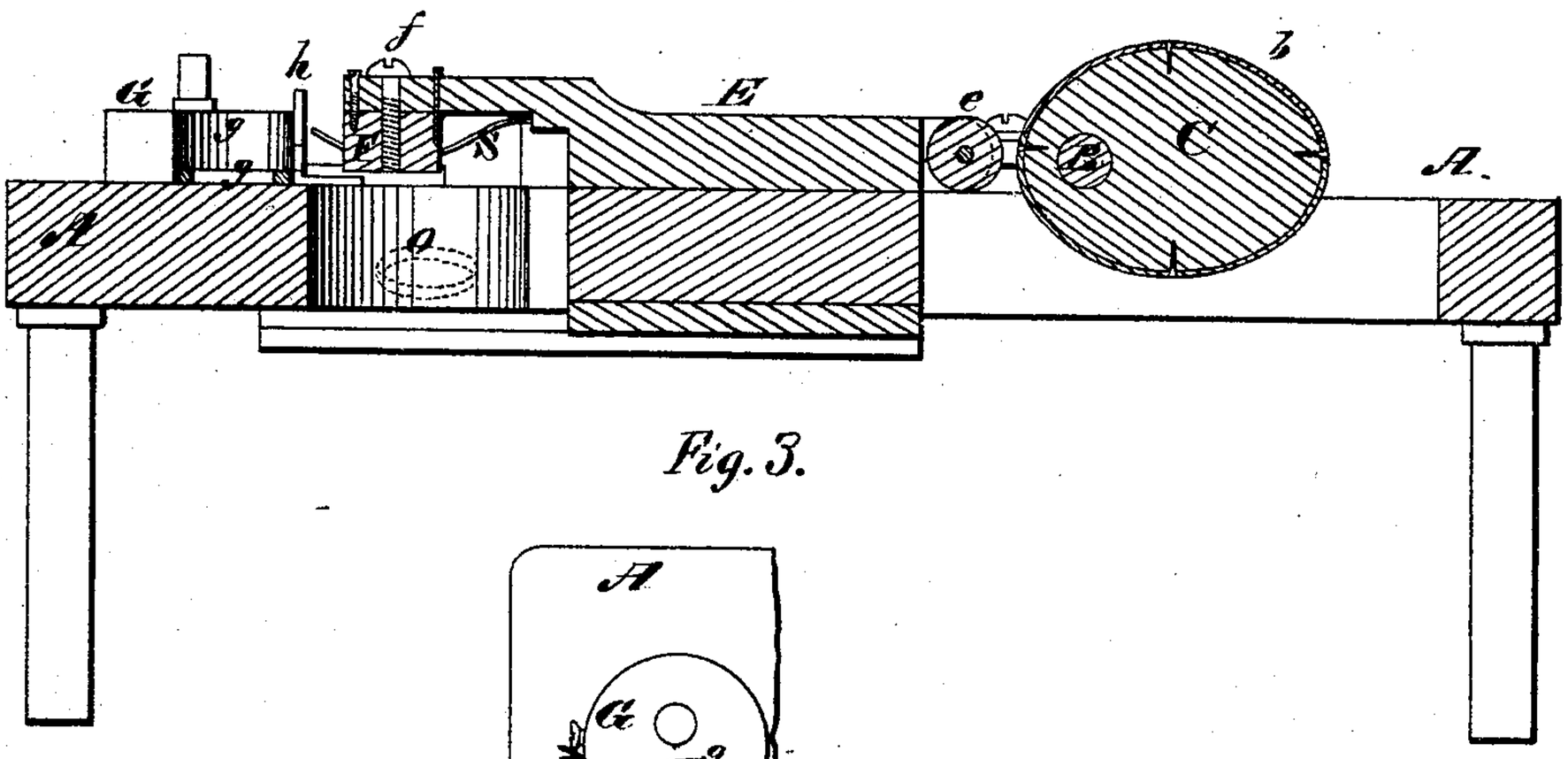
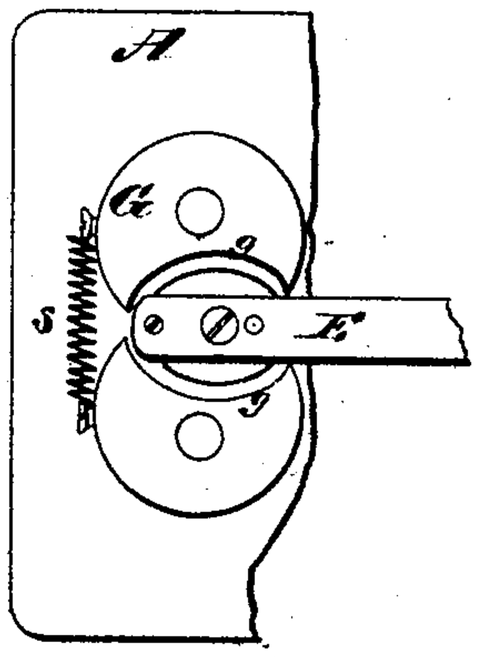


Fig. 3.



