D. M. REYNOLDS.

Machine for Polishing Sheet-Iron.

No. 164,329. Patented June 8, 1875.

Fig. 1.

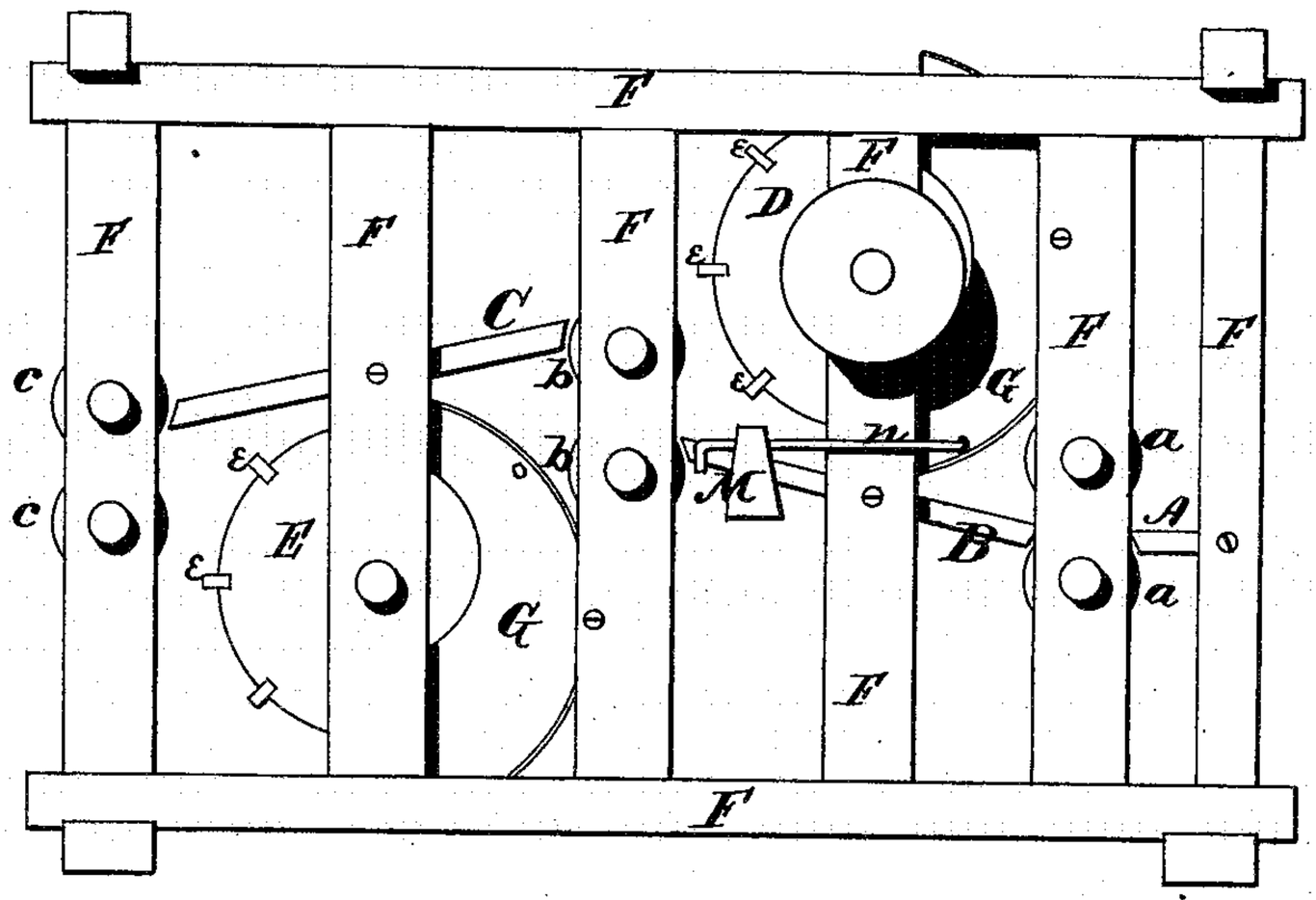


Fig. 2.

