(No Model.) 2 Sheets—Sheet 1.

A. S. TOWLE.

COMPOUND METAL WORKING MACHINE.

No. 321,547. Patented July 7, 1885.

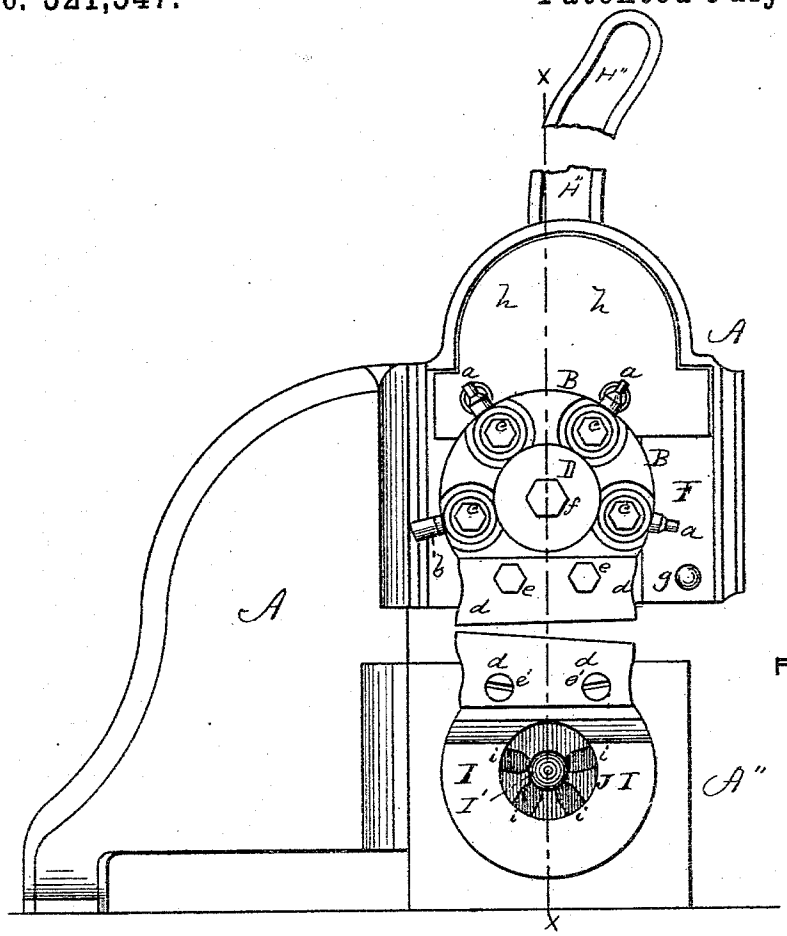


FIG. 1.

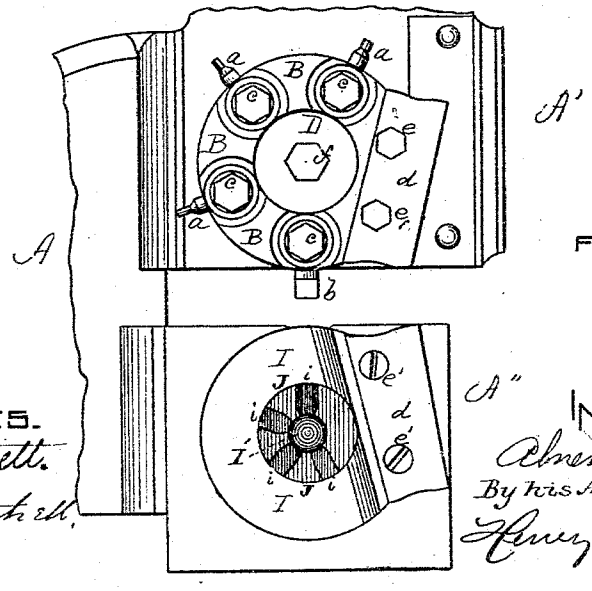


FIG. 2.

WITNESSES.
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INVENTOR.
Abner S. Towle
By his Atty.
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(No Model.) 2 Sheets—Sheet 2.

