J. F. Flanders,

Shearing Metal,

No. 5,994. Patented Jan. 2, 1849.

Fig: 4.

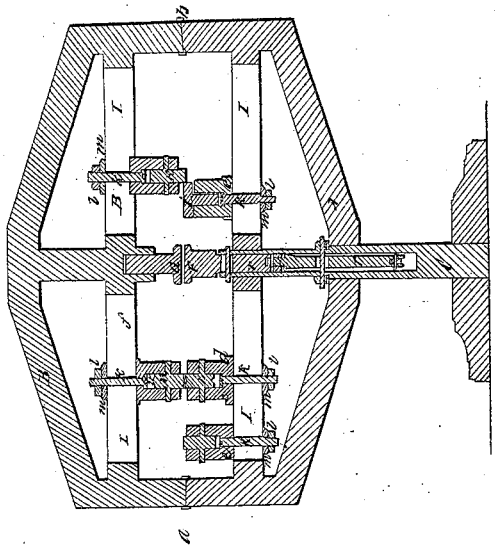


Fig: 2.

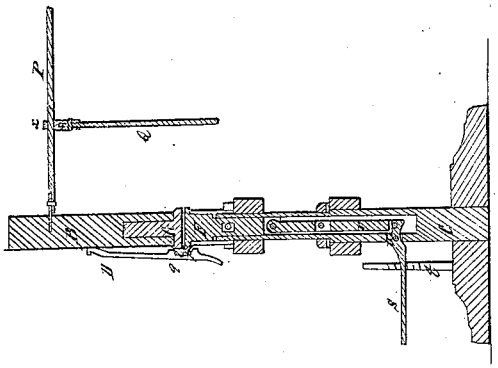


Fig: 3.

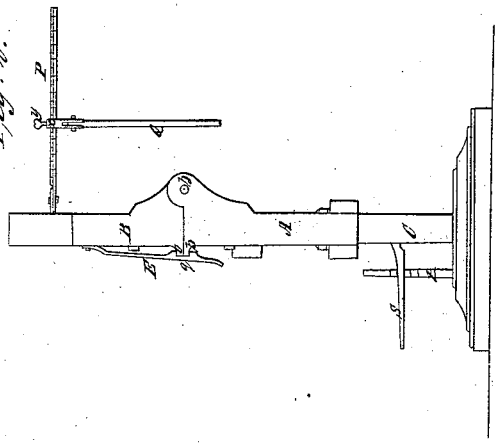
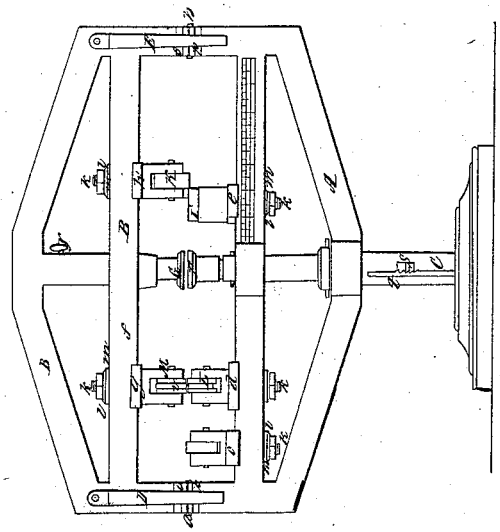


Fig: 1.



UNITED STATES PATENT OFFICE.

JOSEPH F. FLANDERS, OF NEWBURYPORT, MASSACHUSETTS.

COMBINED BEADING-TOOL AND CIRCULAR SHEARS.

Specification of Letters Patent No. 5,994, dated January 2, 1849.

To all whom it may concern:

Be it known that I, JOSEPH F. FLANDERS, of Newburyport, in the county of Essex and State of Massachusetts, have invented a new and useful or improved machine for manufacturing a circular plate from a sheet of tin or other material or for cutting a circular aperture in a plate of tin or other material and for beading or turning down the edge or edges thereof at the same time, if desirable; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1, denotes a front elevation of my said machine; Fig. 2, an end elevation of it; Fig. 3, a central, vertical, and transverse section of it; and Fig. 4, is a vertical and longitudinal section of it.

The first portion of my said machine consists of two frames A, and B, the former of which is supported in a vertical position on a stand or pillar C, and so as to be capable of being freely revolved thereon. The latter is so hinged or jointed to the former by hinges or joints as seen at *a*, *b*, as to be capable of being turned down into a horizontal position or one at right angles to that of the frame A. The inferior frame A, is provided with a rest bar, whose office is to support the inferior die holder or holders, the same being seen at *c*, *d*, *e*. The superior frame B, is also provided with a rest bar *f*, the purpose of which is to carry and sustain the superior die holders *g*, *h*. Each of the said die holders should be so adapted to its bar, as to be capable of being readily adjusted to such position thereon as may be desirable. For this purpose each rest bar on each side of the middle part thereof has a long vertical slot I, made through it, the said slot being extended nearly to the outer end of the bar. A screw pin *k*, projects from each holder, passes through the slot in the rest bar, and has a confining nut *l*, on its end which extends beyond the bar, the said nut being caused to act against a washer *m*, previously placed on the screw pin and made to act against the bar. By such contrivances the die holders may be adjusted to any desirable positions with respect to each other.