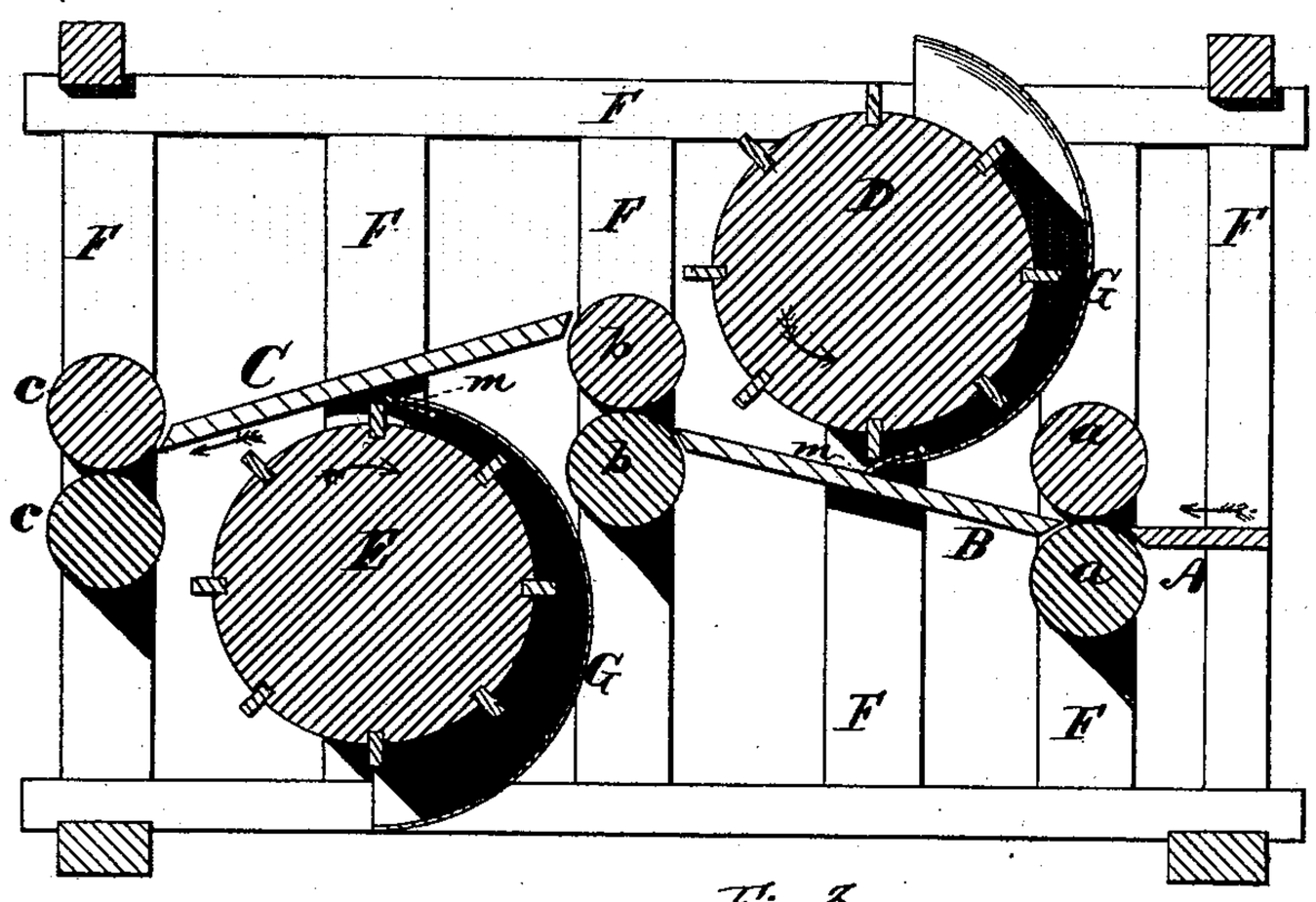
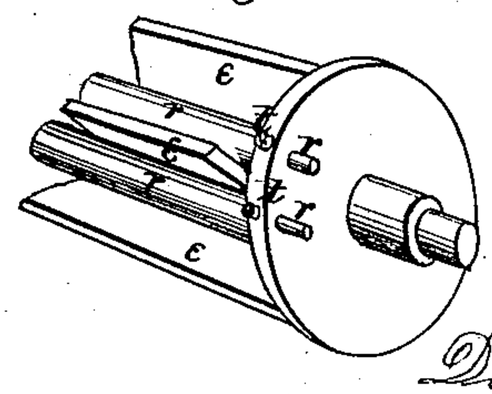


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

DAVID M. REYNOLDS, OF PORT DEPOSIT, MARYLAND.

IMPROVEMENT IN MACHINES FOR POLISHING SHEET-IRON.

Specification forming part of Letters Patent No. **164,329**, dated June 8, 1875; application filed March 2, 1875.

To all whom it may concern:

Be it known that I, DAVID M. REYNOLDS, of Port Deposit, in Cecil county, State of Maryland, have invented an Improved Machine for Cleaning and Polishing Sheet Metal; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a longitudinal vertical section; and Fig. 3, a perspective view, showing the construction of the cleaning-rolls.

