

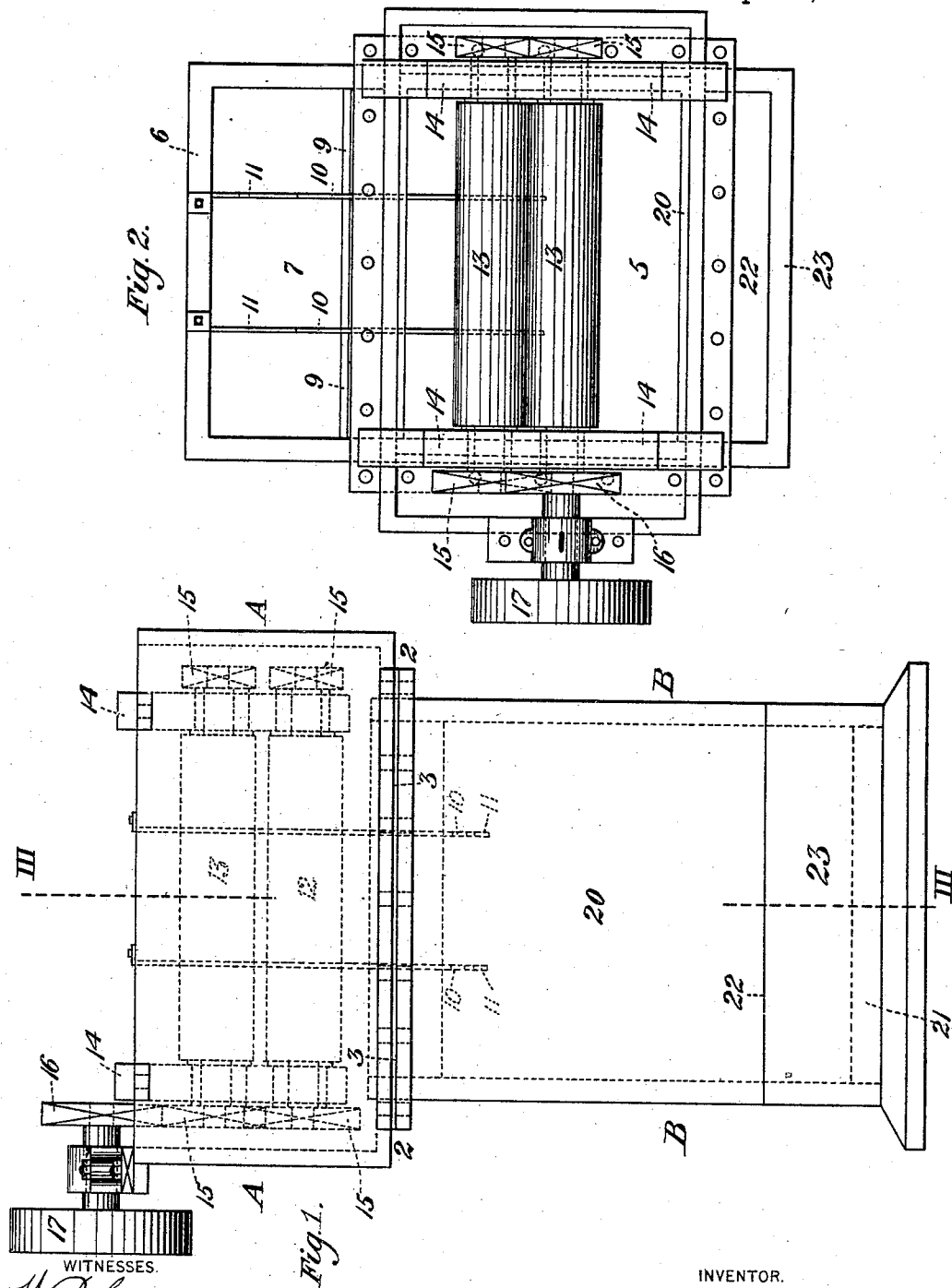
(No Model.)

2 Sheets—Sheet 1.

E. R. JONES.
APPARATUS FOR COATING METAL PLATES.

No. 472,502.

Patented Apr. 5, 1892.



WITNESSES.
W. B. Carson.
Philip G. Fenderson.

INVENTOR.
Edwin R. Jones
by his attorney
H. P. Potter

(No Model.)

