B. F. Hooper.

Making Carriage-Irons.

No. 1,024.
32,028.

Patented Apr. 9, 1861.

Fig. 1.

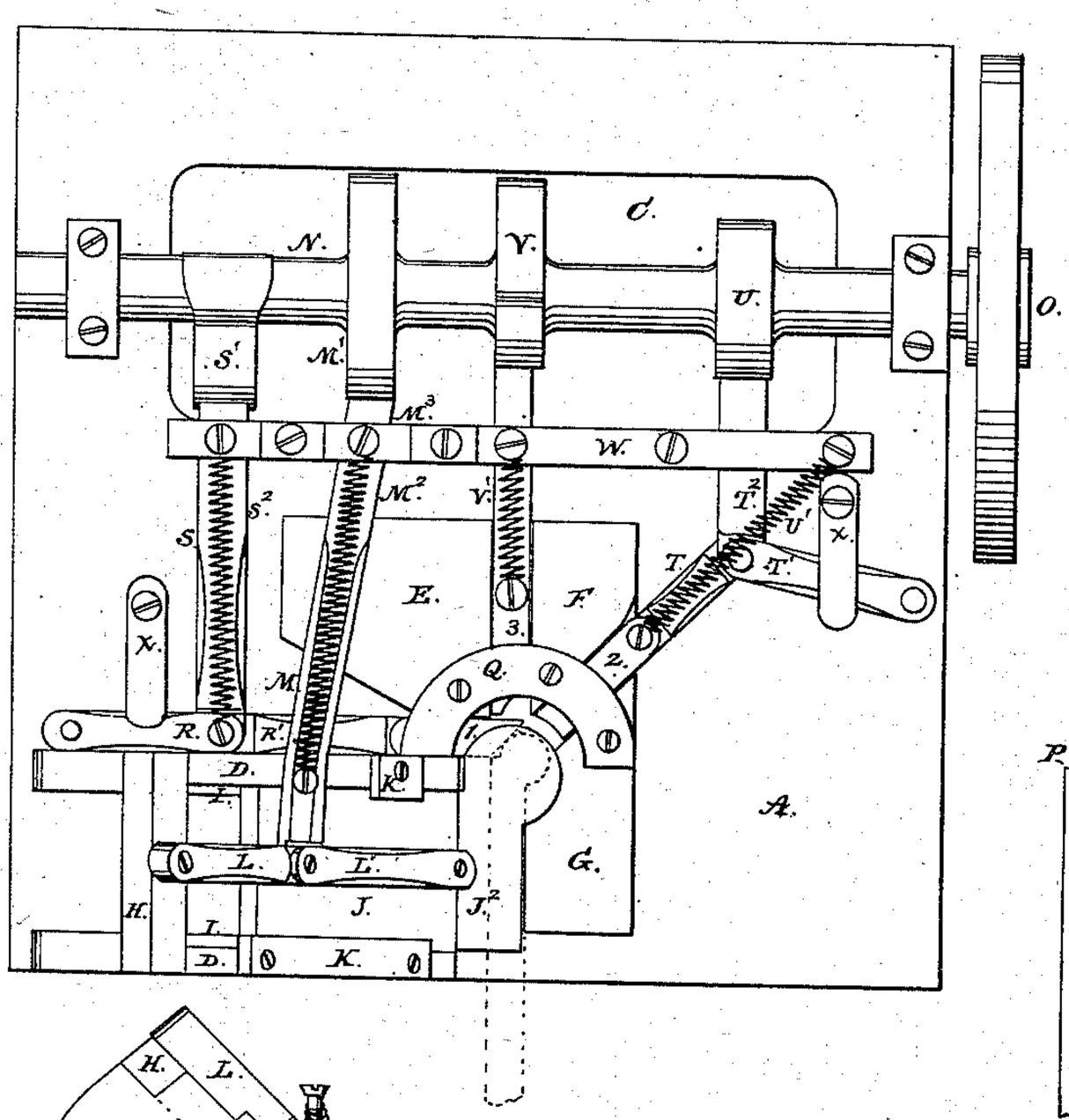


Fig. 2.

