2 Sheets—Sheet 1.

J. S. LUGG.

STOVE-PIPE ELBOW BLANK MACHINE.

No. 177,409. Patented May 16, 1876.

Fig. 1.

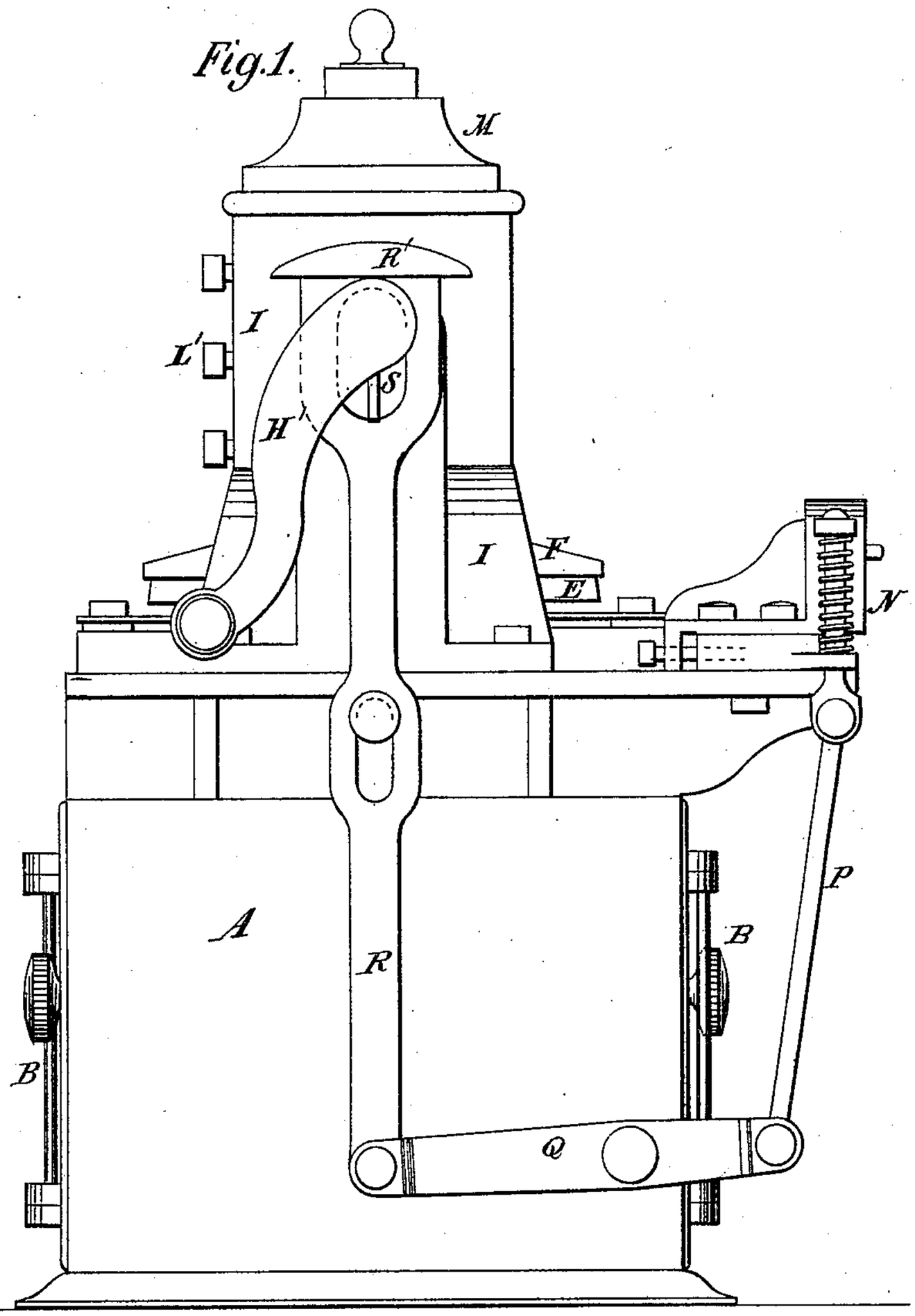
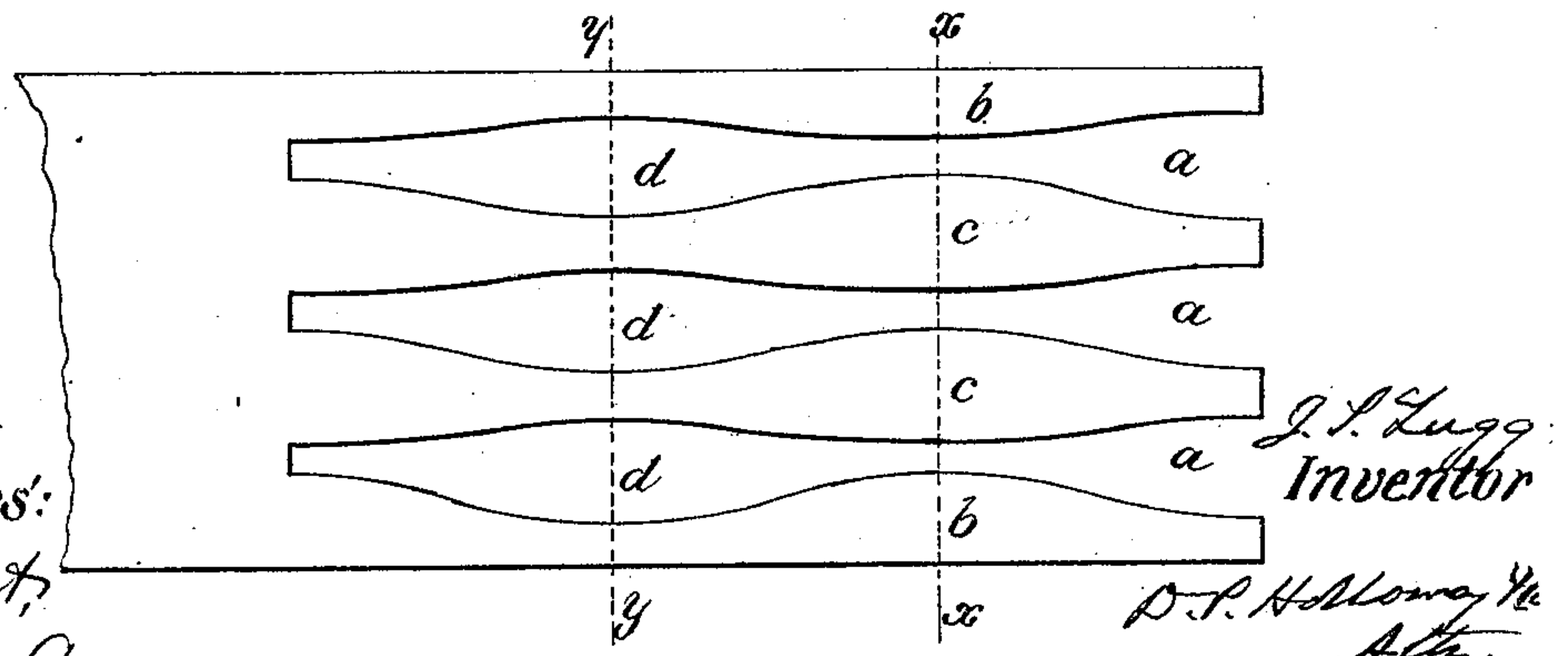


