T. ROWAN.

MACHINE FOR PUNCHING SHEET-METAL.

No. 189,656. Patented April 17, 1877.

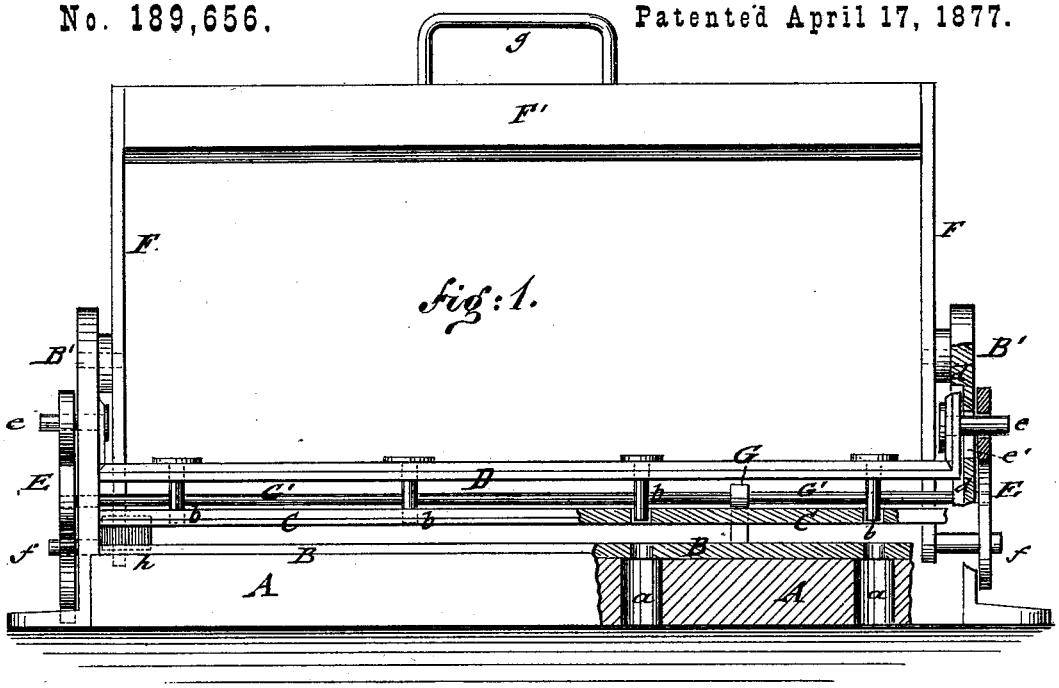

fig: 1.

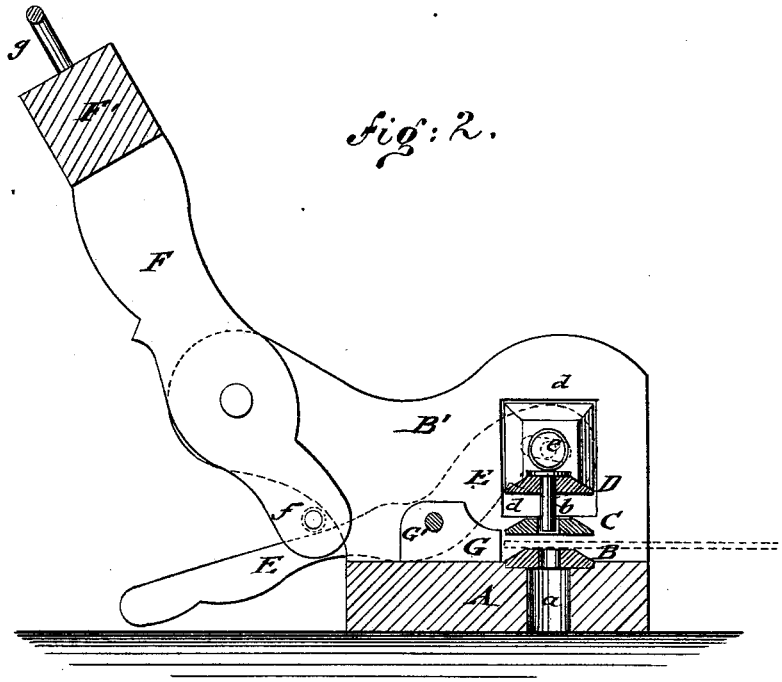

fig: 2.

