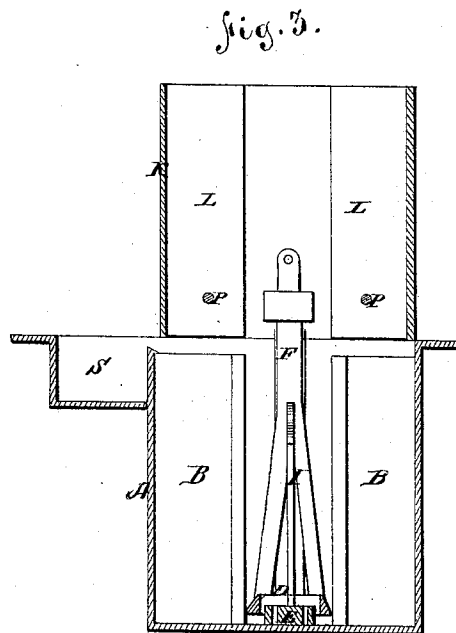
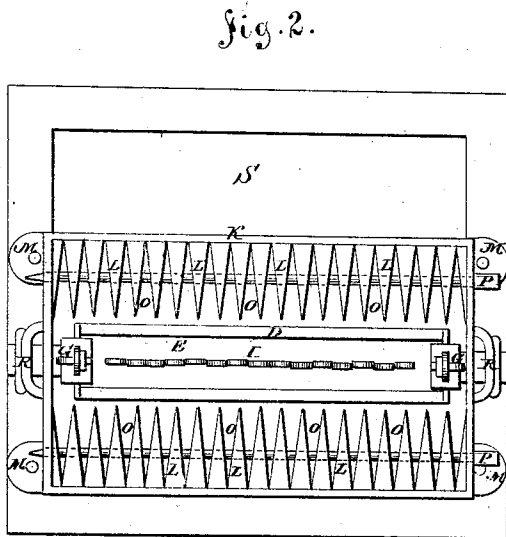
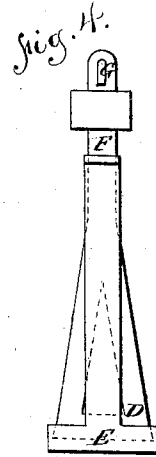
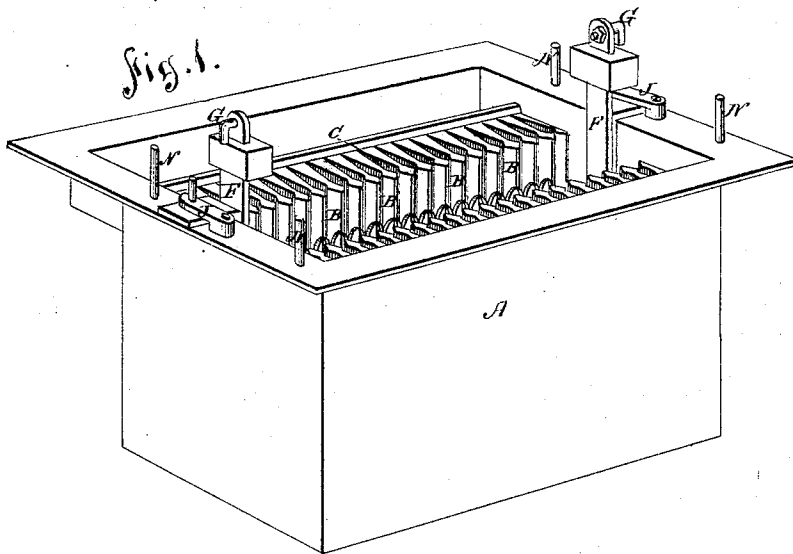


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Improvement in Apparatus for Coating Sheet-Iron with Tin.
No. 127,580.

Patented June 4, 1872.



Witnesses.
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J. H. Ellsworth.

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UNITED STATES PATENT OFFICE.

WILLIAM OAK DAVIES, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR COATING SHEET-IRON WITH TIN.

Specification forming part of Letters Patent No. 127,580, dated June 4, 1872.

To all whom it may concern:

Be it known that I, WILLIAM OAK DAVIES, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented an Improved Apparatus for Coating Sheet-Iron with Tin or Terne Metal; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a perspective view of the coating vessel or bath, with the upper frame or rack removed. Fig. 2 is a plan view, showing the frame or rack in place. Fig. 3 is a section through line *x x*, Fig. 2; and Fig. 4 is an end elevation of the spring holder and lifter.

Similar letters of reference in the accompanying drawing denote the same parts.

