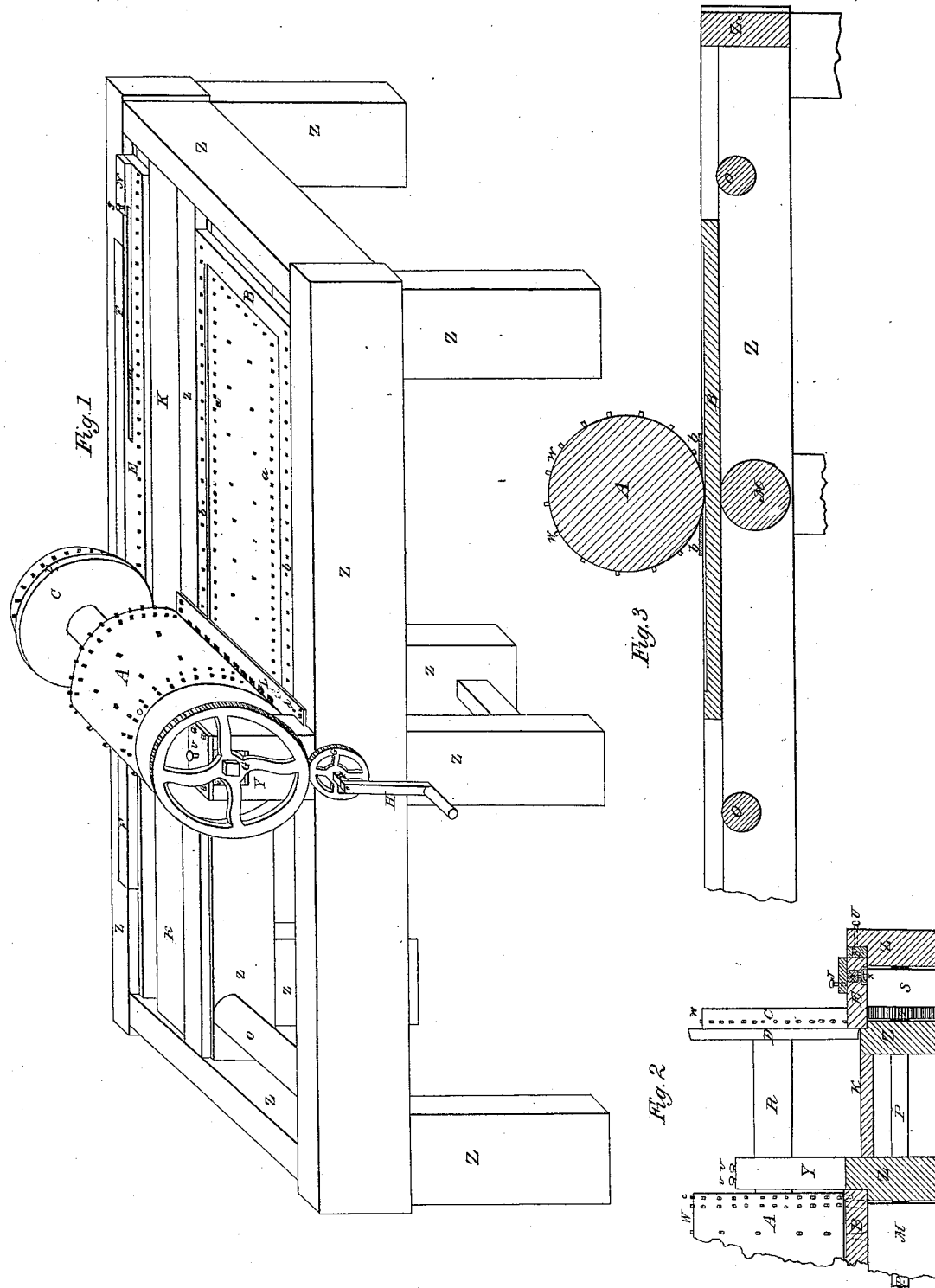


W. H. Danforth,

Metal Punch,

N<sup>o</sup> 5,625.

Patented June 13, 1848.



# UNITED STATES PATENT OFFICE.

WILLIAM H. DANFORTH, OF SALEM, MASSACHUSETTS.

## MACHINERY FOR CUTTING AND PUNCHING COPPER SHEATHING, &c.

Specification of Letters Patent No. 5,625, dated June 13, 1848.

*To all whom it may concern:*

Be it known that I, WILLIAM H. DANFORTH, of Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Machine for Punching and Cutting Metallic Sheets; and I 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, in which—

Figure 1 is a perspective view,—Fig. 2 is a transverse section,—Fig. 3 is a longitudinal section.

In all the figures the like parts are indicated by the same letters.

