(No Model.)

E. A. HARVEY.

MACHINE FOR PLANISHING METAL.

No. 423,048. Patented Mar. 11, 1890.

FIG. 1.

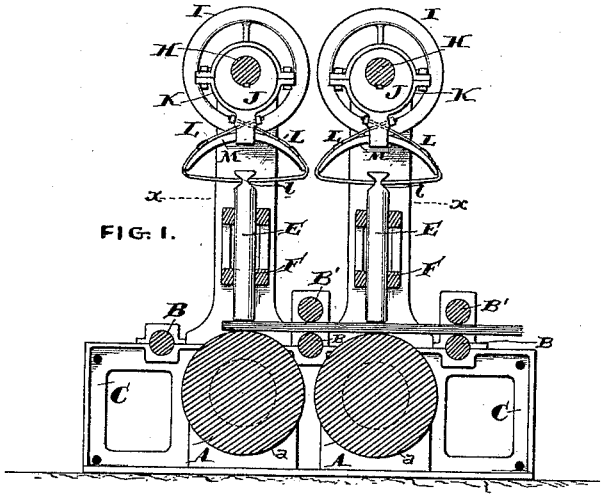


FIG. 2.

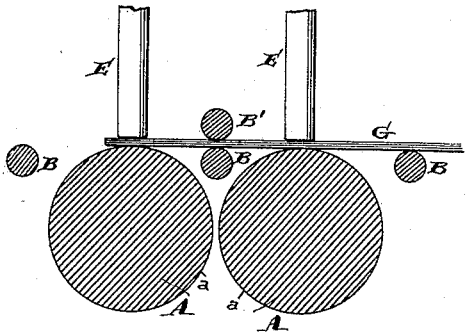


FIG. 5.

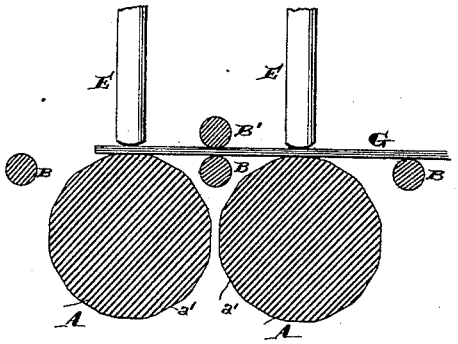


FIG. 3.

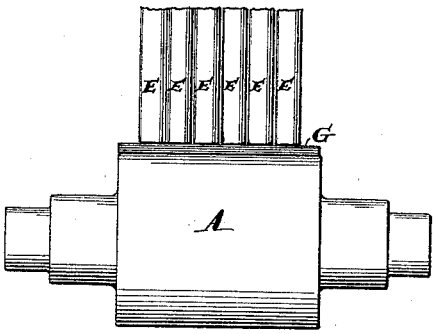
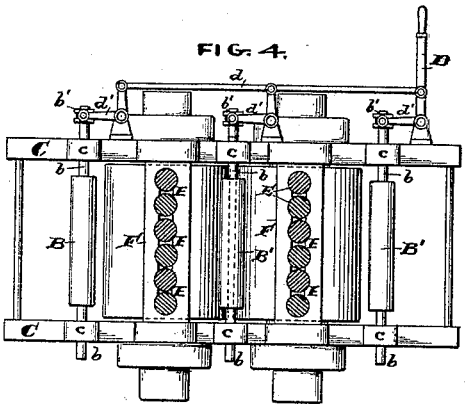


FIG. 4.



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EDMUND A. HARVEY, OF WILMINGTON, DELAWARE.

MACHINE FOR PLANISHING METAL.

SPECIFICATION forming part of Letters Patent No. 423,048, dated March 11, 1890.

Application filed June 17, 1889. Serial No. 314,597. (No model.)

To all whom it may concern:

Be it known that I, EDMUND A. HARVEY, of Wilmington, county of New Castle, State of Delaware, have invented a new and useful Improved Machine for Planishing Metal, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to mechanism used for planishing sheet metal, and has for its object to increase at once the rapidity and efficiency of the treatment.

The principal feature of my new mechanism consists in the combination of a rotatable anvil with a line of hammers acting on its surface and in a plane parallel with its axes and a guide for supporting the metal over the anvil-roll. Preferably I use two or even more parallel anvil-rolls, each with its own line of hammers, and make the supporting-guides laterally movable, so as to render it easy to manipulate the sheet metal under the hammers.

Other features of my apparatus will be best understood after a description of the drawings, in which my device is illustrated, Figure 1 being a side elevation showing the anvil-rolls in section. Fig. 2 is a similar elevation of the rolls and hammer on a larger scale; Fig. 3, a front elevation of one of the anvil-rolls with its line of hammers; Fig. 4, a plan on the line $x\ x$ of Fig. 1; and Fig. 5, a side elevation showing a modified construction of anvil-roll.

