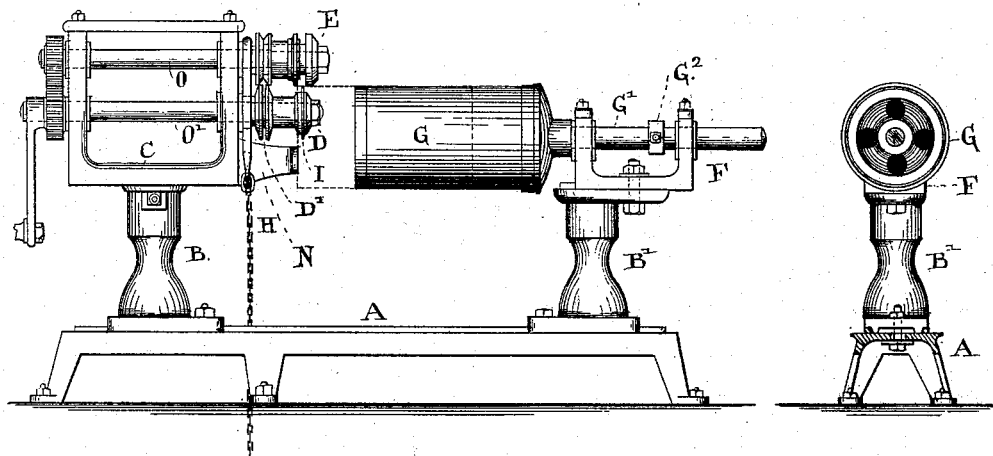


J. F. ROSS.  
Machine for Working Sheet-Metal.

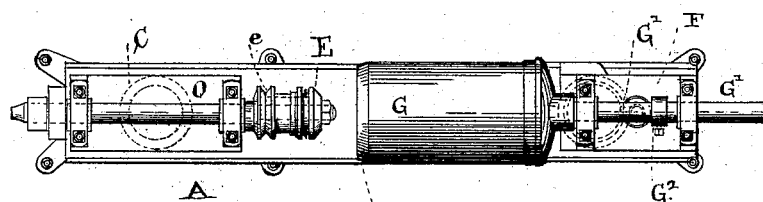
No. 220,991.

Patented Oct. 28, 1879.

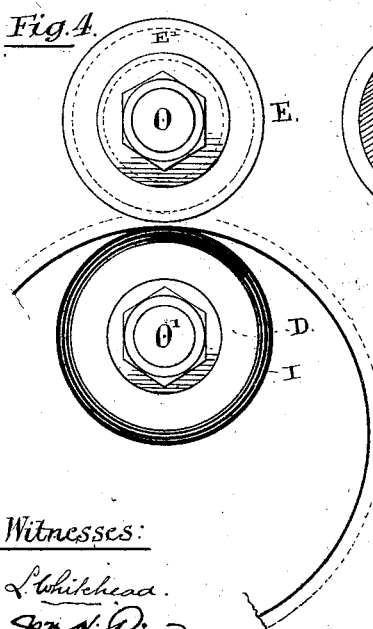


*Fig. 1.*

*Fig. 3.*

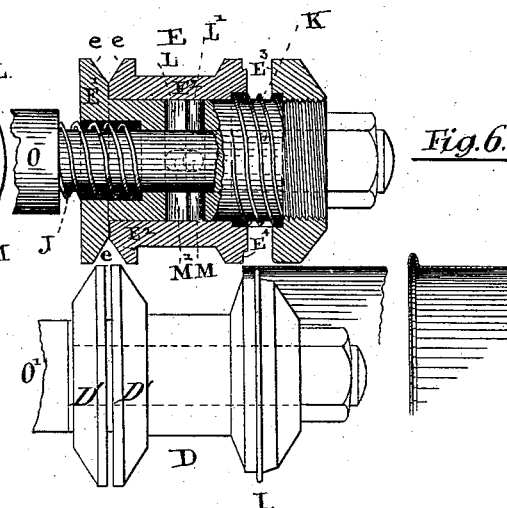


*Fig. 2.*



*Fig. 4.*

*Fig. 5.*



*Fig. 6.*

*Witnesses:*

*L. Whitehead.*  
*Wm. H. Rice*

*Inventor:*

*John F. Ross*  
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# UNITED STATES PATENT OFFICE.

JOHN F. ROSS, OF TORONTO, ONTARIO, CANADA.

## IMPROVEMENT IN MACHINES FOR WORKING SHEET METAL.

Specification forming part of Letters Patent No. **220,991**, dated October 28, 1879; application filed May 29, 1879.

### *To all whom it may concern:*

Be it known that I, JOHN FOSTER ROSS, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented new and useful Improvements in Machines for Working Sheet Metal, which improvements are fully set forth in the following specification and accompanying drawings.

