E. A. HARVEY.

Machine for Straightening Sheet Metal.

No. 202,027. Patented April 2, 1878.

Fig. 1.

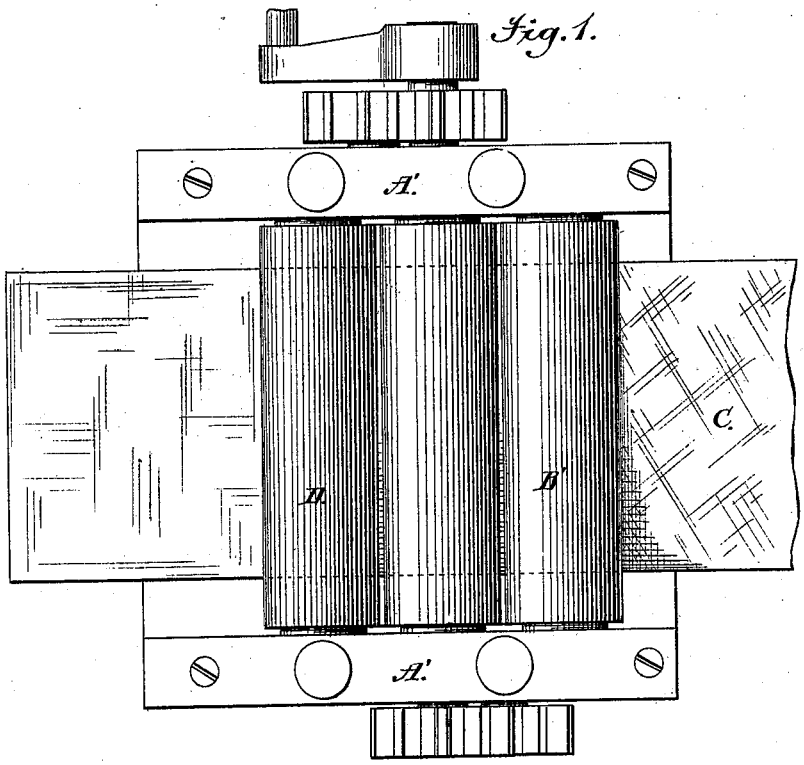
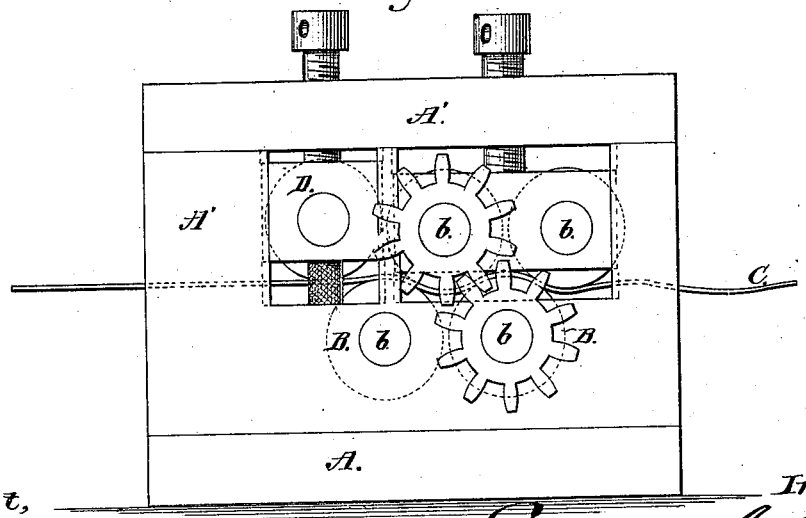


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDMUND A. HARVEY, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN MACHINES FOR STRAIGHTENING SHEET METAL.

Specification forming part of Letters Patent No. **202,027**, dated April 2, 1878; application filed January 17, 1878.

To all whom it may concern:

Be it known that I, EDMUND A. HARVEY, of the city of Wilmington, county of New Castle, and State of Delaware, have invented a new and useful Improvement in Machines for Straightening Sheet Metal; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation, of a machine embodying my invention.

In the manufacture and treatment of sheet metal great difficulty is experienced in preventing the sheets from buckling under the variable and sudden changes of temperature to which they are subjected during the operation of annealing, galvanizing, &c., or from becoming bent or indented in the act of handling or transferring them to or from the rolling-mill, annealing-oven, coating-bath, or other devices generally employed in its manufacture.

The object of my invention is to provide a machine to which the sheets of metal are subjected as a final operation, and the defects above mentioned completely removed, and a smooth and level surface restored.

The invention relates to that type of machine in which a double series of revolving rollers are arranged upon different planes of rotation, and present a course of reversed curves, through which the sheets of metal are passed, and whereby said sheets receive a changing corrugated form.

My invention consists in providing an independently-adjustable straightening or leveling roller at the delivery end of such machine, as hereinafter described and claimed.

To enable others to construct and use my invention, I will proceed to describe a machine embodying it.

In the drawing, A represents the bed; A′, the frame of the machine; and B B′, the double series of rollers, mounted in bearings *b*, arranged upon different planes, and capable of adjustment toward or from each other.

It will be observed that the bearings *b* of the respective series of rollers are arranged so that the surfaces of each series will rotate directly above or below the adjacent surfaces of the other series, which allows the same to be adjusted toward each other beyond the plane of the surface of either series, and which presents a course of reverse curves, through which the sheet of metal C is passed, as shown in the side view, Fig. 2. The effect of the successive bending or springing of the sheet in opposite directions as it passes from one roller to an adjacent roller of the other series is to remove all indentations, bends, or twists contained therein.

One or more pairs of the adjacent rollers of the respective series are connected by spur-gearing, as shown, and which may be constructed with elongated teeth, to allow a sufficient adjustment of either series without disarrangement; and band-pulleys may also be attached to one or more of said pairs of rollers, with a system of belting that will impart a uniform or variable speed to the same.

D represents an additional and independently-adjustable roller, the object of which is to straighten or level the sheet of metal as it leaves the machine. It is found, in practice, that without this independent roller, in connection with the double series of rollers described, the sheet of metal will be delivered from said rollers in a curved form, corresponding to the last bend received, and it is found necessary to make the additional roller D independently-adjustable, as it requires to be operated upon a different plane from either of the series of rollers, and to be adjusted to act in accordance with the amount of bend that the sheet of metal receives.

A suitable feeding mechanism may also be attached to the machine, if deemed necessary, and any well-known devices for adjusting the roller may be adopted.

By the use of this invention the common practice of piling the sheets in open or closed boxes, and exposing the same to heat for the purpose of rerolling or flattening by pressure, is avoided, and the expense attending the same in the nature of fuel and manipulation, and in the destruction of the boxes or receptacles, is saved.

The rollers may be made of any suitable length or diameter to suit the sheets to be op-

erated upon, and they may be composed of steel, chilled iron, or other suitable material, and any number may be employed in the respective series.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

An independently-adjustable roller, D, in combination with a double series of adjustable rollers, B B′, substantially as and for the purpose described.

EDMUND A. HARVEY.

Witnesses:
HENRY WHITELEY,
HUXLEY HARVEY.