

No. 837,375.

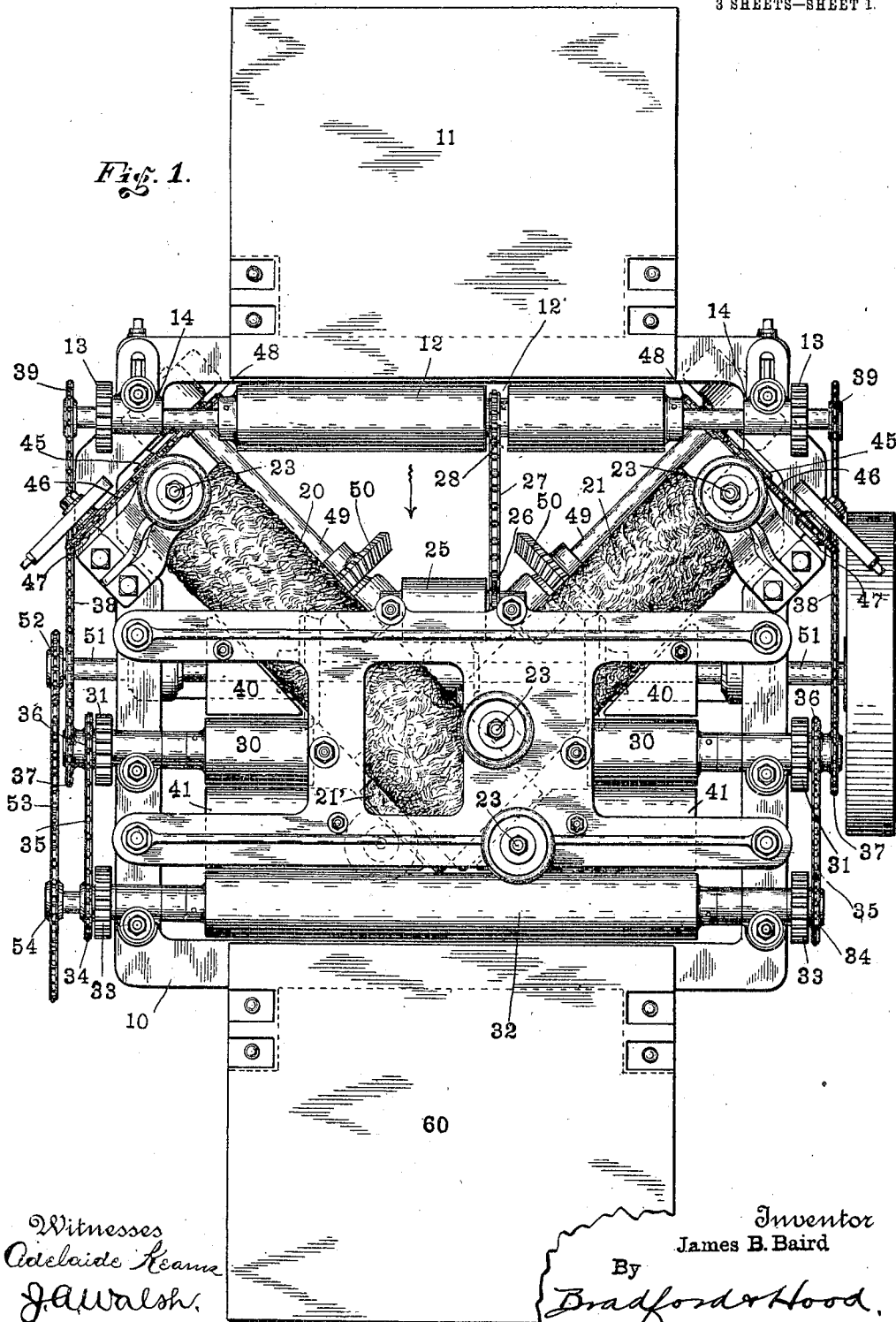
PATENTED DEC. 4, 1906.

J. B. BAIRD.

MACHINE FOR CLEANING AND POLISHING METAL PLATES.

APPLICATION FILED MAY 20, 1905. RENEWED MAY 22, 1906.

