C. H. AMANN & L. A. HARKER.

MACHINES FOR CUTTING BLANKS FOR PIPE-ELBOWS.

No. 194,066. Patented Aug. 14, 1877.

Fig 1

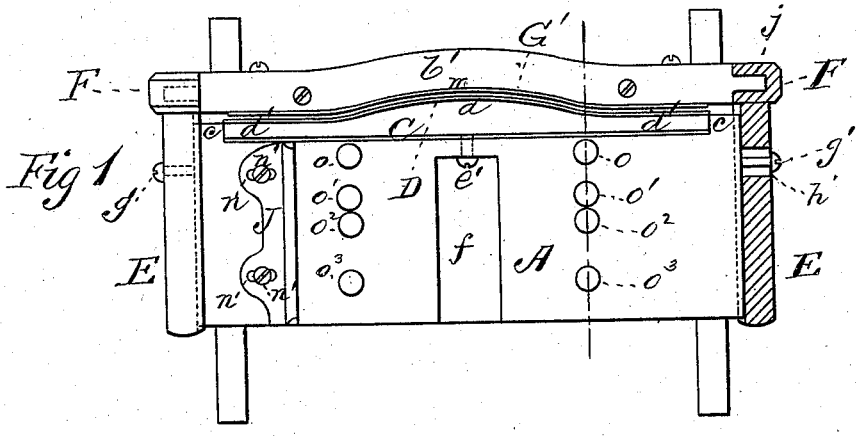


Fig. 2.

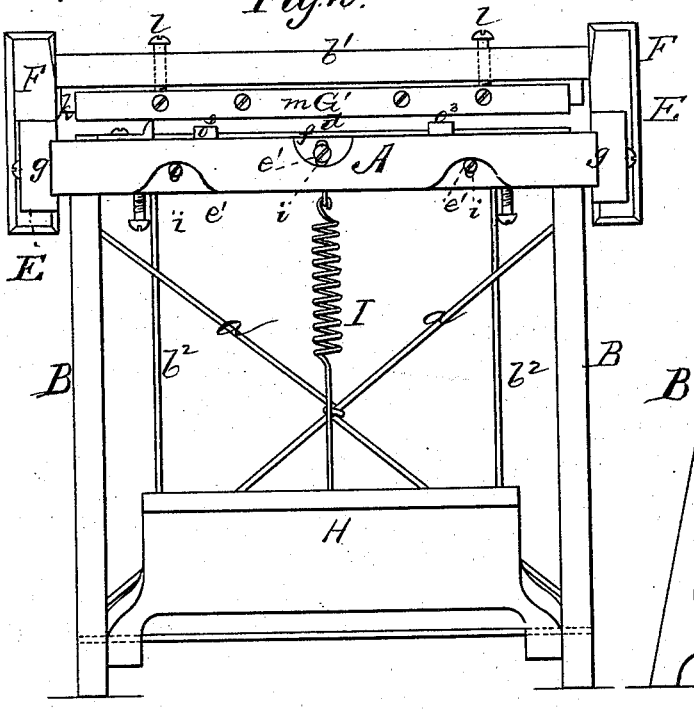
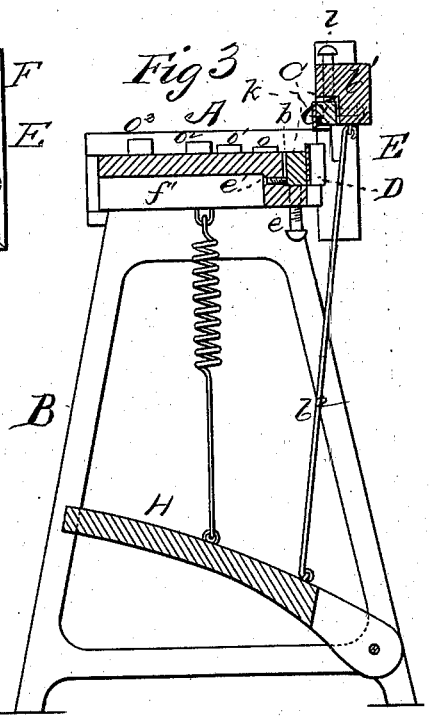


Fig 3



WITNESSES

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IMPROVEMENT IN MACHINES FOR CUTTING BLANKS FOR PIPE-ELBOWS.

Specification forming part of Letters Patent No. **194,066**, dated August 14, 1877; application filed May 12, 1877.

To all whom it may concern:

Be it known that we, CHARLES H. AMANN and LEWIS A. HARKER, of Columbus, in the county of Franklin and State of Ohio, have invented a new and valuable Improvement in Machines for Cutting Sheet-Metal Blanks for Pipe-Elbows; and we do hereby declare that the following 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, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a top view of our machine. Fig. 2 is a front view thereof, and Fig. 3 is a vertical transverse section of the same.

This invention has relation to improvements in machines for cutting sheet-metal blanks for curved pipe-elbows.

The object of our invention is to devise a machine that will cut out the blanks rapidly and economically, and at the same time cut one of the edges thereof rounding, and in proper shape for forming curved elbow-pipe.