The superior frame B, is provided with two spring latches D, E, made and applied to it and the inferior frame as represented in the drawings. Each latch acts in concert with two projections *o*, *p*, one of which is made to extend from the upper frame B, while the other projects from the lower frame A, as seen in Fig. 2. When brought together the notch *q* of the spring latch receives them, and by so doing preserves the two frames in a vertical plane during the cutting operation. The spindle or pillar C, which supports the inferior frame A, is made tubular, and receives the shank *r*, of a tablet or jaw F, arranged as seen in the drawings. Directly over the said jaw or tablet is another and similar one G,—which is fixed to the superior frame B, and in such manner as to revolve freely thereon, or to allow the said frame to be revolved in a horizontal direction in the shank of the jaw. The lower jaw is to be raised up against the upper one so as to enable a person to confine a plate of tin or other material between them while being operated on by the dies. The shank *r*, of the lower jaw rests on one arm of a lever *s*, the said arm of the said lever being caused to project into the standard, while the other arm extends beyond or out of it, and has a confining spring latch *t*, connected with it for the purpose of preserving it in any desirable position, the fulcrum of the lever being at *u*. By depressing the outer arm of the lever we elevate the inner arm of it, and thereby move the lower jaw or tablet up toward the upper one, and so as to confine in position any sheet of tin, which may be placed between said jaws.

The dies or cutters for cutting a circular path through a plate of metal consist of a horizontal circular wheel I′, and a vertical wheel K, each being made to revolve within its supports or holders. One side of the upper wheel K, is placed in contact with the periphery of the wheel I, and so that the periphery of the said wheel K, shall extend a very short distance below the horizontal upper surface of the wheel I′. The two dies L, M, seen in the drawings and arranged on the other side of the holding jaws are what may be termed beading dies. They consist of two vertical wheels the lower one of which has a crease or groove extending in and around its periphery, while the upper has a projecting bead *v*, which is made to extend around its periphery and enter or work in the groove of the lower wheel or roller, as seen in the drawings. The operation of cutting a circular plate or space

from a sheet of tin, and of beading it in at the same time is as follows. The superior frame B, being turned down into a horizontal position a plate of tin is laid on the lower jaw F, and the lower cutting die I′, and if desirable to make at the same time a circular bead on the plate, the said plate is also laid on the lower beading die. This being accomplished the superior frame B, is turned up into a vertical position. In doing this the periphery or edge of the superior cutting wheel K, is forced down through the tin plate. The upper beading die is also forced into the plate. Next the lower jaw F, is elevated against the plate, and so as to confine the plate between it and the upper jaw, and prevent it from slipping laterally or revolving during the operation of cutting or beading. The whole being thus arranged the frames and dies are to be revolved in a horizontal direction around their supporting spindle. While so doing the cutting dies will cut a circular path through the tin plate. The beading dies will at the same time produce a bead on the plate or on the circular piece removed from it, according as they are set without or within the circle of cut of the cutting dies.

A rod or arm P, projects rearward from the upper frame B, as seen in the drawings. From said arm a gage rod Q, depends, and is so applied to the arm by a slide x, and a clamping screw y, as to be capable of being slid or moved on the arm and confined in any desirable position thereon. Said gage rod extends down below the plane of junction of the jaws F, G. In cutting circular plates from a strip of metal the said strip is moved over the lower clamping jaw, until it abuts against the gage rod which being previously set in the right position serves to fix the position of the strip of tin previous to the removal of each circular plate or disk therefrom.

By my improved mode of making the frame which sustains the cutting wheels their operation may be commenced in any part of the circular path to be cut through a plate; for by making the frame (of two frames) A, B, hinged together, and carrying the cutting tools or dies as above specified, the upper cutting dies may be readily forced down through the plate resting on the lower dies and this before the dies are rotated and made to cut in a circular path. In lieu of the beading dies, such as will turn down the edge of the plate at an angle with the remainder of it may be used.

What I claim as my invention, is—

The combination in one frame constructed as described, of a set of cutting dies and one or more sets of beading or edging dies, so applied together, and to the frame as to permit of the easy insertion of the plate, the commencement of the cut on any part of it, and so that the plate or sheet of metal may be operated upon simultaneously by both beading and cutting dies when the frame is revolved on its spindle.

In testimony whereof I have hereto set my signature this fourth day of September, A. D. 1848.

J. F. FLANDERS.

Witnesses:

ELIPHALET JAQUES,

JAMES P. FROTHINGHAM.