(No Model.) 2 Sheets—Sheet 1.

R. J. HUTCHINGS.

MANUFACTURE OF TIN, TERNE, AND METAL PLATES.

No. 245,723. Patented Aug. 16, 1881.

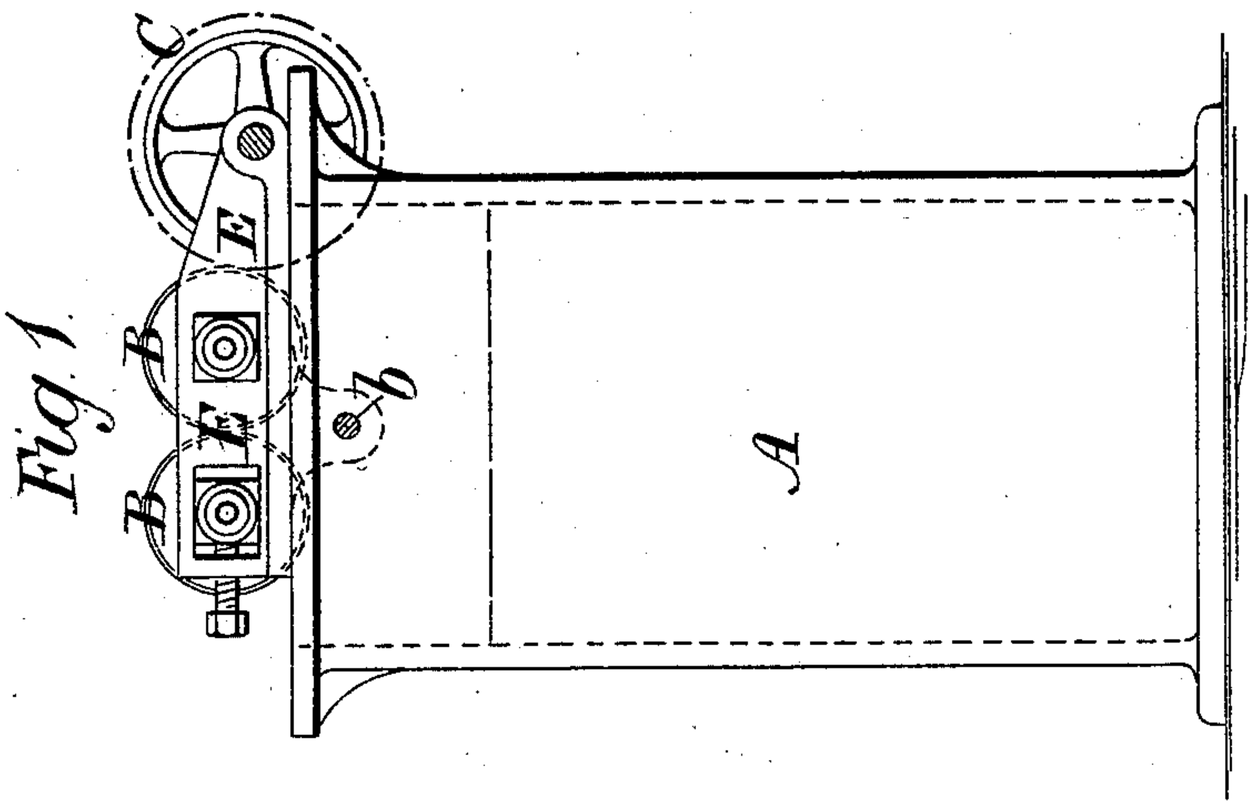

Fig. 1.