The object of this invention is to provide for public use a cheap and convenient apparatus, by means of which a large number of sheet-metal plates can be simultaneously coated with tin or other suitable substance, so as to produce a good coating of bright, durable color, at less expense in the matter of time, labor, and material than heretofore. To this end the invention consists in an apparatus for holding a series of metal plates in a vertical position and parallel with each other in a suitable vessel during the process of depositing the coating upon their surfaces, and subsequently removing the same from the vessel to be replaced by others, and during the entire operation keeping the freshly-coated surfaces of the plates from coming in contact with each other. The apparatus consists, first, in a kettle or vessel in which the flux is held, said vessel being provided with two series of tongues projecting toward the center from the opposite sides, the spaces between the tongues forming vertical grooves parallel with each other, those of one side being in line with those opposite, and constituting receptacles for the ends of the plates aforesaid, each plate extending from a groove on one side to the corresponding opposite groove, the whole series, when the grooves are filled, being thus held parallel with each other. Secondly, in a removable frame or lifter, resting on a secondary frame which is located on the bottom of the vessel above mentioned, both frames extending longitudinally of said vessel midway of the space between the tongues at right an-

gles with and under the plates of metal when in place, the lifter being provided at each end with a vertical standard, which projects out of the vessel and furnishes a handle for withdrawing the lifter therefrom; the secondary frame being provided with a series of flexible metallic strips which project upward between the series of tongues of the vessel, and correspond in position with the same, their upper ends being bent into circular heads or springs, which bear closely against and serve to hold the central portions of the plates, and thereby prevent the same from coming in contact with each other; and thirdly, in a removable frame or rack, located above the vessel or pot, provided with tongues and grooves which exactly register with those of the latter, and constituting a receptacle for draining and removing the freshly-coated plates, the same being elevated into the frame or rack by the lifter and held by longitudinal rods introduced under the plates after they are raised sufficiently far.

In the drawing, A represents a rectangular vessel, in which the tin or other flux is held, provided on its opposite sides with tongues B that taper toward their points, where they are provided with enlargements, as shown in Fig. 1. Between the tongues B are grooves C, those in one series being exactly in line with those opposite, so that when a plate of metal of sufficient width is introduced transversely into the vessel its ends are held by two opposite grooves, C. D represents a lifting-frame, which rests loosely upon a bed or spring-holder, E, and this latter rests upon the bottom of the vessel A, extending longitudinally of the same along the center, as shown in Figs. 2 and 3. The lifting-frame D is provided at its ends with the vertical standards F, which project above the top of the vessel A and have hooks G on their upper ends with which chains or other lifting devices are engaged. I represents a series of flexible metallic strips, projecting upward from the bed or holder E nearly to the top of the vessel A, where they are bent into bows or loops which bear against each other, the bearing surfaces being in line with the grooves C. At the ends of the bed E are vertical standards which project to the upper edge of the vessel A, where they are bent outward and held in place by clamps or buttons J, as shown in Fig. 1. K is a removable rack or

frame which rests upon the vessel A, as shown in Figs. 2 and 3. A series of pointed tongues, L, corresponding in number and position to those of the vessel A, project from the sides of the frame K, and are caused to register with the tongues B by flanges or ears M, which engage with pins N on the vessel A, so that the grooves O between the tongues L become continuous with the grooves C below. P P are horizontal rods, which are inserted through rows of orifices in the tongues L and are readily removed. The frame K is provided with handles R, for convenience in lifting. S represents a small tank or trough, located at one side of the vessel A, which tank is intended to contain a supply of flux or grease to be used as occasion requires.

The operation of my invention is as follows: A sufficient quantity of tin or other flux is placed in the vessel A, and the grooves C are filled with plates of metal to be coated, the plates being held parallel with each other and kept from contact at all points at the ends by the tongues B, and at the center by the spring bows or loops I, one of which intervenes between every two plates. It will be seen that the plates rest across the lifting-frame D, and, accordingly, when motive power is applied to the latter sufficient to raise it, the entire series of plates will be also raised until they are elevated into the grooves O of the frame K above the orifices for the rods P. The rods are then inserted and constitute rests for said plates, preventing their return to the vessel A. The frame D is then lowered to its former position. After allowing the plates to remain in this position a sufficient length of time for the superfluous metal to drain off the frame K is removed,

and a fresh supply of plates is placed in the vessel A, as above described. After the removal of the coated plates the rods P are removed, the frame D replaced, and the operation is repeated.

This arrangement greatly facilitates the operation of producing tinned plates, and prevents any injury to the freshly-prepared surfaces by the contact of one plate with another, as it will be seen that they are at all times held apart.

The lifting-frame is raised and lowered by a horizontal shaft located above the apparatus, operated by any suitable power, and connected to the hooks G by chains or ropes.

Having thus described my invention, what I claim is—

1. A vessel for coating metal plates with tin or other flux, having tongues projecting from opposite sides, between which the plates are supported transversely during the coating operation, substantially as described, for the purposes specified.

2. The vessel A, constructed as described, in combination with the tongued removable rack K and lifting-frame D, substantially as and for the purpose set forth.

3. The vessel A, constructed as described, in combination with the bed E having springs I I, substantially as described.

4. The rods P P, in combination with the rack K and its tongues L, substantially as and for the purposes set forth.

WM. OAK DAVIES.

Witnesses:

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