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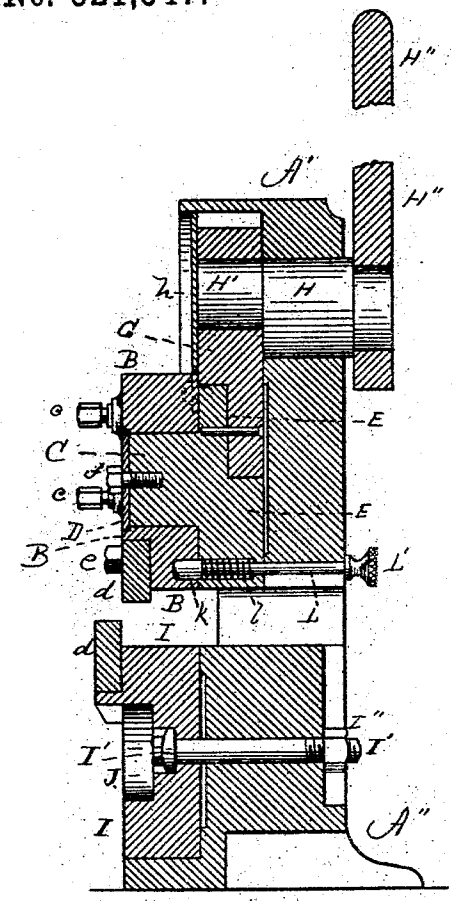


Fig. 3.

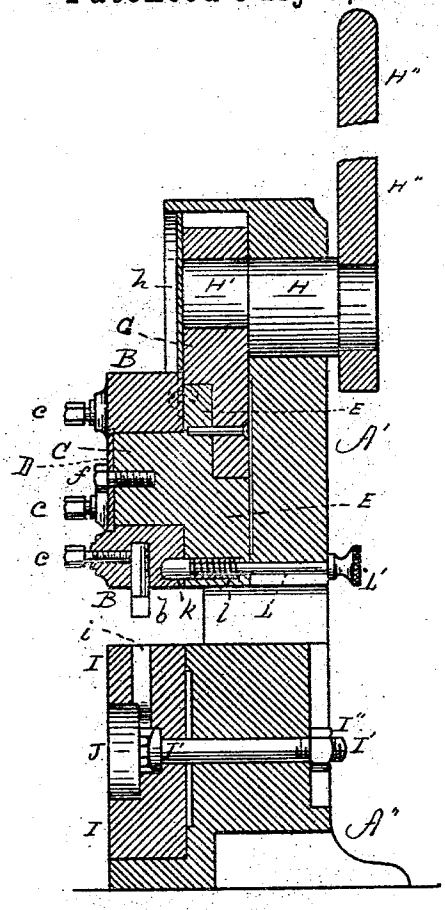


Fig. 4.

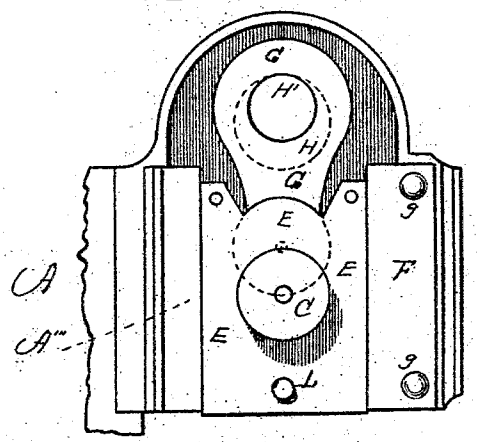


Fig. 5.

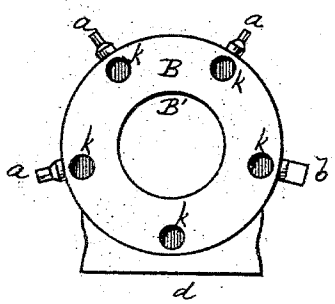


Fig. 6.

WITNESSES

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By his Atty.

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UNITED STATES PATENT OFFICE.

ABNER S. TOWLE, OF ROCHESTER, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF TO JOHN D. FOGG, OF SAME PLACE.

COMPOUND METAL-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 321,547, dated July 7, 1885.

Application filed May 6, 1885. (No model.)

To all whom it may concern:

Be it known that I, ABNER S. TOWLE, of Rochester, in the county of Strafford and State of New Hampshire, have invented a new and Improved Machine for Punching and Cutting Metal, of which the following is a specification.