Fig. 2.



Witnesses:
A. Ruppert,
John Eils.

J. S. Lugg
Inventor
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Attys.

2 Sheets—Sheet 2.

J. S. LUGG.

STOVE-PIPE ELBOW BLANK MACHINE.

No. 177,409. Patented May 16, 1876.

Fig 3.

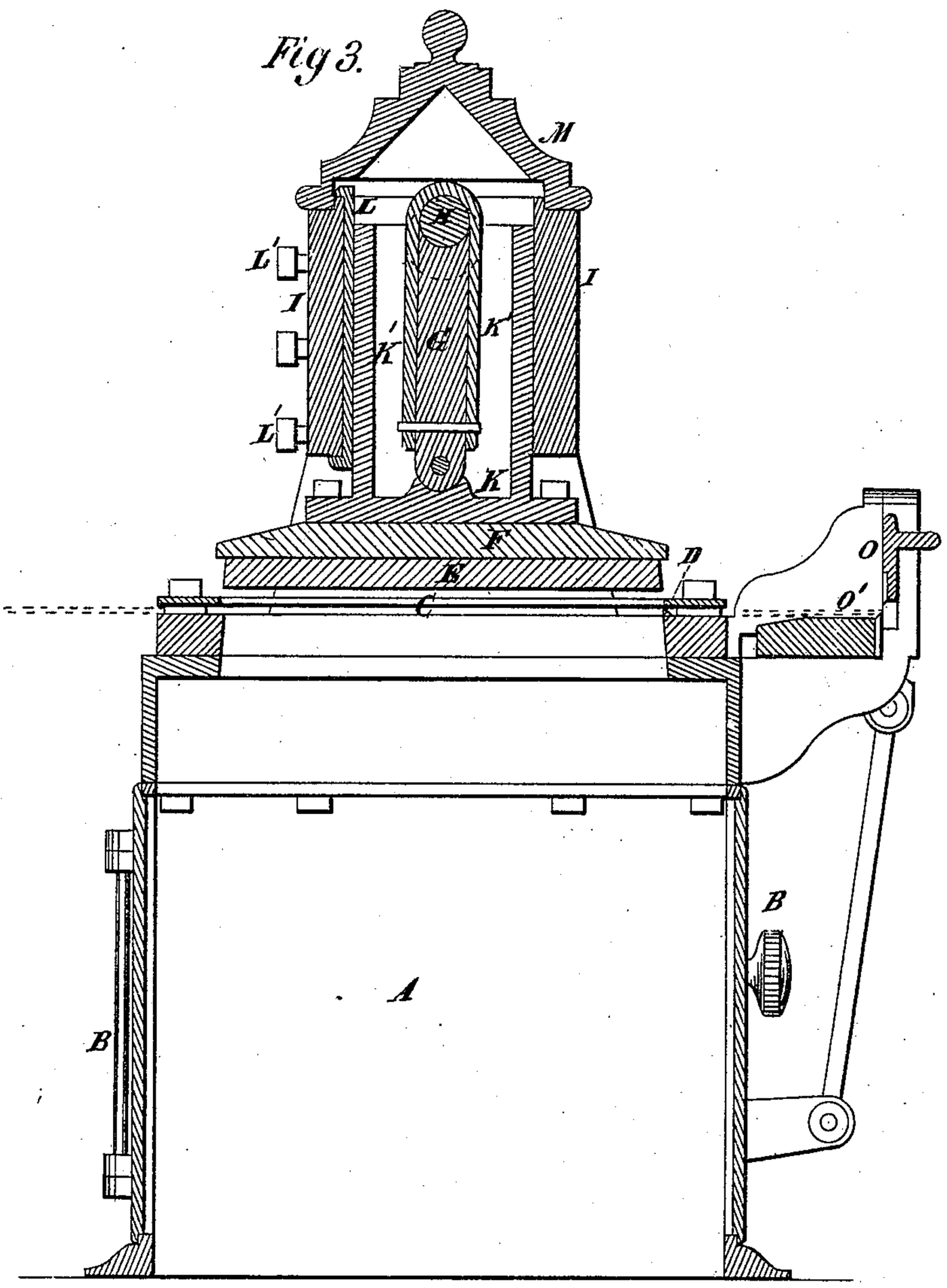
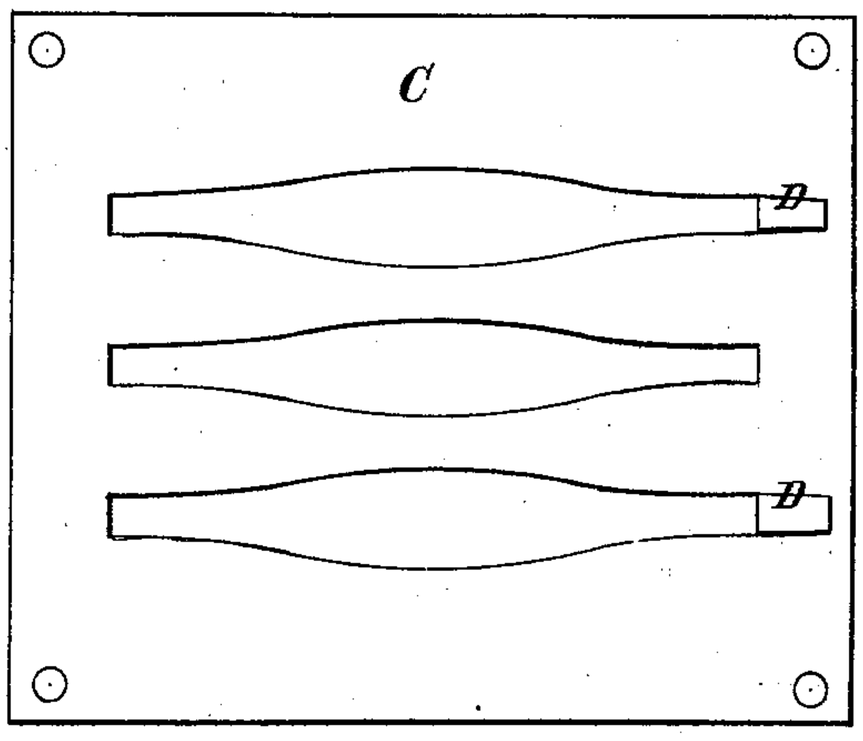


Fig 4.



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UNITED STATES PATENT OFFICE

JOHN S. LUGG, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN STOVE-PIPE-ELBOW-BLANK MACHINES.

