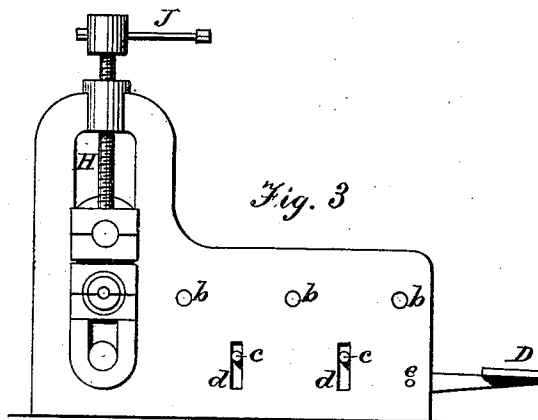
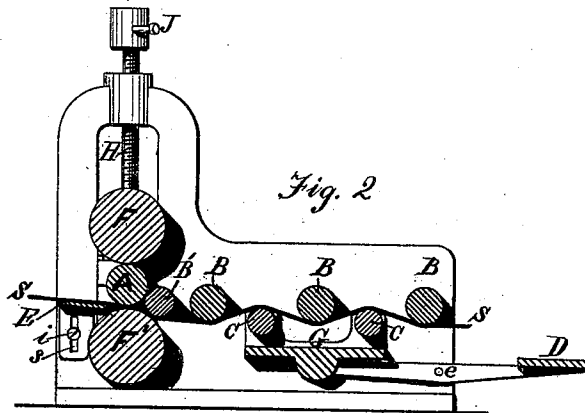
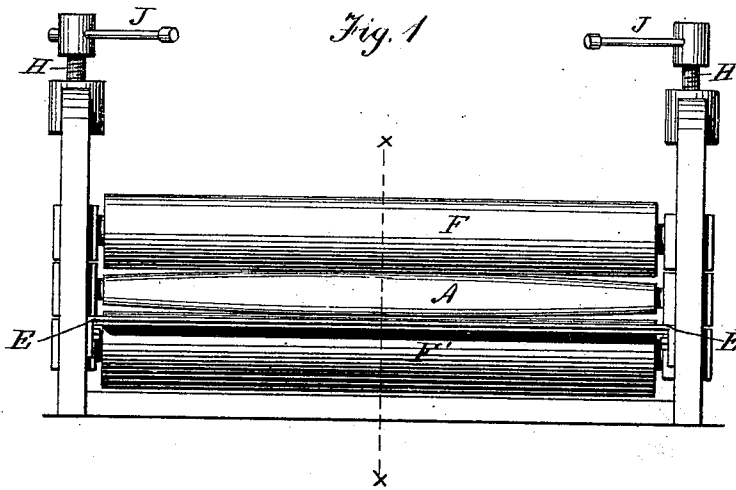


C. MARSHALL.

SHEET-METAL STRAIGHTENING MACHINE.

No. 175,365.

Patented March 28, 1876.



Witnesses

Grinnell Lewis

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UNITED STATES PATENT OFFICE.

CALEB MARSHALL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SHEET-METAL-STRAIGHTENING MACHINES.

Specification forming part of Letters Patent No. **175,365**, dated March 28, 1876; application filed January 31, 1876.

To all whom it may concern:

Be it known that I, CALEB MARSHALL, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Machine for Straightening Sheet Metal; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a rear elevation of the machine. Fig. 2 is a vertical section on line *x x* of Fig. 1. Fig. 3 is an end elevation.

The same part is marked by the same letter of reference wherever it occurs.

The nature of my invention consists in the peculiar construction of a machine in which a series of fixed and movable rollers and an inclined adjustable plate are so combined and arranged for conjoint operation as to be adapted to remove from metallic plates all kinks, bends, and buckles, and make them straight and flat, all as hereinafter more particularly set forth.

In the drawings, *F F'* mark two parallel cylindrical rollers, running in strong housings in the sides of the framing. Between these is placed a small roller, *A*, very slightly tapering from the middle toward either end, as shown in Fig. 1. A row of fixed rollers, *B B B B'*, turn on journals *b b* in the sides of the frame. Their lower surfaces are designed to be all in the same plane and slightly below the level of the upper surface of roller *F'*. Below the line of rollers *B B* is a vibrating frame, *G*, provided with rollers *C C* and with guide-pins *c c*, which enter slots *d d* in the side framing, (see Fig. 3,) and guide the rise and fall of the frame. The frame *G* is operated by a treadle, *D*, pivoted at *e*, and can be raised or lowered at the will of the person operating the machine. Beyond the lower roll *F'*, on the outgoing side, is an inclined plate, *E*, adjustable by means of the slots *s* and set-screws *i*. Screws *H*, operated by levers *J*, regulate the pressure of the rollers upon the plate to be operated upon. *S* is a plate of sheet metal passing through the machine.

The operation is as follows: When the vibrating frame *G* is down the end of the metal sheet to be operated upon is inserted between the rolls *C C* and *B B B*, and in the bite of the rolls *B'* and *F'*. The operator then places his foot on the treadle *D*, and raises the rolls *C C*, so as to make short bends in the sheet between the rolls *C* and *B*, as shown in Fig.

2, as the sheet is drawn in by the large rolls *F F'*, driven by any suitable power. As the sheet is constantly bent back and forth in passing between these rolls, the buckles and kinks are taken out of the metal, in the same way that wire is commonly straightened. As the sheet passes between the lower roll *F'* and the small rolls *A* and *B'*, the tendency of the forces to which it is subjected is to make it conform to the curvature of roll *F'*; thus giving it a curve all in one direction, but as it comes out from between rolls *F'* and *A* it strikes the inclined plate *E*, which is so set as to counteract this tendency and take out the curvature imparted by the last pair of rolls, and deliver the sheet perfectly flat and straight. The roll *A*, running between rolls *F* and *F'*, is turned slightly barrel-shaped or tapering from the middle toward the ends, so as to compensate for any spring in the large rolls. This roller *A* being of smaller diameter than the large rolls, its surface is constantly changing relatively to the surfaces of those rolls, thus preventing them from wearing in grooves or spots. The pressure between the large rolls is controlled by the screws *H H*, and is made at all times sufficient to take out any inequalities or indentations that may exist in the sheet.

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

1. The combination of the fixed rollers *B B* with the vibrating frame *G*, provided with the rollers *C C*, and operated by the treadle *D*, in the manner and for the purpose set forth.

2. The combination, with rollers *A*, *B'*, and *F'*, of the inclined adjustable plate *E*, arranged and operating in the manner and for the purpose of removing the curvature imparted by the action of said rollers, as stated.

3. The roller *A*, having the double tapering shape described, and placed between the large rollers *F F'*, in the manner and for the purpose indicated.

The above specification of my said invention signed and witnessed at Philadelphia this 24th day of January, A. D. 1876.

CALEB MARSHALL.

Witnesses:

JOHN DEVLIN,
MICHAEL QUINN.