WITNESSES:

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THOMAS ROWAN, OF HAVERSTRAW, NEW YORK.

IMPROVEMENT IN MACHINES FOR PUNCHING SHEET METAL.

Specification forming part of Letters Patent No. **189,656**, dated April 17, 1877; application filed March 3, 1877.

To all whom it may concern:

Be it known that I, THOMAS ROWAN, of Haverstraw, in the county of Rockland and State of New York, have invented a new and Improved Machine for Punching Sheet Metal, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a sectional front view, and Fig. 2 a vertical transverse section, of my improved machine for punching metal.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish a machine by which sheet metal for stove-pipes and other purposes may be punched in rapid and convenient manner; and the invention consists of a vertically-sliding bar, having a number of punching-pins, which are forced into the dies by a swinging hammer-block, whose arms raise automatically, by suitable lever-connections, the punching-bar out of the dies. An adjustable gage and fixed end gages admit the punching of any size of sheet metal.

In the drawing, A represents the base-piece, of wood, which is secured to the working bench or table, and provided with drop-holes *a* below the steel bar or die B, placed on the top of base A.

Upright standards or supports B′ are secured to the ends of base A, and screwed rigidly to the bench. They carry above the die B the fixed guide-bar C, that is provided with as many holes as the die-bar, which holes register with the fixed or loose perforating-pins *b* of the puncher D.

The puncher D is guided by turned-up end pieces in recesses *d* of the standards, and connected by pins *e*, passing through slots *e′* of the standards B′, with the slotted ends of the outer levers E, which are fulcrumed to the standards, and acted upon at their rear extending ends by pins *f* at the lower ends of the arms F of hammer F′, said arms being fulcrumed above the levers *e* to the end standards B′.

The hammer or weighted block F′ extends laterally between the upper ends of the arms F, and is of equal length with the puncher, guide, and die, so as to bear on the puncher throughout its full length when dropped thereon.

The hammer F′ is provided with a handle, *g*, for being readily raised and lowered. The lower end pins of the hammer-arms clear, when the hammer falls, the levers E, so as to permit the puncher to descend and punch the sheet metal placed between the die and guide. As the hammer rises the levers E are acted upon by the end pins *f* of the hammer-arms F, and the punches are thereby withdrawn from the die-holes and raised to the required distance from the same. The sheet metal is thus perforated at the edge by one blow of the descending hammer with the required number of holes, fixed gages *h* near the standard B′ securing the uniform distance of the holes from the edge.

A movable gage, G, slides along a guide-rod, G′, and may be set to any intermediate point between the end gages, for the purpose of punching smaller pieces of sheet metal with the same facility as the full-sized pieces.

Stove-pipes, leaders, and all kinds of sheet-metal work which require riveting together at the edges, may be punched in rapid, effective, and economical manner by my improved apparatus.

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

1. In a sheet-metal-punching machine, the combination of a perforated die-bar, perforated guide-bar, and vertically-sliding puncher with a swinging hammer-block, that lowers and raises the puncher simultaneously with the dropping and raising of the hammer, substantially in the manner and for the purpose set forth.

2. The combination of the recessed and slotted side standards B′ with vertically-sliding puncher C, connecting-pins *e*, fulcrumed levers E, swinging arms F, having end pins *f*, and hammer F′, substantially as specified.

THOMAS ROWAN.

Witnesses:

ABRAM K. COLE,

WILLIAM FLYNN.