A A are the anvil-rolls, which are journaled in the frame C and preferably made with a cylindrical face a, as shown in Figs. 1, 2, 3, and 4. When thus constructed, I prefer to drive the rolls by some constantly-acting gearing, so that they are in constant motion beneath the hammers and constantly changing the face exposed to the blow. Good results, however, can be obtained by giving to the roll a succession of plain faces, as shown at a', Fig. 5, and only rotating the anvil-roll at intervals, so as to bring new faces into operation as those in use become injured or worn.

In using a plain-faced anvil, care should be taken to use a hammer or hammers having convex faces to obtain the best results.

B B B are the guide-rolls over which the bundle or pile G of metal sheets are fed beneath the hammers.

B′ B′ are clamping-rolls, which hold the pile together. These rolls should be so constructed that they can move sidewise, so as to shift the pile of sheets beneath the hammers, and in the drawings I have shown the journals b of the guide-rolls as longitudinally movable in the journal-boxes c, and on one of journals b, I have shown collars b', to which are attached arms of bell-crank levers d', which are connected directly or by a link d with a lever D. It is of course obvious from this construction that a movement of lever D will shift the guide-rolls B and B′ sidewise and of course give the same motion to the pile of sheets supported on said rolls.

E E, &c., are the hammers, which are arranged in a line parallel to the axis of the anvil-roll on which they work and are guided in any convenient frame F. The faces of these hammers should preferably be always slightly convex, and a single hammer could be used, if desired, though by using a line of hammers, as shown, the action of breaking the scale and compacting the metal is greatly facilitated.

G is the pile of metal sheets being operated upon.

The hammers can be actuated in any convenient way. Preferably, however, I drive them by a shaft H, on which a number of eccentrics J are secured, to the rings K of each of which is secured a leather strap L, passing over a spring M, and to the center of this strap a hammer E is fastened. As the eccentric moves up and down, the hammers are actuated, the desired elasticity being given to the hammer-blow by the springs M. The order and time of the blow from each hammer are regulated by the setting of its eccentric on the shaft.

I is a pulley for driving-shaft H.

The operation of the device is as follows: The package G of sheet metal is placed over the anvil and upon the guide-rolls. The hammers are then set in operation by rotating the shaft H and the metal fed beneath the hammers and from one anvil-roll to the other, the direction being changed at will and the lateral position of the package changed from time to

time by shifting the guide-rolls. While this treatment is going on, the rolls A are preferably rotating, though not necessarily so, and of course where the plane-faced roll shown in Fig. 5 is used the roll is always stationary during the hammering action. The action of the line of hammers on the anvil-roll is more rapid and more efficient than the blow of a broad-faced hammer on stationary anvils, as is now the usual plan of planishing sheet metal, and the treatment of the metal by my new mechanism is more perfectly under the control of the operator.

My improvements are capable of separate as well as conjoint use, and except where so specifically limited in the claims I do not wish to be understood as limiting myself to the precise construction shown.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for planishing sheet metal, the combination of a cylindrical anvil-roll with one or more hammers acting on said anvil in a line parallel with its axes.

2. In a machine for planishing metal, the combination of a rotatable anvil made in the form of a roll, guides for supporting the metal as it is fed over the anvil-roll, and a line of hammers acting in a plane parallel to the axis of the anvil-roll, substantially as and for the purpose specified.

3. In a machine for planishing metal, the combination of a rotatable anvil made in the form of a roll, guides for supporting the metal as it is fed over the anvil-roll, a line of hammers acting in a plane parallel to the axis of the anvil-roll, and a hammer-actuating shaft having eccentrics attached thereto and connected with the hammers so as to actuate them, substantially as and for the purpose specified.

4. In a machine for planishing metal, the combination of a rotatable anvil made in the form of a roll, guides for supporting the metal as it is fed over the anvil-roll, and a line of hammers acting in a plane parallel to the axis of the anvil-roll, a hammer-actuating shaft having eccentrics attached thereto and spring connections between said eccentrics and hammers, all substantially as and for the purpose specified.

5. In a machine for planishing metal, the combination of two parallel rotatable anvils made in the form of rolls, guides for supporting the metal as it is fed over the anvil-rolls, a line of hammers operating over and parallel to the axes of each anvil-roll, and means for operating said hammers, all substantially as and for the purpose specified.

6. In a machine for planishing metal, the combination of a cylindrical rotating anvil, guides for supporting the metal as it is fed over said anvil-roll, a line of hammers acting on said anvil and parallel to the axes thereof, and means for actuating said hammers, all substantially as and for the purpose specified.

7. In a machine for planishing metal, the combination of a rotatable anvil-roll, a line of hammers acting on said anvil-roll in a plane parallel to the axes thereof, means for actuating said hammers and guides having a lateral movement to support and move the metal under the hammers.

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