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UNITED STATES PATENT OFFICE.

AMMI M. GEORGE AND BENJAMIN F. GEORGE, OF NASHUA, N. H.

IMPROVEMENT IN MACHINES FOR MAKING CHAIN-LINKS.

Specification forming part of Letters Patent No. **151,773**, dated June 9, 1874; application filed October 18, 1873.

To all whom it may concern:

Be it known that we, AMMI M. GEORGE and BENJAMIN F. GEORGE, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented a new and valuable Improvement in Chain-Link Machines; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a top view of our chain-link machine. Fig. 2 is a sectional view of the same. Fig. 3 is a detail view.

Our invention relates to certain new and useful improvements on machines for making links for chains, car-couplings, and other purposes, wherein vibrating dies are employed, in combination with a reciprocating former, discharging devices, and link-rod cutters; and the novelty consists in combining, with the devices above named, a pair of oscillating concave dies, a reciprocating former, a movable bed, and a pair of curved spring dischargers, acting as inclined planes to force the links of the plunger, as will be hereinafter more fully described.

The following is a description of our improvements:

In the annexed drawings, A represents the frame of the machine, near one end of which is a horizontal transverse driving-shaft, B, carrying two cams, C D′, and a balance-wheel, D. This shaft has its bearings in journal-boxes *a a*, which are adjustable in a direction with the length of the frame A. The cam C, which is oval in shape, communicates a forward and backward motion to a bar, E, which reciprocates between fixed guides E′ E′, and for this purpose the cam has a double flange, *b*, formed on it, for returning the bar E after that portion of the cam which is not flanged completes the forward stroke of this bar. The cam D′ is a single throw, and once during each revolution of shaft B it gives a forward stroke to a knife-bar, H, which moves beneath guides J J on frame A. Beneath the bar E, at its front raised end, is a former, F, which is rigidly secured to its bar by means of steady-pins and a set-screw, *f*. This former is elliptical in shape, and corresponds to the interior size and shape of the links which are formed around it. G G represent two oscillating dies, which are arranged horizontally on top of the frame A, and held open to receive the link-rods by means of a spring, *s*. These dies present internally-concave surfaces *g g*, corresponding in shape and size to the external shape and size of the links which are formed around the former F. Between the concavities of the dies G G is an elliptical bed, *g′*, which is slotted longitudinally, and connected to the top of the frame A by means of set-screws *i*, or their equivalents, which will allow this bed endwise play, but hold it down in place on the frame. On opposite sides of the former-bar E are spring dischargers S S, which are secured upon the guide-blocks E′ E′, and curved, as shown in Fig. 2, so that they strip the links from the former during its return strokes, and discharge the links through the opening O into a suitable receptacle placed beneath the frame.

When the former-rod E has been drawn back, as indicated in Figs. 1 and 2, a link-rod, the end of which has been previously beveled, is adjusted upon two beds, *h h′*, and against a stop, *t*, and also against two vertical guides, *h h*, arranged transversely with respect to the length of the frame A. The link-bar is thus held until the cam D′ moves the bar H forward, and, by means of a knife, *j*, and a beveled cutting-edge, *n*, on one of the guides *h*, the rod is cut the proper length. The knife-bar H then recedes by reason of the recoil of a spring, *l*, and the former F is moved forward, carrying with it the link-rod into the space between the dies G G and upon the movable bed *g′*. During this forward stroke of the former F the dies G G are forcibly brought against the link-blank, so as to bend it closely around this former; at the same time the dies move the bed *g′* forward beneath the link, so as to afford it firm support. The next operation is to draw the link out of the space between the dies, so that the springs S S will discharge it. This is done by the flanges *b b*

on cam C acting on anti-friction rollers on arms e' e', which arms are secured to the rear end of the former-rod E, as shown in Fig. 1.

It will be seen, from the above description, that the die-surfaces g g' are caused to press the link-rod around the former by the forward pressure of this former against them, and that as the former recedes with its link-blank around it the spring s opens the dies, and at the same time causes them to push back the bed g'.

The dies G G and former F are removable, for the purpose of substituting others in their stead for making links of different sizes and of different gages of wire; and the stop t and guides h h are adjustable for different lengths of link-rods and different sizes of links.

What we claim as new, and desire to secure by Letters Patent, is—

1. The oscillating concave dies G G, acted on by spring s, and the former F, in combination with the movable bed g', arranged between the concavities g g of said dies, as and for the purposes described.

2. In combination with the oscillating concave dies G G, the curved spring dischargers S S, arranged on opposite sides of the reciprocating former F and over the discharge-passage O, as and for the purposes described.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

AMMI MOORSE GEORGE.
BENJAMIN FRANKLIN GEORGE.

Witnesses:
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EMILE REBER.