My invention has relation more particularly to a machine designed for the purpose of rolling or forming a raised edge, flange, or bead on sheet-metal plates or cylinders; and my invention consists of a pair of heads arranged to rotate in opposite directions in any suitable manner, and also so arranged that their distance apart may be varied. One of the heads is built in two laterally-movable sections, the working-faces of which are arranged to close toward each other by means of a beveled projecting collar on the opposite head. The head having the beveled collar is provided with a projecting blade of a form suitable for the edge to be raised, which blade passes between the working-faces of the laterally-moving sections of the opposite head, forming, in connection with them and the rotary movement of the heads, a raised rolled edge, the shape of which may be varied as required.

My invention further consists in the combination, with the rotary heads, of a swinging head or form, on which packages are mounted for the purpose of holding them in position during the operation of rolling the edge.

In the accompanying drawings, Figure 1 is a side view, Fig. 2 a plan, Fig. 3 an end view of machine embodying my improvements. Figs. 4, 5, and 6 are details of the rotary heads on an enlarged scale.

A is the bed of machine, which may be varied in design or construction as desired or found necessary for certain classes of work. B and B' are standards supporting the operating parts of machine. These standards are connected to the bed in a detachable manner, so that the position of the parts thereon attached may be varied. C is a bracket attached to standard B, upon which bracket the rotary rolling-heads D and E, with their driving-shafts and gearing, are mounted. F is a bracket supporting the cylinder-form G and shaft G'.

This bracket is pivoted on the upper face of the standard by a bolt or pin in such manner that it may be swung horizontally to one side for the purpose of allowing a sheet-metal cylinder to be put on and taken off the form.

A suitable stop is provided on the standard, which confines the movement to one side only, and which also acts as a gage for adjusting the form and cylinder upon it to the right position in relation to the rolling-heads. Besides the horizontal swinging motion the head G and shaft is permitted a longitudinal motion in its bearings for the purpose of permitting the edge of the cylinder to be moved directly into or out of contact with the rolling-heads. The extent of this longitudinal motion is governed by means of an adjustable stop-collar, G<sup>2</sup>, fastened to the shaft between the bracket-arms.

The shaft of the rolling-head D rotates in fixed bearings, and the head is secured permanently to the shaft.

The bearings of the shaft O are movable to or from the bearings of shaft O' in such manner that the heads may be brought together or kept apart, as required. This movement of the shaft and head may be accomplished by a set-screw or by a foot-lever and chain, H, as shown, the return or negative movement being imparted by a spring or weight.

The rolling-head D is provided with projecting collars D', having beveled faces, which are arranged to engage with and separate the beveled faces *e e*, formed at one end of the sections E' E<sup>2</sup> of the other head when the heads are brought together. This spreading movement of the sections E' E<sup>2</sup> at one end of the die causes the faces E<sup>3</sup> E<sup>4</sup> at the other end to close together upon the blade I, which is arranged to pass between the sections at this point. The return movement of the sections, when the heads are separated, is accomplished by means of the springs J K, which are arranged in recesses, substantially as shown.

Section E' is connected to the driving-shaft O by means of the pin L and slot L', and section E<sup>2</sup> is connected to section E' by the screw M and slot M', the slots permitting the lateral movement, this form of connection driving the sections and permitting them to move laterally, as required.

N is a stop attached to the bracket C, against the head of which the sheet metal is butted during the time that the edge is being rolled.

In the operation of rolling the edges of sheet-metal cylinders the cylinder is slipped on the form G, which is of suitable diameter to receive it easily, and the form is then advanced toward and between the rollers until the end of the cylinder strikes against the stop N. The dies are then rotated, and at the same time pressed gradually together, the effect on sheet metal of the combined operations being that a lip or flange is raised up above the general level of the cylinder, as shown in Figs. 4 and 6. The form of this lip or flange may be varied, as desired, by altering the shape of the blade and faces acting conjointly with it.

The lip or flange may be returned on the outer edge, as shown in Figs. 4 and 6, or any other form desired for a specific purpose may be rolled.

Although the above description and the illustrations are that of a machine designed especially for cylindrical work, the rollers are equally useful for working flat sheets or sectional work of many descriptions.

I claim as my invention and desire to secure by Letters Patent—

1. The rolling-head D, with projecting col-

lars D' and blade I, in combination with the head E, the working-faces of which head are arranged to close upon the blade I in working from the contact of the collar D' with the beveled faces *e e*, substantially as shown and described.

2. In rotary heads for sheet-metal working, the combination of two rotary heads, one of which is provided with a projecting blade and the other constructed in sections, so arranged that as the heads are forced together the working-faces of said sections will move toward each other on each side of said blade, substantially as and for the purpose set forth.

3. The shaft O', with pin L and spring J, in combination with the head-section E', with slot L', substantially as shown.

4. The combination of the head-section E', set-screw M' with the head-section E<sup>2</sup>, provided with slot M', substantially as shown.

5. The form G, supported on the pivoted bracket F, and moving horizontally in its bearings, in combination with the rolling-heads D and E, and the stop N, arranged and operating substantially as and for the purpose set forth.

JOHN F. ROSS.

Witnesses:

GEO. A. AIRD,

JOHN G. RIDOUT.