3 SHEETS—SHEET 1.



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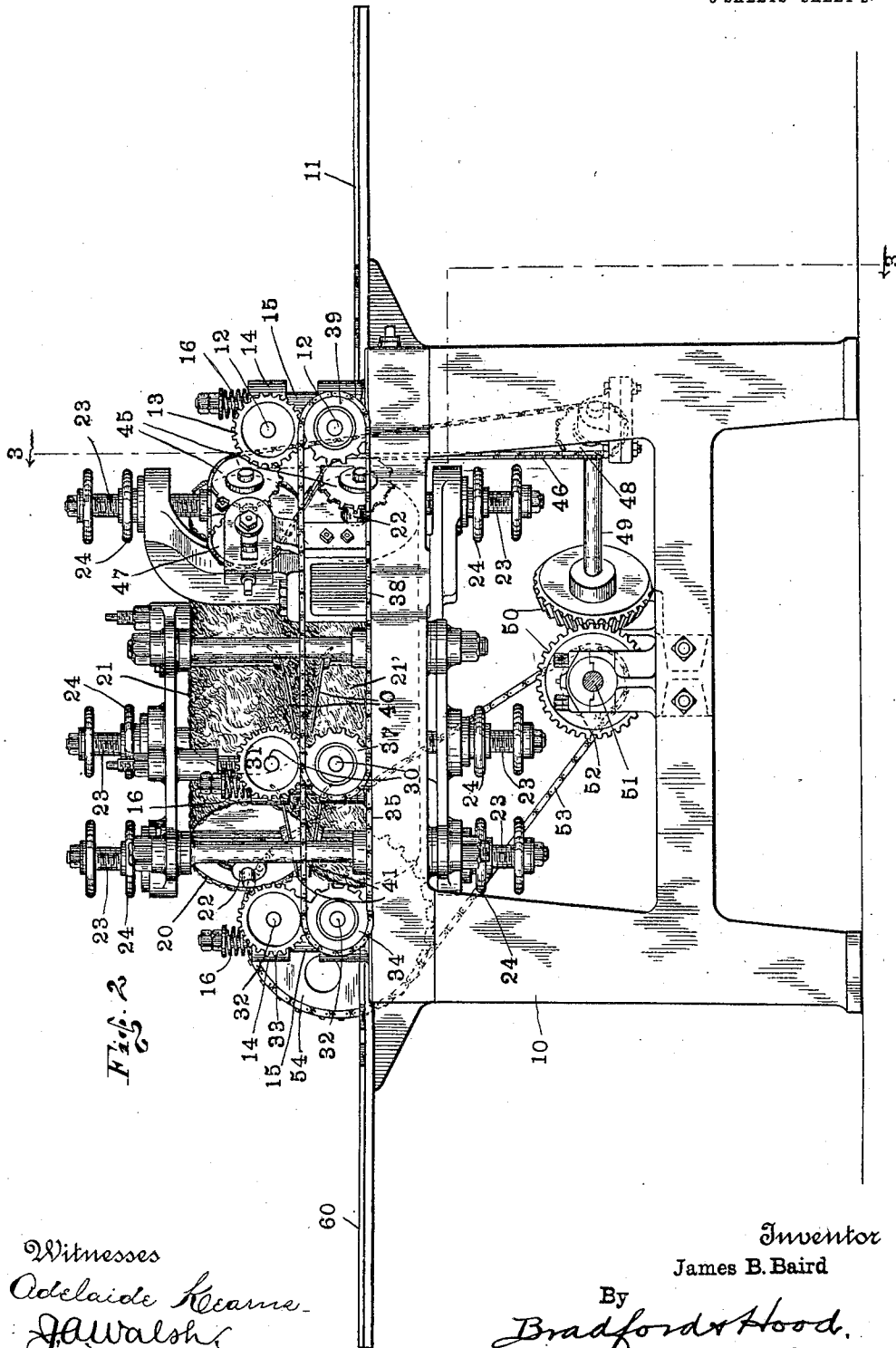
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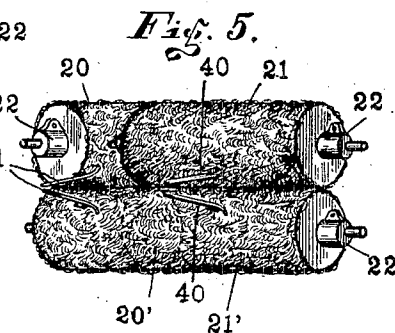