Specification forming part of Letters Patent No. **177,409**, dated May 16, 1876; application filed March 21, 1876.

To all whom it may concern:

Be it known that I, JOHN S. LUGG, of Springfield, in the county of Clarke and State of Ohio, have invented a new and useful Machine for Cutting Sheets of Metal into Strips, of which the following is a specification:

This machine is especially adapted to cutting sheet metal into strips, such as are employed in making stove-pipe elbows under United States Patent No. 137,525, issued to Lafayette Bancroft on the 8th day of April, 1873.

The object of the invention is to cut the sheets as they come from the rolling-mill without waste. To this end the sheets are made of the proper width to cut strips enough to make a complete elbow at the same time, and as long as they can conveniently be made and used without waste.

In the annexed drawings, which make a part of this specification, Figure 1 is an elevation of the machine. Fig. 2 is a plan view of the sheet. Fig. 3 is a vertical section of the machine, and Fig. 4 is a plan of the cutter-plate.

The same letters are employed in all the figures in the indication of identical parts.

A is a box, intended to serve as a frame for the machine, and also to receive the sections punched out of the sheet. In the ends of the box are placed doors B. The box is open above, to permit the strips to fall into the box. Over the box is placed a steel cutter-plate, C, having holes cut of the form of the intermediate sections, the edges of the holes forming one of the blades of the shears in punching the strips out of the sheet. Stops D D are arranged at the ends of the holes, one on each side of the plate, to stop the sheet and keep it square when subjected to the shearing action of the punch. Punches corresponding to the form of the holes are placed immediately above them, and fastened to the lower face of the head-plate F, which is bolted to the lower end K of the box-formed plunger K′. This plunger K K′ is actuated by the connecting-rod G, attached to the crank H by straps, in the usual manner. The crank is driven by a winch, H′, or by a pulley or gearing if steam or other mechanical power is employed. The reciprocating plunger K K′ is supported in the frame I attached to the top of the box, on the sides o plate C. Gibs L, regulated by the set-screws L′, form the bearings for the plunger K′. A cap, M, covers the frame I.

To cut the sections from the sheet which remain after those are punched out which fal into the box, a shear, O, reciprocates across the edge of the stationary blade O′. Spira springs N are placed under the shear-frame to raise the movable blade O. The shear blade O is drawn down by the rods P, pivoted to the walking-beams Q, which are oscillated by the pitmen R, which are slotted, as shown and embrace the crank-shaft on each end o the latter. They terminate in caps R′, the lower faces of which receive the action of pins S, extending from the crank-shaft, in such position as to engage the caps R′, and, through the movement of the parts R, Q, and P, draw down the shear-blade O. The parts are restored to their position by the springs N.

The operation of the machine is as follows: In beginning to cut the sheet it should be passed in far enough for the punches to make a half-cut to the point indicated by the dotted line *x x* in Fig. 2, the three half-sections falling into the box. The sheet is then moved forward until the solid part of the sheet, between the now projecting points, engages the stops D, when the cutters again descend, punching the sheet so that it remains in the form shown in Fig. 2. When again advanced until stopped by the points D, the blade O of the shears descends, cutting off the projecting points at the dotted line *y y*. The three pieces *a* which have fallen into the box, when punched out, are half-sections. The two strips *b b*, when cut by the shears, form the two end pieces of the elbow, and the similarly-shaped pieces *c c d d d* form the intermediate sections of the elbow. The machine goes on cutting and punching the intermediate and end sections until the end of the sheet is reached, where it forms other half-sections corresponding to the ones *a a a* first cut. These sections may then be riveted together to form whole sections. The sheets, when rolled, should be cut to proper length to complete these sections, and then

whole sheet can be cut without waste. sheets may be brazed together to form a inuous sheet, which will then continue to ish the strips or sections of uniform length shape.

hat I claim as my invention, and desire cure by Letters Patent, is—

In combination, the die-plate C and re- ɔcating punches E, and the shears O O′, utting a sheet of metal into strips or sec- without waste, substantially as set forth.

The combination of the crank-shaft and ɔrocating punches, and the shear blade O, P, walking-beam Q, slotted pitman R R′, pin S, substantially as set forth.

In combination with a cutter-plate, C, constructed with a series of openings, as shown, and the head-plate F, carrying a series of correspondingly-formed punches, E, arranged to cut a sheet into sections of the elbow-pipe across the entire width of the sheet at one movement of the plunger, acting on the sheet while held in fixed position by a stop on the cutter-plate, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN S. LUGG.

Witnesses:
D. P. HOLLOWAY,
A. RUPPERT.