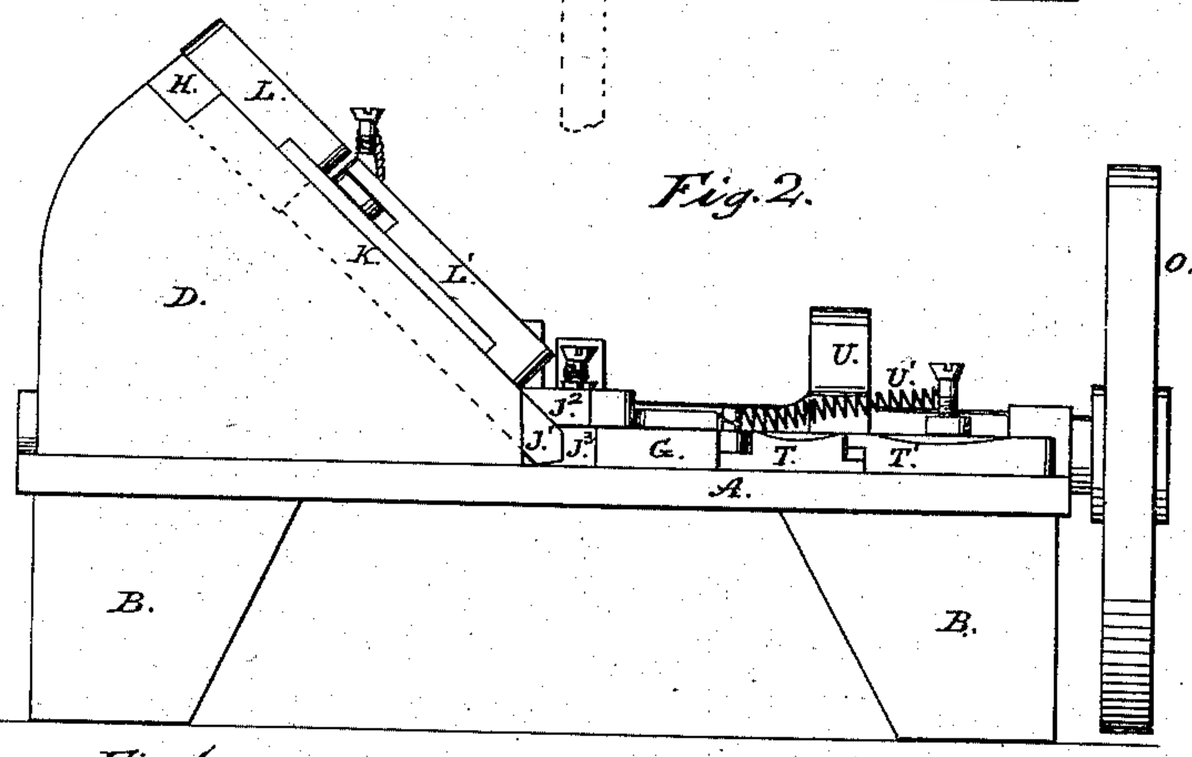


Fig. 4.