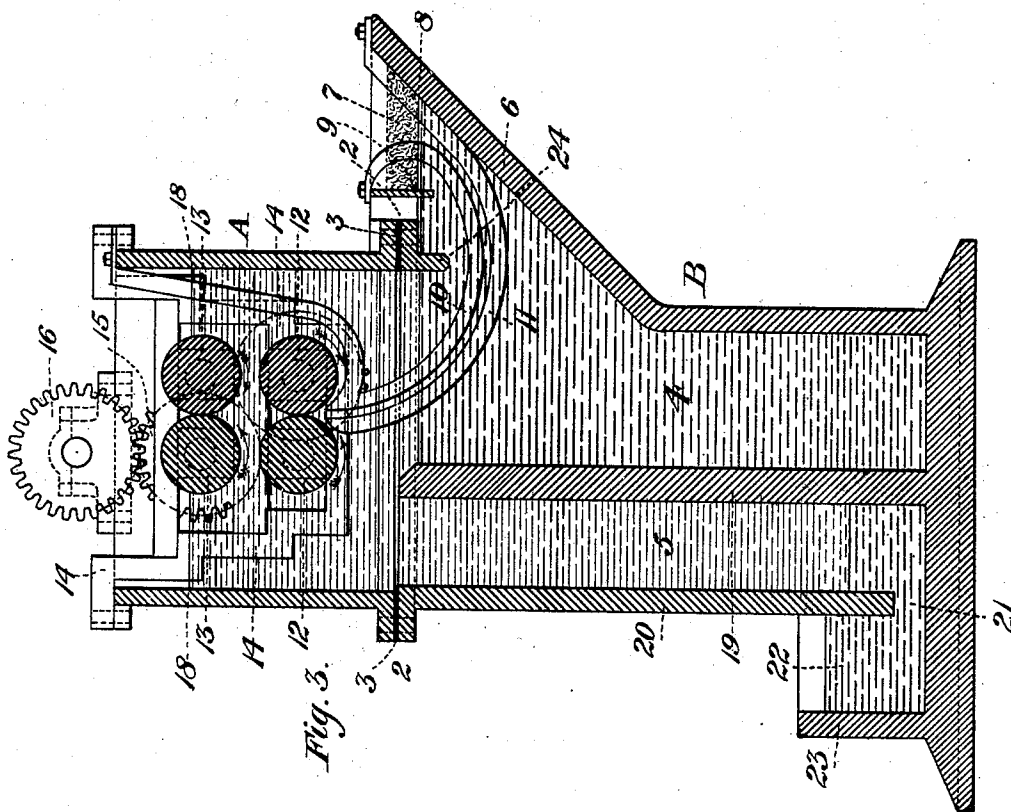
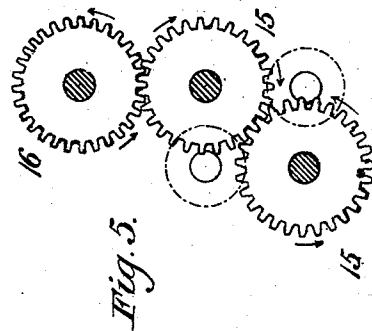
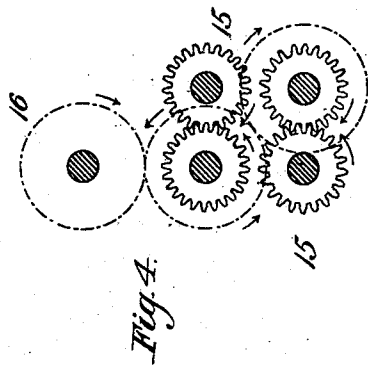
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H. P. Potter

UNITED STATES PATENT OFFICE.

EDWIN R. JONES, OF SWISSVALE, PENNSYLVANIA.

APPARATUS FOR COATING METAL PLATES.

SPECIFICATION forming part of Letters Patent No. 472,502, dated April 5, 1892.

Application filed May 9, 1891. Serial No. 392,204. (No model.)

To all whom it may concern:

Be it known that I, EDWIN R. JONES, a citizen of Great Britain, but at present a resident of Swissvale, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Apparatus for Coating Metal Plates; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which, like letters indicating like parts—

Figure 1 is an end elevation of my improved plating-machine from the back or opposite side from where the plate is introduced. Fig. 2 is a plan view. Fig. 3 is a vertical sectional view on the line III III of Fig. 1. Fig. 4 is a diagrammatic view illustrating the arrangement of the gearing on the driving side. Fig. 5 is a similar view from the opposite side.

The object of my invention is to provide effective means for coating plates of iron with tin or other metals or alloys known to the arts, and in a general way the operation is substantially the same as at present employed, inasmuch as it consists in immersing the plate to be tinned in the various ingredients in succession; but such a method as at present practiced is attended with delay and expense, and it is these features which I seek to overcome in my machine, for, as hereinafter described, it will be seen that the process is direct and continuous and unattended by exposure to the air.

As shown in Figs. 1 and 3, the machine consists of an upper section A and lower section B, which for convenience of construction are bolted together at 2, preferably having between them for the purpose of tightly joining them an asbestos packing 3. The lower section B consists of two principal compartments, the front or tinning bath 4, and the grease-pot 5. A forwardly and upwardly inclined wall 6 serves to form a pocket for the reception of the flux 7, which being of a lighter specific gravity than the tin will float upon it, as shown. The line of contact of the tin and flux is indicated at 8. Back of the wall 6 is a vertically-depending partition 9, which projects a short distance into the molten tin and serves as a retaining-wall.