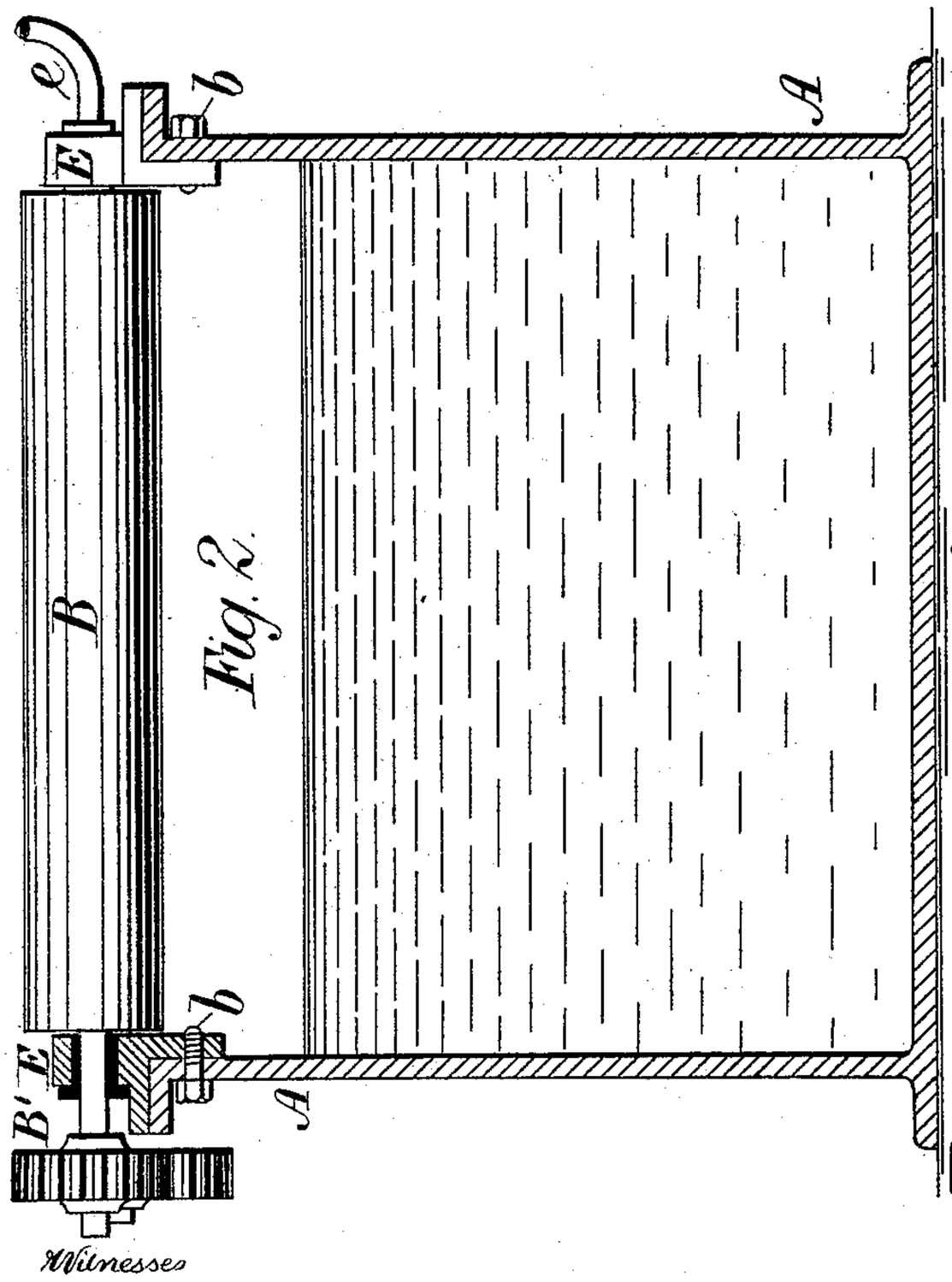

Fig. 2.