Similar letters of reference in the drawings indicate the same parts.

The object of this invention is to improve the construction and operation of machines for cleaning and polishing sheet metal; and to this end the invention consists, first, in the employment of rubbing-cylinders having adjustable gum surfaces; and, secondly, in the combination of the operative parts, substantially as I will now proceed to describe.

In the drawings, F indicates the frame of the machine, which may be of any suitable form and construction. *a a* represent the first pair of feed-rolls; A, the platform-table or incline upon which the sheet metal is fed to the first feed-rolls; B, the incline which receives the sheets of metal as they come through the first feed-rolls, and upon which it is fed to the second feed-rolls; *b b*, the second pair of feed-rolls; C, the third incline, and *c c* the third or last pair of feed-rolls. All these parts may be of any suitable material, the feed-rolls being caused to take hold of the sheets by means of springs, or by their own weight. D E are rotary brushes or cleaning and polishing wheels or rolls, the former acting upon the upper, and the latter upon the lower, surface of the sheets of metal that pass through the machine, thereby cleaning them on both sides at one operation. These rolls may be constructed in any suitable manner, with leaves or wings *e e*, of india-rubber or any other suitable vegetable gum or material possessing qualities equivalent to those of india-rubber or gutta-percha, for the purpose here referred to. The wheels or rolls D E are rapidly rotated in such a direction that the gum leaves or wings will meet the advancing sheet of metal, and scrape its surface from the front edge backward. I prefer to make these leaves adjustable, so that they can be set out from time to time as they wear away, and one means of accomplishing this is shown in Fig. 3, which represents the leaf *e* as held by two small rods or rolls, *r r*, which can be locked by set-screws *t*, or other means, to prevent them from accidentally turning. The leaves can, by this construction, be readily inserted or removed, and can at any time be adjusted exactly as may be required.

During the operation of cleaning the metal sheets the latter are held firmly against the incline, and prevented from bending, wrinkling, or springing by means of hinged plates *m*, attached to a rod or shaft, the outer end of which is bent into a crank-arm, *n*, and weighted or actuated by a spring, as shown at M. These hinged plates exert a yielding pressure upon the metal sheets, which answers perfectly to keep them in the required position and condition while they are undergoing the action of the rubber leaves.

The dust and scale swept off of the sheet metal by the action of the rubber brushes or leaves is received in or upon a concave, G, and is swept around and discharged at the open end of the concave into a suitable conveyer, by which it may be taken to any convenient receptacle. The action of the brushes, in combination with the concave, creates a strong current of air, which, drawing over the surface of the metal sheet, assists in removing the dust from the latter, and, when the dust is removed, conveys it to the open end of the concave, and discharges it with considerable force, thereby directing it away from the workmen, and relieving them from great annoyance and discomfort while running the machine.

The advantages of using the rubber or equivalent elastic gummy material are, first, that it removes the scale and dirt more readily and perfectly from the metal; secondly, that, as soon as the brushes begin to operate, the edge of the rubber becomes partially soft, and deposits a thin film of rubber on the surface of the metal, which protects it from the action of air and water, and keeps it from rusting; and, thirdly, that the rubber, being flexible and elastic, is not liable to catch and bend up the edge of the metal sheets when they are fed to

it. The feed-rolls are made small, and placed sufficiently near to the rubbing and polishing rolls or wheels to guide the metal sheets properly. The inclines are merely to hold the metal sheets up to the action of the rubber brushes or wheels, and the weighted or spring plates *m* are to smooth out the metal sheets and keep their edges from turning up as they are fed along.

A complete machine should be provided with two rubbing and polishing cylinders or brushes, as shown in the drawing, to clean both sides of the metal sheets; but a series of these rubbing-cylinders may be used for each side of the sheets, if preferred.

The gearing, driving-pulleys, belts, &c., may be arranged in any suitable manner to properly actuate the parts of the machine, as hereinbefore described.

I claim as my invention—

1. In a machine for cleaning and polishing sheet metal, the cylinders D E, having adjustable gum plates or rubbing-surfaces, substantially as described, for the purpose specified.

2. The two rubbing and polishing cylinders D E, combined with the feed-rolls *a a b b*, and inclines B C, arranged and combined to polish the metal sheets on both sides, substantially as described.

3. The combination of the rubbing and polishing cylinders D or E with the inclines B or C, the feed-rolls, and the weighted plates *m*, arranged and operating substantially as and for the purposes set forth.

4. The concave G, combined with the cylinder D, feed-rolls *a a*, and incline B, substantially as and for the purposes set forth.

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