As shown in the drawings, I employ guides 10 11, secured to the frame-work of the pot, for the purpose of directing the plates, first, after passing through the flux 7, downwardly into the molten tin 4 and then upwardly to the squeezing-rolls 12 12 and 13 13. These rolls are adjustably mounted in the frame-work 14 and are rotated by the gearing 15 16 and pulley 17. As shown, the entire frame-work carrying the rolls and gearing is immersed in the oil up to the line 18. A partition 19 is situated approximately in the center of the lower section B and serves to separate the tin and oil, while the back wall 20 extends to within a short distance of the bottom of the pot, leaving an opening 21. A small pocket 22 is formed by an upward extension 23, and the object of this construction is to provide for the tin that falls from the plates in passing through the rolls. As the tin accumulates in the bottom of the oil-compartment 5, as hereinafter described, it is ladled out of the pocket 22 and returned to the compartment 4; but a sufficient amount is always allowed to remain to form a seal to prevent the escape of the oil. It is necessary at all times to retain the oil in the position shown in the drawings, and to prevent it from escaping into the flux-chamber a downwardly-projecting partition 24, which extends across the entire width of the machine, is cast integral with the lower section, as shown. The presence and location of the partition 24 is important and necessary to the successful operation of my machine, as it serves to prevent the escape of the oil and to maintain the proper operative positions of the oil and tin, and it is one of the features of my invention which I desire to claim. The machine is designed to rest upon a suitable furnace construction so that the oil and tin may be kept at a proper temperature for the operation of tinning, and this construction will readily be understood without illustration by those skilled in the art.

The operation of my improvement is as follows: The plates to be coated after the process of pickling are introduced into the flux 7 at the front of the machine and are pushed down through it into the molten tin and between the curved guides 10 and 11, which di-

rect the plate up to and into contact with the first pair of rolls 12 12. In their passage through the molten tin a sufficient amount will be deposited upon the plate for the purpose of coating it before it is grasped by the rolls. The rolls are adjusted so as to take a firm hold on the plate and are rotated in the direction of the arrows shown in Figs. 3 and 4 by the gearing 15 16 and pulley 17, and in their operation they will slowly raise the plate, the first and second pairs 12 12 and 13 13 acting in unison until it is withdrawn from the tin, passed through the upper bath of oil, and finally discharged from the machine.

It is designed to have the rolls adjusted so that by their pressure upon the plate they will squeeze off any surplus tin, and part of such will be thrown over into the compartment 5 and will fall into pocket 22, passing down through the intervening oil. As this tin accumulates it may be ladled out and returned to the main tinning-bath, care being taken to always keep sufficient tin in the pocket to seal the opening 21, as already described.

By my improved construction I am enabled to accomplish the process of tinning quickly and without atmospheric exposure, and by the arrangement of the various compartments and baths and of the squeezing-rolls and gearing it will be seen that a minimum amount of the material is required, thereby effecting a great saving in the operation.

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

1. In a machine for coating plates with tin or other metals or alloys, the combination of a lower section consisting of a base and front, rear, side, and intermediate walls, said rear wall terminating at a point above the base, the latter extending rearwardly from the rear wall and having a short upwardly-extending flange inclosing a chamber, an upper section having journaled therein a series of squeezing-rolls, and means for directing the plates downwardly into the chamber in the front portion of the lower section and thence up-

wardly to the squeezing-rolls, substantially as set forth.

2. In a machine for coating plates with tin or other metals or alloys, the combination of a lower section consisting of a base and front, side, rear, and intermediate walls, the front wall being inclined forwardly and upwardly and the rear wall terminating at a point above the base, which latter is extended beyond said rear wall and provided with a short upwardly-extending flange inclosing a chamber, a vertically-depending partition located back of the upper end of the upwardly and forwardly extending wall, forming a flux-pocket, an upper section having journaled therein a series of squeezing-rolls, and guides secured to the frame-work for directing the plates through the flux-pocket, downwardly into the chamber in the front portion of the lower section, and thence upwardly to the squeezing-rolls, substantially as set forth.

3. In a machine for coating plates with tin or other metals or alloys, the combination of a lower section consisting of a base and front, rear, side, and intermediate walls, the front wall being inclined upwardly and forwardly and the rear wall terminating at a point above the base, which latter is extended beyond the rear wall and provided with a short upwardly-extending flange inclosing a chamber, said lower section being further formed with a depending partition extending across the entire width of the machine, a vertically-depending partition located intermediate the first-named partition and the front inclined wall and forming a flux-pocket, an upper section having journaled therein a series of squeezing-rolls, and means for directing the plates through the flux-pocket, downwardly into the chamber in the front portion of the lower section, and thence upwardly to the squeezing-rolls, substantially as set forth.

In testimony whereof I have hereunto set my hand.

EDWIN R. JONES.

Witnesses:

W. B. CARSON,
WM. A. STONE.