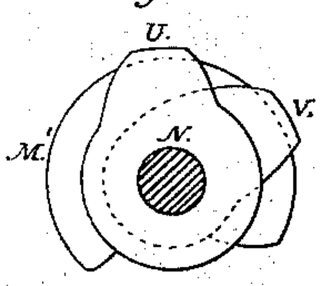
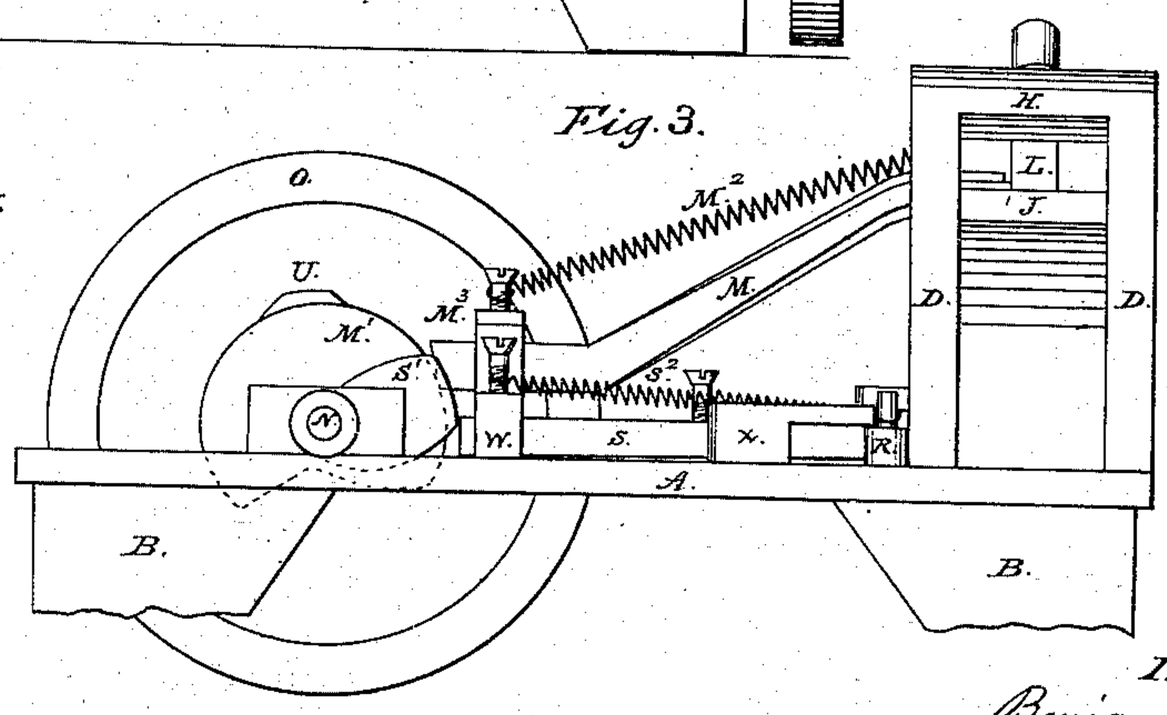


Fig. 3.



P.

Fig. 5.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. HOOPER, OF BIRMINGHAM, CONNECTICUT, ASSIGNOR TO ELI N. BALDWIN, OF HUNTINGTON, CONNECTICUT.

MACHINE FOR MAKING BRACES FOR CARRIAGE-TOPS.

Specification of Letters Patent No. 32,028, dated April 9, 1861.

To all whom it may concern:

Be it known that I, BENJAMIN F. HOOPER, of Birmingham, New Haven county, State of Connecticut, have invented a new and useful Machine for Making Joints for the Braces of Carriage-Tops, &c.; and I do hereby declare that the same is described and represented in the following specification and accompanying drawings.

The nature of my invention consists in a pair of clamping dies which grip the bar of iron and hold it, while the end is forged or swaged into the form required, by a series of traversing dies, operated in succession for that purpose.

To enable others skilled in the arts to make and use my invention I will proceed to describe its construction and operation, referring to the accompanying drawings in which the same letters indicate like parts in each of the figures.

Figure 1, is a plan or top view of the machine. Fig. 2, is a front elevation. Fig. 3, is an elevation of one end.

A, is a bed or plate made of cast iron in the form shown in the drawing and provided with four legs B, B, and also with a hole or opening in it at C, as shown in Fig. 1. The top of this plate A, is provided with two flanges D, D, made in the form shown in the drawing, and also with three blocks E, F, and G, made in the form shown in Fig. 1, which blocks and flanges I prefer to cast with and onto the plate A, but may be made separate and fastened on if preferred that way. The tops of the flanges D, D, are connected by the bar H, which should be cast with them and made very strong.