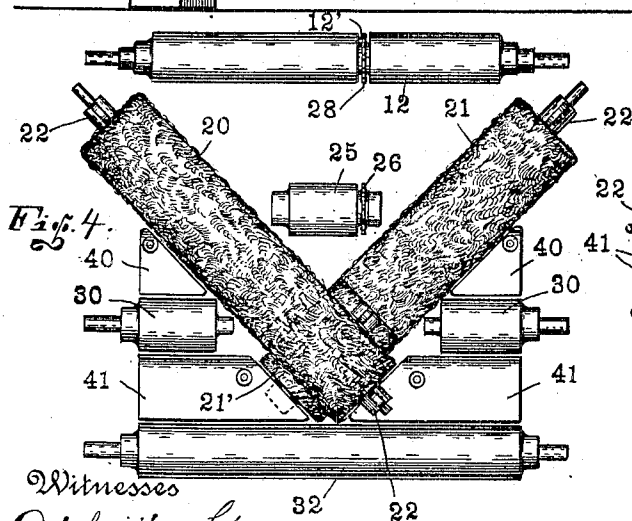
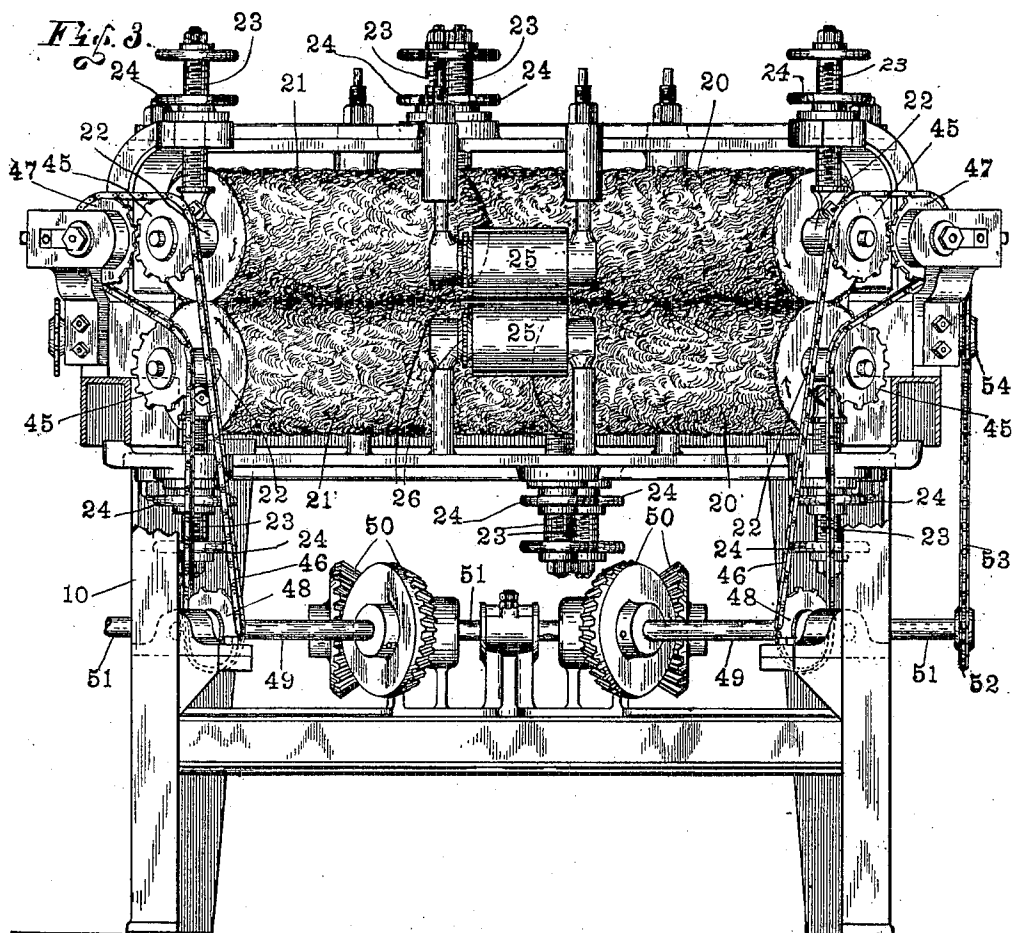
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES B. BAIRD, OF CANTON, OHIO.

