F. A. GLEASON.

STOVE-PIPE ELBOW-MACHINE.

No. 186,004. Patented Jan. 9, 1877.

Fig. 1.

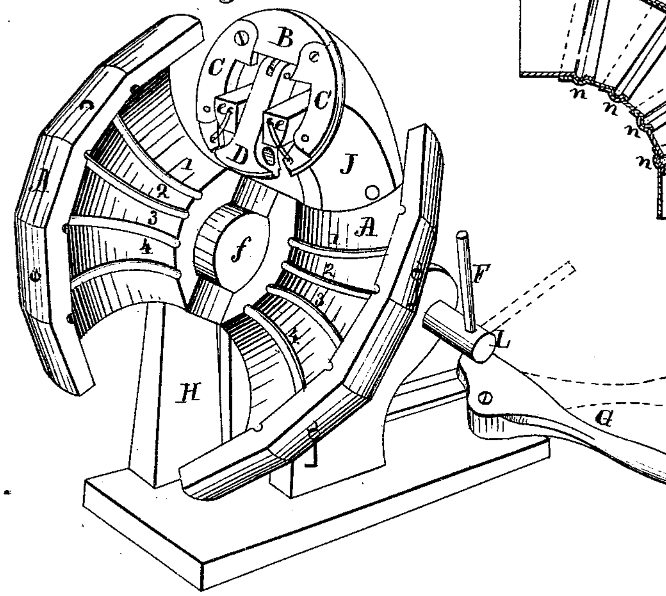


Fig. 4.

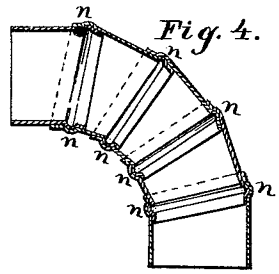


Fig 2.

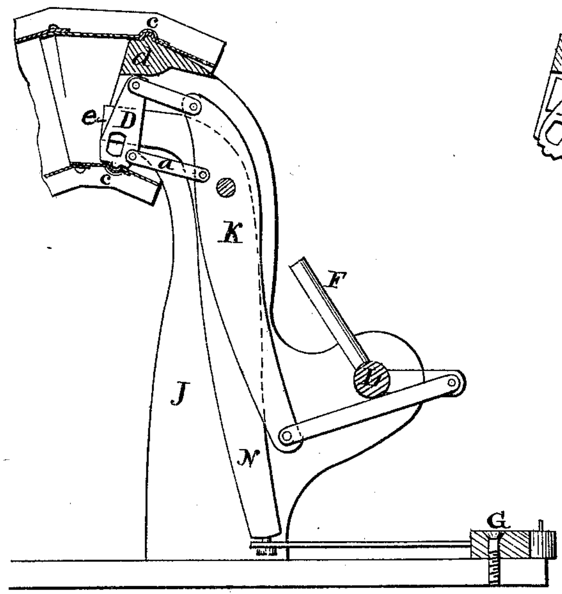
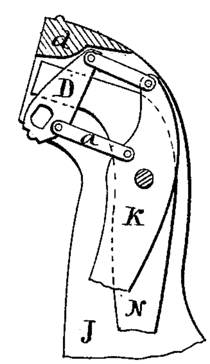


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANKLIN A. GLEASON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STOVE-PIPE-ELBOW MACHINES.

Specification forming part of Letters Patent No. **186,004**, dated January 9, 1877; application filed April 17, 1876.

To all whom it may concern:

Be it known that I, FRANKLIN A. GLEASON, of the city of Brooklyn, county of Kings, and State of New York, have invented a Machine for the Manufacture of Sheet-Metal Elbows and an Improved Elbow, manufactured by the same, of which the following is a specification:

The object of my invention is to facilitate the manufacture of, and also produce a superior joint, in sheet-metal elbows for hot-air pipes, stove-pipes, leaders, &c., by placing the edges of the sections one within another, and, by special machinery, pressing a bead, combined with a flange, into the overlapping parts. To do this I construct the form or mold A A, beading-dies B, C, C, and D, and their operating-levers F G, as shown in the perspective view, Figure 1, of the accompanying drawing.

The interior of the form A A, when shut, corresponds in size and number of sections with the elbow required, which may be more or less than the one represented. In each angle is a groove around the entire circumference, 1 2 3, &c., which constitutes a mold, into which the bead is pressed. These grooves are all radiations from the center-bolt *f*, upon which it turns, and by which it is mounted upon the upright H. The beading-dies are divided into several parts. The top one, B, is stationary, being fixed to the upright J. Two others, C C, are held in position by bolts at the top, the lower ends being free to move laterally, and are also jointed for the purpose of folding into a compass sufficiently small to allow the pipe to pass over them. The die D completes the circle, with the exception of the seam, where a small portion of its bead is cut away, so that the seam is left straight. The bottom of this die is held in position by the guide-bar *a*, (see sectional elevation, Fig. 2,) and the top is connected with the lever K, which, at the bottom, is connected with the arm of the rock-shaft L, and operated by the hand-lever F. On either side of this lever, and within the upright J, are two levers, N, (one only is represented, the other being its duplicate,) connected at the bottom with the hand-lever G, the tops being bent forward and terminating in wedge form *e e*, Fig. 1, which pass out between the die D and dies C C. On either side of the bead the dies are fitted to the varying angle of the form *c c*, Fig. 2, so that the overlapping metal extending beyond the bead is laid flat and close. (See *n n n*, sectional view of elbow, Fig. 4.)

As will be evident, the joint can be separated only by tearing or straining open the outer section, and to this the flange so made furnishes great power of resistance, thereby increasing the strength and consequent durability of the elbow.

In operation, the hand-lever G is thrown back to the dotted lines, Fig. 1, which moves the wedges *e e* upward by the connecting-links, lifting also the lower ends of the dies C C, and, coming in contact with the projections above, cause the bottom to swing inward. The hand-lever F is then moved backward to the dotted lines, bringing the die D to the position shown, Fig. 3, folding the lower ends of dies C C within the opening near the bottom. The sections of the elbow, being placed one within another, are laid into the form A, which, being closed upon them, is moved over the dies to the first angle, Fig. 2. Hand-lever F is then brought forward, moving the top of die D past the fixed cam *d*, which forces it downward, carrying the form downward sufficiently to bead the upper portion simultaneously with the lower portion. Remaining there, it holds the seam of the pipe, as in a vise, thereby preventing its being torn open by the strain consequent upon beading the sides. The hand-lever G is now brought forward, which moves the wedges *e e* downward, forcing the dies outward, completing that operation. The levers G and F are then moved back again, the form passed over to the next angle, the operation being repeated at each angle consecutively.

Elbows with beaded joints have been before constructed, but the sections are beaded separately and put together afterward, leaving the joint more or less loose, and, in no case within my knowledge, having the bead strengthened by a flange.

I claim as my invention—

1. The form or mold A A, of two portions,

hinged together, each portion having sections and angles adapted to the work required, and having a groove, 1 2 3, &c., in each angle, the mold being mounted on a rotating axis at a right angle to its longitudinal axis, in combination with beading-dies B C C D, substantially as and for the purpose described.

2. The beading-dies B, C, C, and D, adapted to contract and expand in circumference, guide-bar *a*, and wedges *e e*, with the connections and levers, all constructed and operating substantially as shown and described.

FRANKLIN A. GLEASON.

Witnesses:

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