

C. E. Howard,

Gang Punch,

N^o 11,191.

Patented Sep. 13, 1864.

Fig. 1.

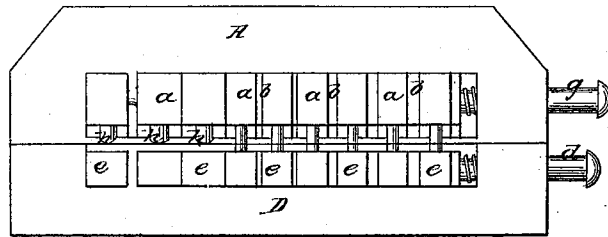


Fig. 3

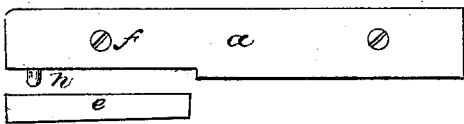
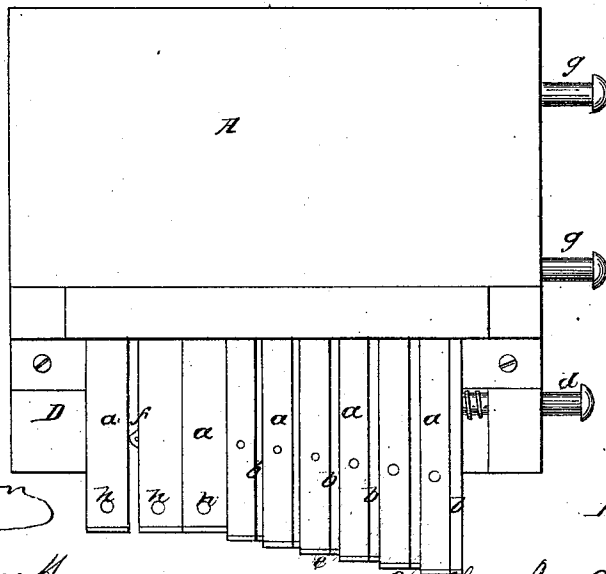


Fig. 2.



witnesses

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UNITED STATES PATENT OFFICE.

CHARLES E. HOWARD, OF WEST BRIDGEWATER, MASSACHUSETTS.

ADJUSTABLE GANG-PUNCH.

Specification forming part of Letters Patent No. **44,191**, dated September 13, 1864.

To all whom it may concern :

Be it known that I, CHARLES E. HOWARD, of West Bridgewater, in the county of Plymouth and State of Massachusetts, have invented a new and useful adjustable gang-punch to be used for punching a series of holes in leather and other substances; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

Figure 1 represents a front view of the machine, with the end view of the slides, dies, and the punches. Fig. 2 shows a plan or top view with the punch-stocks irregular. Fig. 3 is one of the slides for the adjustable punch detached.

My invention consists in the arrangement of a series of stocks or bars of metal into which punches are set, the same being fitted to slide into a stock or clamp, together with their bed-pieces to match, which form the dies to the punches, so that they can be moved in or out, and adjusted so as to punch series of holes, either in a straight line or in curved or any desired form, number of holes, or distance apart from each other.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation more fully, referring to the drawings, and to the letters marked thereon.

The stock or clamp A, I make of cast-iron or other suitable material, of such size and breadth as will give space in the opening to receive as many bars or slides *a a a a* as it is desirable to have punches. The clamp A being designed to be placed upon the plank of a bench, it is provided with a flange, B, on its under side on the front, to which is connected a guide-frame or suspended stock, *c*, to guide and support the movable bed frame or stock

D, into which the dies *e e e e* are placed, and secured by the means of a set-screw, *d*, or a wedge or key. The suspended stock E has an opening through it vertically, into which the post or slide E is fitted, and is operated by a lever, F, connected with the slide E and the frame *c*, the motion of the movable bed being so little that it may be worked by an eccentric or a cam, or any desired mechanical power. The slides *a a a* are made of flat bars of metal of no more thickness than is necessary to hold the punches. Any number of them can be arranged for use, the distance between the punches *a a a* being regulated by blank pieces of metal *b b b* or hard wood, of different thicknesses, placed between the punch stocks or slides *a a a* and the dies *e e e*; or there may be set-screws *f f* in the sides of the bars *a a*, as seen in Fig. 3. The dies *e e* are made in bars of the same width as the thickness of the punch-stocks *a a a*, and are kept each one in its position to be moved in or out of line by a steady-pin, *c c c*, or its equivalent.

The punches and dies, being adjusted to conform to any desired shape or curve, may all be secured in their seat by keys or set-screws *g g*. When cutting-punches *h h h* are used, the bed piece may be a solid plank of hard wood or covered with soft metal.

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

A series of solid punches with their dies to match, when connected and operating together so as to punch a series of holes in curves or straight lines at various distances, the whole constructed and arranged in the manner specified, and in combination, as herein described.

CHARLES E. HOWARD.

Witnesses:

EDM. F. BROWN,
J. B. WOODRUFF.