MACHINE FOR CLEANING AND POLISHING METAL PLATES.

No. 837,375.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed May 20, 1905. Renewed May 22, 1906. Serial No. 318,231.

To all whom it may concern:

Be it known that I, JAMES B. BAIRD, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Machines for Cleaning and Polishing Metal Plates, of which the following is a specification.

In the manufacture of tin-plate after the iron plate has been coated with tin it is necessary to treat the plates to a bath of sawdust or other absorbent in order to remove the oil from the surfaces and then to rub both faces of the plate in order to polish them and remove all traces of the absorbent.

The object of my present invention is to provide a machine for accomplishing this final finishing, the construction being such as to prevent any possibility of scratching.

The accompanying drawings illustrate my invention.

Figure 1 is a plan of a machine embodying my invention; Fig. 2, a side elevation; Fig. 3, a section on line 3 3 of Fig. 2; Fig. 4, a plan of the feed-rolls, rubbing-rolls, and guide-plates, these elements having been disassociated from the framework in order to clearly show the arrangement; and Fig. 5, a side elevation of the parts shown in Fig. 4.

In the drawings, 10 indicates a suitable supporting-framework. At the receiving end of frame 10 is a feed-platform 11, and immediately adjacent this platform are two horizontal feed-rolls 12 12, one of which is arranged immediately above the other. The two rolls 12 are preferably covered with some resilient facing like rubber and are geared together by gears 13 for simultaneous opposite movement. The shaft of the upper roller is carried in suitable bearings 14, which are vertically movable upon standards 15, a spring 16 engaging each bearing and urging it downward with a yielding pressure in order to urge the upper roller toward the lower one. The upper roll of each succeeding pair of feed-rolls (hereinafter mentioned) is also supported by similar bearings 14, standards 15, and springs 16.

Arranged diagonally in front of the two rollers 12 are two pairs of horizontal rubbing-cylinders 20 20' and 21 21'. These rollers are each carried in suitable bearings 22, each of which may be vertically adjusted on the main frame by any suitable means—as, for instance, a screw 23 and nut 24. The cylinders 20 20' and 21 21' are, as previously

stated, arranged diagonally with relation to the feed-rolls 12, the inner ends of the rollers extending forward and toward the medial line of the machine, and the rollers of the two sets overlap—that is, as shown in the drawings, the cylinder 20 overlaps the cylinder 21'. The rollers 21 and 21' are shorter and extend only to a point near the periphery of the other roll of the other pair, as clearly illustrated in Figs. 4 and 5. Arranged in a crotch formed between the two sets of rollers 21 and 21' are two short horizontal feed-rolls 25, one of which is arranged directly beneath the other, with the crotch between the rollers 12 and the rubbing-cylinders. These rollers are each provided with a sprocket-wheel 26, which is connected by a chain 27 with a sprocket-wheel 28, carried by the corresponding feed-roll 12, said feed-roll being interrupted, as at 12', to permit the introduction of the sprocket-wheel 28, said sprocket-wheel being somewhat less in diameter than the diameter of the feed-roll in order that the sprocket-chain 27 may not come into engagement with the surface of the plates.

Located forward of the rubbing-cylinders are short feed-rolls 30, which are arranged in pairs, with their crotches in the horizontal feeding plane, and these feed-rolls are geared together in pairs by gears 31. At the forward end of the machine forward of the apex of the rubbing-cylinders are two feed or rather delivery rolls 32, which are geared together by gears 33 for simultaneous opposite movement, and the crotch between these two rollers 32 is also in the feeding plane. The shaft of one of the feed-rolls 32 carries a sprocket-wheel 34 at each end, and these sprocket-wheels are connected each by a chain 35 with similar sprocket-wheels 36, carried by the shaft of one of the rollers 30. The shaft of one of the rollers 30 also carries a sprocket-wheel 37, which is connected by a chain 38 with a sprocket-wheel 39, carried by the shaft of one of the rollers 12, the arrangement being such that the several pairs of feed-rolls 12, 25, 30, and 32 will be simultaneously and synchronously rotated.