In Fig. 1,  $z z$  is the frame, A, is a cylinder with punches affixed to its surface, B, is a traveling bed plate, the dots represent the holes to receive the punches attached to the cylinder; C is a cutting and punching wheel for reducing the sheets in width and punching the edge also at the same time; D is the part of the wheel C, termed the cutting rim; E, is a traveling cutter and bed plate; F, is a movable rest, or guide piece, which keeps the traveling and revolving cutters closely pressed together by means of set screws; G, G, are gearing wheels, the top one is attached to the shaft of the punching cylinder, and the bottom one is attached to the shaft of the rollers under the bed plates B and E; H, is a crank by which the machine is operated; L, is a stop or clearer, by which the sheet is prevented from lifting when the punches are withdrawn from the sheet; I, is a set screw attached to the hub N, M is a slot, in which the hub N, is moved to accommodate different lengths.

Fig. 2 shows the connection of the traveling and revolving cutters D and E, more clearly; K, is the sinkage, into which the clippings of the sheets fall; M and L are the rollers under the bed plates B and E; P, is the shaft of the rollers, which connects with the bottom gear wheel G. U, is one of the set screws that operates by pressing it against the traveling cutter E; X is a thumb screw, by which the movable hub N is fastened to the bed-plate E; T, is a gear wheel which can be used (if preferred) instead of the roller S, by meshing into a rack attached to the under side of the traveling cutter E; V, V, are set screws which operate against the sliding boxes  $e, e$

(see in Fig. 1). Y, is the supporter of the shaft of the punch cylinder.

Fig. 3 shows the connection of the stops of clearers L, L, with the cylinder, more clearly; it being a cut through the center of the bed plate B; O, O, are friction rollers. W, W, are the punches.

The frame is to be made of suitable material ten feet long by 4 feet wide and two feet eight inches high; the rails to be of sufficient distance apart to allow the bed plates B and E to pass freely between them; the cylinder to be made of iron 18 inches long by 16 inches in diameter; the bed plate B, to be made 5 feet long by 18 inches wide and one inch thick; with a sinkage upon the top 4 feet long by 14 inches wide, the depth to be regulated by the thickness of the sheets; the holes  $a, a$ , to be about  $1\frac{1}{4}$  inches apart around the edge of the sinkage and three inches apart in the center; the holes  $b, b$ , to be  $\frac{1}{2}$  inch in diameter and one inch apart; they are to receive the outer range of punches or teeth  $c$ , to insure the passage of the bed plate at the speed required; the stops L, L, to be made of iron of suitable length and width, and fitted closely to the under side of the cylinder, with slots in one edge of each, so as to allow the punches to pass freely through, into the sheet. The stops L, are to be fastened to the frame by the set screws  $d d$ , which pass through slots in said stops. The cutting wheel C, is to be made of iron of the same diameter of the cylinder A. The part of the cutting rim D, that comes in contact with the traveling cutter, is to be faced with steel, and finished to a sharp corner; the traveling cutter and bed plate E, to be made of iron, 5 feet long and 4 inches wide, with the inner or cutting edge, faced with steel, and finished to a sharp corner on the top; the holes are to be of the same distance apart as those on the outside of the bed plate B, at  $a$ ; the rest or guide piece F, to be 8 feet long by 2 inches wide and  $1\frac{1}{4}$  inches thick and to be faced with iron; the shaft of the cutting wheel R to be  $2\frac{1}{2}$  or 3 inches in diameter.

Operation: The sheet to be punched is placed in the sinkage of the bed plate B; and by turning the crank H, the friction of the roller M, against the bed plate, together with the punching irons attached to the cylinder, will cause the sheet to be taken gradually along under the revolving cylinder, the punching irons coming in contact

with the sheet immediately over the holes in the bed plate, removes from said sheet such portions as cover said holes; the stop or clearer on the opposite side will prevent the sheet from lifting with the punches at the upward turn of the cylinder, or in other words when the punches are withdrawn from the sheet; so that by turning the crank H, around a few times the sheet is finished.

10 The machine operates the same both ways. The machine can be made to punch two or more sheets at once, in which case the sinkage must be made deep enough so that the top sheet shall be even with the sides of the bed plate. If the sheet is to be reduced in width, the sheet is fastened by the thumb screws I, I, to the traveling cutter and bed plate E, so that the line to be cut shall be immediately over the inner or cutting corner; and by the turning the crank H, as before stated, the sheet will be taken along under the wheel; the part that projects over

the inner corner, by coming in contact with the cutting rim D, is separated from the sheet that is secured to the bedplate, and falls into the sinkage K, while the part that is attached to the bed plate, is punched on one edge at the same time.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination of the cylinder, armed with punches, with the perforated traveling bed plate and the stop or clearer, for punching metallic sheets.

2. The traveling and revolving cutters in combination with the punching cylinder and traveling bed plate, for reducing the width of the sheets, and finishing the edge at the same time, substantially as described and shown.

WILLIAM H. DANFORTH.

Witnesses:

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