The invention consists in an improved machine for cutting blanks for sections of curved pipe-elbows, consisting essentially of a bed, a removable and adjustable cutter supported in a rabbet at the edge of said bed, and a vertically-reciprocating bar, carrying a second cutter, both of the cutters having a central curved part and rectilinear ends.

It also consists in the combination, with the bed and a stationary cutter supported in a rabbet at its edge, of vertically-slotted side guides for the vertically-reciprocating cutter-head, having horizontally-grooved arms, receiving the side edges of the bed, and adjustable thereon.

It also consists in the combination, with a bed having an edge cutter-blade, of spaced gage-pins of different heights and a side gage higher than the highest of the said pins.

It furthermore consists in the combination, in a machine for cutting blanks for sections of curved pipe-elbows, of the table or bed, carrying at its rear edge a curved cutter-blade, and provided with arms supporting a reciprocating cutter-blade, of the spaced gage-pins increasing in height from the cutter outward, and the side gage, all as hereinafter fully shown and described.

In the accompanying drawings, the letter A designates the feed-table of my improved machine for cutting pipe-elbow blanks, supported upon suitable legs or standards B. These latter will be suitably braced together, as shown at *a*, to render the table steady. The rear edge of the table has a rectangular rabbet, *b*, closed at each end by a block or abutment, *c*, in which is seated the correspondingly-shaped portion of a cutter-head, C. This latter has upon its outer edge a central convex rounded part, *d*, terminating at each end in a rectilinear part, *d'*, upon which is rigidly secured in any suitable manner a correspondingly-shaped cutter-blade, D. This cutter-head is vertically adjustable relative to the table by means of set-screws *e*, passing from below upward through the table, and bearing against the under side of the said head, this adjustment being assisted by the screws *e'*, that secure the head to the table, which pass through vertical slots *i*, formed in the rear edge of the table, at the ends of the grooves *f f'*, formed transversely in said table.

E represents side pieces, provided each with a groove, *g*, adapted to receive the edge of the table, and secured thereto by means of a screw, *g'*, that passes through a longitudinal slot, *h'*, in said side pieces. These arms or side pieces are thus adjustable from front to rear of the table. They are provided with vertical arms F at their rear ends, in each of which a guide-groove, *j*, is formed, in which is mounted, after the manner of a sash, a metallic bar b^1. This bar is rabbeted, as shown at *k*, to receive the metallic head G, as above described, for the head C, and in this rabbet the head G is secured by means of the screws *l*. The middle part of this head is concave, as shown at *m*, and its ends rectilinear, or nearly so, and on this surface is rigidly secured the cutting-blade G', of corresponding form.

The bar b^1 is connected by means of rods b^2 with a treadle, H, arranged under the table, and pivoted in any suitable manner to the standards. When this treadle is operated downward the cutting-blade G' will be brought

down with its cutting-edge close to that of blade D, and a piece of sheet metal interposed between the two will be cut exactly of the form of the lower blade upon one edge. The treadle is raised, thereby raising the cutter G′, by means of a spring, I, secured at one end to the treadle and at the other to the table. The top of the table is provided with a transverse guide, J, which is rendered adjustable by means of slots *n* and screws *n′*, and serves not only as a guide in delivering the metal to the blades, but, being adjustable, allows elbow-blanks of any desired length to be cut.

In order that the blanks may be regulated as to width conveniently, a number of flat-headed pins, $o\,o^1\,o^2\,o^3$, arranged at right angles to the length of the table in pairs, are employed. The distance from the cutters to the first set of pins *o* will be the width of one size of blanks; from the said cutters to the second set o^1, the width of a second and wider set, and so on. These pins decrease in height from the outer to the inner set *o*; consequently there will be no occasion in gaging the width of the blank to remove any of the pins, as the metal to be cut may be passed over any of the pins until that set indicating the width desired is reached. They may be, therefore, permanently applied to the table, and serve as constant guides in reproducing sections of pipe-elbow of given widths.

We are aware that gage-blocks of varying heights, threaded for adjustment upon screw-rods arranged in front of shears, are not new.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. An improved machine for cutting blanks for sections of curved pipe-elbows, consisting essentially of the bed A, the removable and adjustable cutter D, supported in a rabbet at the edge of said bed, and the vertically-reciprocating bar b^1, carrying the cutter G′, said cutters being of the form substantially as specified.

2. In a machine for cutting blanks for sections of curved pipe-elbows, the combination, with the bed A and its stationary cutter D, supported in a rabbet at its edge, of the vertically-slotted side guides F, for the vertically-reciprocating cutter-head, said guides having horizontally-grooved arms E, receiving the side edges of the bed, and adjustable thereon, substantially as specified.

3. In a machine for cutting blanks for curved pipe-sections, the combination, with a bed having an edge cutter-blade, of the gage-pins $o\,o^1\,o^2\,o^3$, of different heights, and a side gage, J, higher than the highest of said gage-pins, substantially as specified.

4. A machine for cutting blanks for sections of curved pipe-elbows, having, in connection with a bed or table, A, carrying at its rear edge a curved cutter, D, and arms supporting a reciprocating cutter, G′, the spaced gage-pins increasing in height from the cutter outward, and the side gage, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

CHARLES H. AMANN.
LEWIS A. HARKER.

Witnesses.
JOHN M. TIBBETTS,
J. C. PATRICK.