Arranged between the rubbing-drums and the feed-rollers 30 are bed-plates 40, which are supported in any suitable manner from the main frame, and similar guide-plates 41 are arranged between the rollers 30 and 32, the arrangement of these guide-plates being such as to insure the maintenance of the sheets in the feeding plane, so as to properly

enter between the several feed-rolls. Each of the rubbing-drums is provided with a sprocket-wheel 45, and running over these sprocket-wheels, so as to produce the proper rotation thereof, as is indicated by arrows in Fig. 3, is a chain 46, said chain running over an adjustable idler 47 and over a driving-sprocket 48, carried by a shaft 49, which shaft is geared by gears 50 to a main drive-shaft 51. The train of gearing between the main shaft 51 and the rubbing-drums is such that said drums will be moved at a considerably greater peripheral speed than the feed-rolls. The feed-rolls are driven by means of a sprocket 52, carried by shaft 51, and a chain 53, connecting said sprocket 52 with a sprocket 54, carried by a shaft on one of the feed-rolls 32.

In operation the sheets to be treated are fed between feed-rolls 12 and by them are delivered to feed-rolls 25 and the rubbing-cylinders 20 20' and 21 21'. The corners of the incoming sheet almost immediately after leaving the rollers 12 are engaged by the rubbing-drums, and these rubbing-drums, rotating more rapidly than the feeding-rolls, rub from the medial line of the sheet outward, and as these rubbing-drums overlap each other at the medial line of the sheet they serve to polish the sheet thoroughly upon both sides simultaneously. As the forward corners of the sheets emerge from the rubbing-drums they pass between the guides 40, which in case there is any tendency of these corners to drop or to curl up direct the corners between the feed-rolls 30, which pass them along between the guides 41, so that the forward edge of the sheet will enter squarely between the delivering-rollers 32. The delivering-rolls 32 insure a complete withdrawal of the sheet from between the rubbing-drums and discharge the finished sheet upon the receiving-table 60. The sheets may be caused to follow one another in rapid succession through the machine, and as they are polished upon both sides simultaneously the operation is very rapid.

I claim as my invention—

1. In a machine for polishing sheets, the combination, with feeding means, of two polishing-drums each extending to about midway of the machine where they meet and each provided on its surface with polishing material, said drums arranged at an angle to each other and diagonal to the line of travel of the sheets, means for rotating said drums, and feeding means for driving the sheets through the machine.

2. In a sheet-polishing machine, the combination, with feeding means, of two pairs of polishing-drums between which the sheet is driven, the drums of one pair arranged at an

angle to the other pair and both arranged at an angle to the line of travel of the sheet, and means for rotating said drums.

3. In a machine for polishing sheets, the combination, with feed-rolls arranged in pairs between which the sheets may pass, means for urging one roll of each pair toward its fellow, a polishing-drum arranged adjacent the plane of travel of the sheets and at an angle to the line of travel, and means for driving said polishing-drum.

4. In a sheet-polishing machine, the combination, with sheet-feeding means, of a pair of polishing-drums arranged one upon each side of the plane of travel of the sheets and at an angle to the line of travel thereof, means for bringing said polishing-drums into operative position with relation to the plane of travel, and means for driving said drums.

5. In a sheet-polishing machine, the combination, with sheet-feeding means, of two pairs of polishing-drums the drums of each pair arranged on opposite sides of the plane of travel of the sheets and at an angle to the line of travel thereof, and means for driving said drums.

6. In a sheet-polishing machine, the combination, with sheet-feeding means, of two pairs of polishing-drums, the drums of each pair arranged on opposite sides of the plane of travel of the sheets and at an angle to the line of travel thereof and one drum of each pair overlapping a drum of the other pair at the medial line in the plane of travel of the sheet and means for driving said drums.

7. In a sheet-polishing machine, the combination, with sheet-feeding means, of two polishing-drums arranged adjacent the plane of travel of the sheets, the said two drums arranged at an angle to each other and at an angle to the line of movement of the sheets and one drum overlapping the end of the other drum at a medial line of the sheet travel, and means for driving said polishing-drums.

8. In a polishing-machine, the combination, with sheet-feeding means, of two polishing-drums extending diagonally across the plane of travel of the sheets and adjacent thereto and at an angle to each other with the apex of the V thus formed in advance of the base, and means for driving said polishing-drums in the same direction as the direction of travel of the sheets but at a greater speed.

In witness whereof I have hereunto set my hand and seal, at Canton, Ohio, this 15th day of May, A. D. 1905.

JAMES B. BAIRD. [L. S.]

Witnesses:

WILLIAM L. DAY,
JOSEPH F. REBILLOT.