(No Model.)

H. RAYNER.

MACHINE FOR FORMING SHEET METAL.

No. 309,801. Patented Dec. 23, 1884.

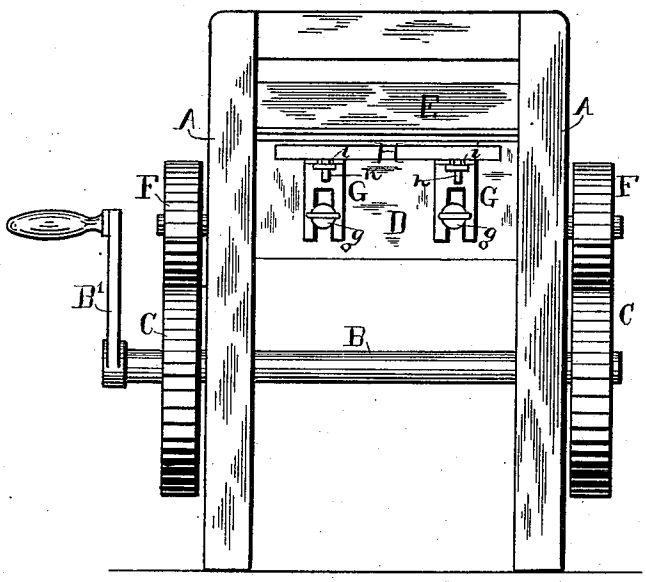

Fig. 1

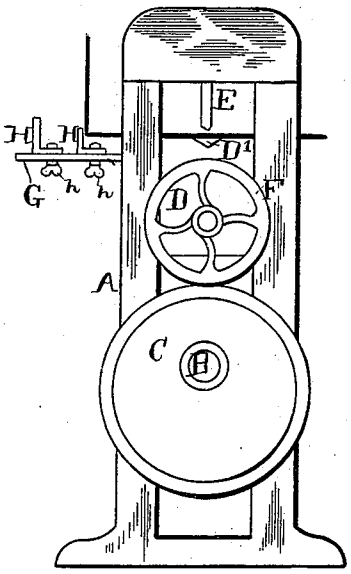

Fig. 2

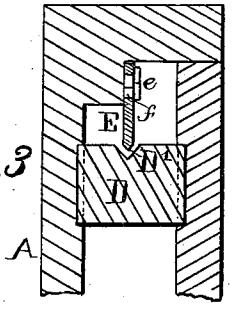

Fig. 3

Witnesses
Alva A. Moore
Wm. Musser

Inventor
Harry Rayner
by Connolly Bros. and Whighe
Attorneys

UNITED STATES PATENT OFFICE.

HARRY RAYNER, OF ALLEGHENY CITY, ASSIGNOR OF ONE-HALF TO GEORGE ZIEG, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR FORMING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 309,801, dated December 23, 1884.

Application filed May 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, HARRY RAYNER, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Forming Sheet Metal; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to machines for bending or forming sheet metal, and has for its object the provision of means for bending the metal upon a right line with ease and dispatch.

My invention consists in the provision of a machine for bending or forming metal, comprising a movable block mounted in a suitable frame and provided with a longitudinal groove which registers with the edge of a plate fixed in the said frame, and means, as hereinafter described, whereby the block is moved up against the plate, thereby bending and forming a sheet of metal which is placed between said plate and block.

My invention still further consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described and claimed.

Referring to the accompanying drawings, Figure 1 is a front elevation of a machine embodying my improvements; Fig. 2, a side elevation of the same; and Fig. 3, a section of a part of the machine, showing the manner in which the forming-plate is attached to the frame.

A A designate the housings in which the working parts of the machine are supported.

B designates a shaft, which is journaled in the housings A A, projecting out on each side thereof, and provided with a handle, B′, by means of which it is turned.

C C are two cam or eccentric wheels, fastened upon the shaft B outside of the housings A A.

D designates a block of metal extending across the machine between the housings, and sliding vertically therein. Said block has a longitudinal groove, D′, on its top, and above said groove is arranged a plate, E, which is suitably secured in the frame of the machine by bolts *e e*, which pass through vertical slots *f f* in said plate. The plate E forms the edge against which the sheet of metal is pressed, and the lower edge of said plate is beveled off on each side to correspond to the shape of the groove in the movable block D.

F F designate friction rollers or wheels, which are journaled to each side of the block D and rest upon the cam-wheels C C.

To one side of the block D are attached brackets G G by screws *g g*, which pass through slots in the said brackets and permit of their vertical adjustment.

H H designate gage-plates, which are set upon the horizontal arms of brackets G G, and are adjustable thereon, being secured in position by thumb-nuts *h h*, which pass through slots *i i* in said horizontal arms. Two or more of these gage-plates may be employed, the successive gages increasing in height, so that when the first bend is made in the sheet the angle formed may be brought against the second gage, and so on. When the bends in the sheet are to be all the same distance apart, but one gage-plate need be employed.

The operation of my invention is as follows: The sheet which is to be pressed into shape is passed in between the movable block D and the stationary straight edge plate, E, until its edge comes in contact with the gage on the back of block D. The handle on the end of shaft B is then turned and the cam-wheels C C lift up the movable block, the plate E pressing the sheet down into the groove in said block and bending the sheet to the required degree. The handle is then turned back, lowering the removable block and allowing the plate to be moved forward until the angle just formed comes in contact with one or the other of the gages on the block, when the operation is repeated, and so on until the requisite number of bends have been made.

The advantages of my invention are, that the sheet is bent evenly and quickly at any determined point or points. The adjustable gages

enable the operator to adjust the machine so as to form the several bends at any required distance apart without the trouble of marking the sheets. The leverage given by the cam-wheels enables the operator to bend very heavy sheets of metal with little effort, and the bend being effected by a steady pressure along its entire length, the sheet remains unmarred by hammer-marks.

Having fully described my invention, I claim—

1. In a metal bending and forming machine, the combination, with a fixed plate and a movable block having a groove adapted to receive the edge of said plate, of an adjustable gage attached to said movable block, and a supplementary adjustable gage, also attached to said block and projecting above the first-named gage, substantially as and for the purpose described.

2. In a sheet-metal-forming machine, the combination, with the housings A A, the plate E, affixed thereto, and the movable block D, having friction-rollers F F, of the shaft B and cams C C, all constructed and arranged substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

HARRY RAYNER.

Witnesses:
JOS. B. CONNOLLY,
T. J. PATTERSON.