This device combines in a single machine means or appliances for cutting metal, punching holes of different sizes therein, and cutting saw-teeth, whereby the use and expense of several machines are obviated.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a front elevation of my improved machine with its parts in position for cutting metal, the handle being represented as broken out. Fig. 2 is a similar elevation with a portion of the frame represented as removed, showing the parts in position for cutting saw-teeth. Fig. 3 is a transverse vertical section on line *x*, Fig. 1. Fig. 4 is a similar section with the parts in the position shown in Fig. 3. Fig. 5 is a detail front elevation with the head and front plate removed. Fig. 6 is a rear elevation of the head removed.

A is the frame, made substantially of the shape shown, the portion A′ thereof supporting the cutting and punching mechanism, and the portion A″ supporting the dies.

B is a circular head, and from its periphery project radially punches *a*, of different sizes, and a cutter, *b*, for cutting out saw-teeth, said punches and cutter being set into suitable openings in the head, and held in place by set-screws *c*; also secured to this head by means of the bolts *e* is the upper of the cutters *d*. This cutter-head B is supported by the projection C, to which it is secured by the bolt *f*, passing through the covering-plate D into said shaft. This projection C extends into the central opening, B′, (see Fig. 6,) in the cutter from the sliding block E, whose sides are beveled, in order to prevent it from tipping forward, to correspond with the beveled portion A‴ of the frame on one side and the beveled upright F, secured to the frame by bolts *g* on the opposite side, so that by removing said upright the sliding block may be taken out. This block is supported by a link, G, hanging from and loose upon the spindle H′, eccentrically secured to the shaft H, which has its bearing in the frame, and to which partial rotation is adapted to be applied by the handle or lever H″, rigidly secured thereto at the rear side of the frame. This mechanism and the chamber in which it is placed are hidden by the front plate, *h*.

I is a circular die set into a corresponding chamber in the portion A″ of the frame, and is held in position therein by the bolt I′, which passes horizontally through the frame, and is provided with a nut, I″, next the rear side of the frame. This die is provided on its periphery with suitable openings, *i*, for the accommodation of the punches *a* and the cutter *b*, and has likewise secured to it the lower of the cutters *d* by means of the bolts *e*′. The openings *i* extend from the circumference of the die to the central chambered-out portion, J. The head B is provided on its rear side with horizontal openings *k*, corresponding in number and position with the punches and cutters *a b d*, and held normally in said opening by the spring *l* is the registering-pin L, provided with a head, L′. The die I is provided with similar openings on its rear side, into which springs a similar registering-pin.

The operation of the machine is as follows: To use the machine for cutting metal, the screw *f* and bolt I are slightly loosened, so that the head B will not bind upon the projection C, nor the die I bind in its corresponding chamber, and the registering-pin L having been withdrawn from an opening, *k*, sufficiently to allow free rotary movement of the head, said head is turned upon the projection C until the cutter *d* is in the position shown in Figs. 1 and 3, when the registering-pin drops into the opening *k* corresponding with said cutter, and prevents said head from rotating. The die I is rotated into the position shown in Figs. 1 and 3 in a similar manner. The screw D and bolt I′ are then turned up tightly, in order that the head and die may be perfectly rigid, and the upper cutter is brought down upon the metal by depressing the arm or lever H″, such arm or lever in its descent partially rotating the shaft H and causing the eccentric, by means of the link G, to push down the sliding block E, and hence, of course, the head B.

To change the machine so as to utilize the saw-tooth cutter, the screw *f* and bolt I′ are again loosened, the registering-pins withdrawn, and the head and die rotated until they reach the positions shown in Figs. 2 and 4, when the registering-pins drop into the corresponding openings, and said screw and bolt are again tightened.

Suitable gages may be attached to the machine, but as they form no part of the invention they are not illustrated in the drawings.

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

1. The herein-described machine for punching and cutting metal, the same consisting, essentially, of the following parts, viz: the rotary head B, provided with the punches *a* and cutters *b* and *d*, the registering-pin L, the portion A′ of the frame, and mechanism for imparting vertical movement to said head, and the rotary die I, provided with the openings *i*, cutter *d*, and chamber J, and part A″ of the frame, substantially as and for the purpose set forth.

2. The combination of the frame A A′ A″, head B, provided with the punches and cutters *a b d*, screw *f*, sliding block E, having its sides beveled as described, projection C, eccentric G H′ H, die I, provided with the cutter *d*, openings *i*, and chamber J and the registering mechanism, arranged and constructed substantially as and for the purpose described.

ABNER S. TOWLE.

Witnesses:

JOSEPH H. WORCESTER,
CHARLES O. PERKINS,
CHARLES B. GAFNEY.