There are some rabbets I, I, on the inside of the inclined edges of the flanges D, D, for the carriage J, to traverse in which is fitted to the rabbets, so as to traverse freely and is held down by the plates K, K, fastened on the top of the flanges so as to project over the edges of the carriage and allow it to traverse when it is operated by the toggle links L, L′, one of which vibrates on a pin in the bar H, and the other on a pin in the carriage J. These toggle links are vibrated by the slide M, which is made in the form shown and connected to them and is pressed forward by the cam M′, on the shaft N, to straighten the toggle, and push down the carriage, and this slide is drawn back by the spiral spring M^2, fastened to it and to the cap M^3, in which the slide M, traverses. The cam M′, is made in the form shown at Figs. 3 and 4, and fastened to the shaft N, which turns in boxes fastened to the plate A, at each end of the opening C, through which the cams revolve as the shaft is turned by the pulley or gear O.

The end of the carriage J, is made in the form shown at J′, and the flange J^2, projects from it as shown in the drawings, so that when the carriage is pushed down there is a rectangular opening J^3, between the end of the carriage and the bed A, and block G, in which opening the bar of iron is clamped, while the joint is made on the end of it, by the sliding dies 1, 2, and 3, which are pressed forward in succession in the order in which they are enumerated for that purpose.

The block G, is made in the form shown in Fig. 1, with the arc of a circle in its inner corner as shown by dotted lines, which arc forms a portion of the joint made on the end of the rod of iron which is heated, and laid on the plate A, by the side of the block G, when the carriage J, is forced down to clamp it fast while the die 1, is forced up and bends the end over the corner of the block G, toward the die 2, and as the die 1, is drawn back the die 2, is forced up and upsets the end of the rod spreading it into the arc of the circle in the corner of the block G; and as the die 2, is drawn back the die 3, is forced up to around the side opposite to the circle or arc in the corner of the block G, and to make the shoulder in joint shown at P, Fig. 5, and complete it when the carriage J is drawn back to release the rod so that it may be taken out with a joint on the end, in the form shown in Fig. 5.

The semicircular plate Q, is fastened to the top of the blocks E, F, and G, to hold the dies down which traverse under it. The die 1, traverses between the side of the flange D, and the block E, and is operated by the toggle links R, R′ which are pressed straight by the bar S which is pushed forward by the cam S′, on the shaft N, and drawn back by the spring S^2, shown in the drawing.

The die 2, traverses between the blocks F, and G, and is operated by the toggles T, T′, which are worked by the bar T^2, operated by the cam U, and spring U′, shown in the drawing. The die 3 is pushed forward by

the cam V, on the shaft N, which acts directly against its rear end this die 3, traverses between the blocks E, and F, and in a score in the bar W, and is drawn back by the spring V′. The bar W, is fastened to the plate A, to hold the ends of the bars worked by the cams in place while they are traversed. The several cams are made in the form shown in Figs. 3, and 4, of the drawing. The brackets X, X, are fastened to the plate A, to hold the toggle links to the plate while they are vibrated.

The end of the flange J^2, extends out in the form shown in the drawing to hold the end of the bar down against the plate A, while it is worked into the required shape by the dies.

The block G, and the end of the carriage may be made to fit iron of different sizes and shapes, as four square, six square, eight square, oval, round, or such other shape as may be desired, and the dies 1, 2, and 3, may be made of such a size and form as to make the joint in the shape required.

The bars worked by the cams, may be drawn back by yokes around the cams, or by arms extending into grooves in the sides of the cams, instead of the springs.

I believe I have described and represented the machine which I have invented for making joints for carriage braces, so as to enable any person skilled in the art to make and use it.

I will now state what I desire to secure by Letters Patent, to wit:

The clamping dies in combination with the swaging or shaping dies working in succession—substantially as described for the purpose set forth.

BENJAMIN F. HOOPER.

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