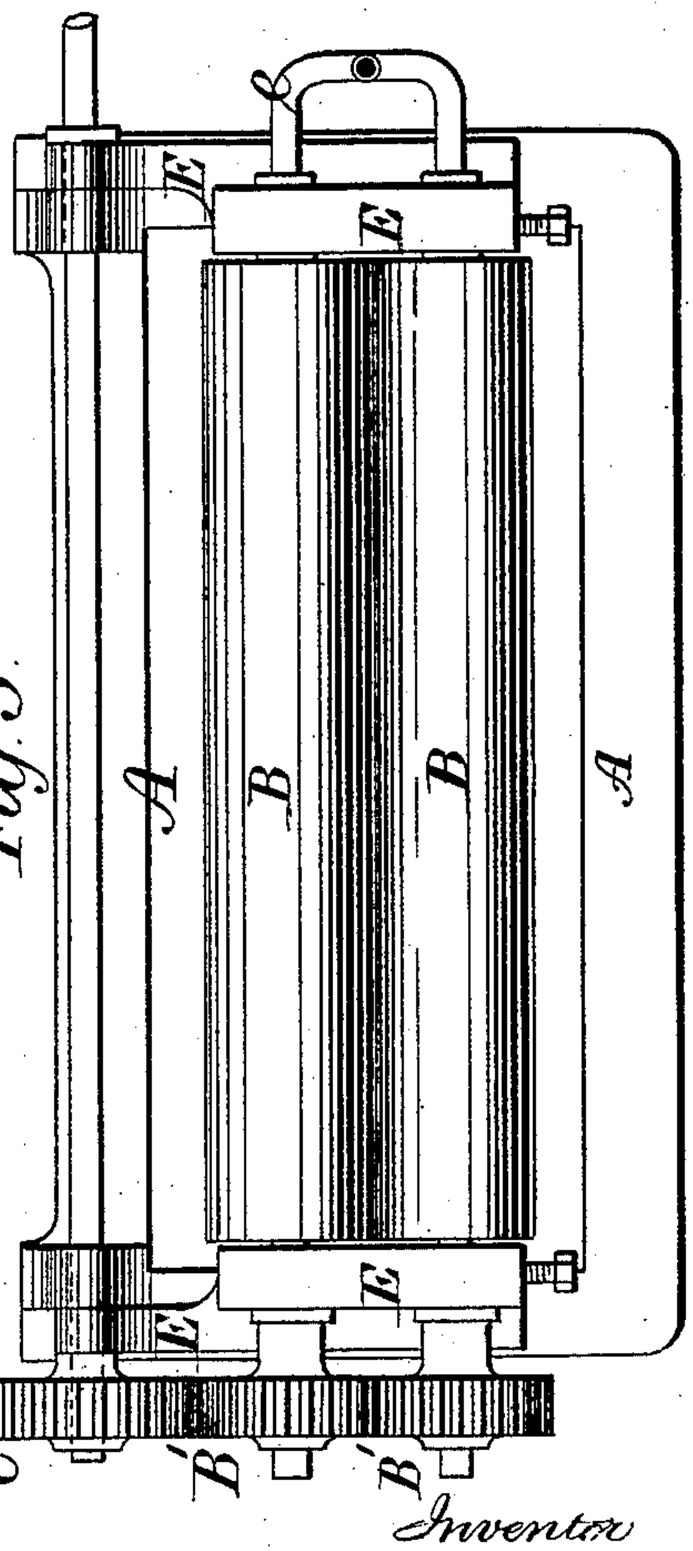

Fig. 3.

Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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MANUFACTURE OF TIN, TERNE, AND METAL PLATES.

No. 245,723. Patented Aug. 16, 1881.

Fig. 5

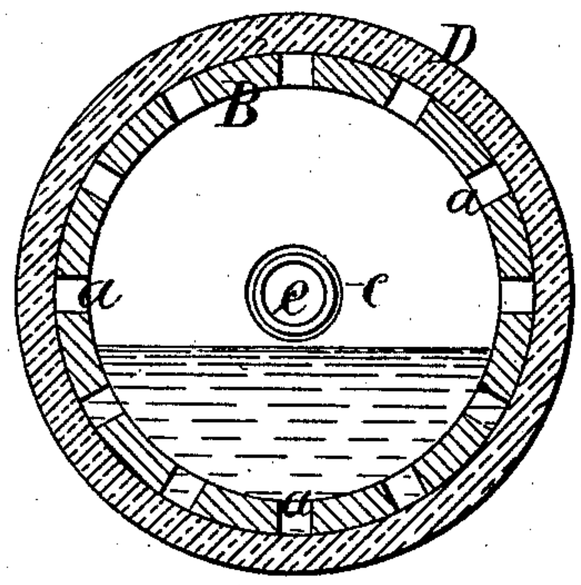


Fig. 4.

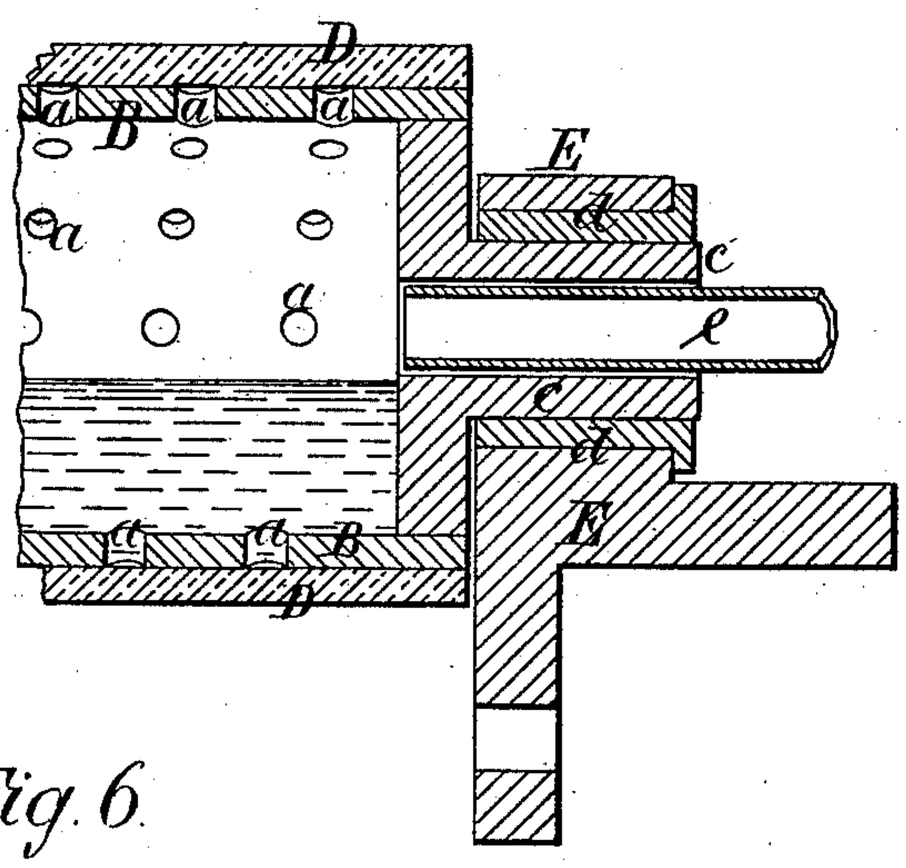


Fig. 6.

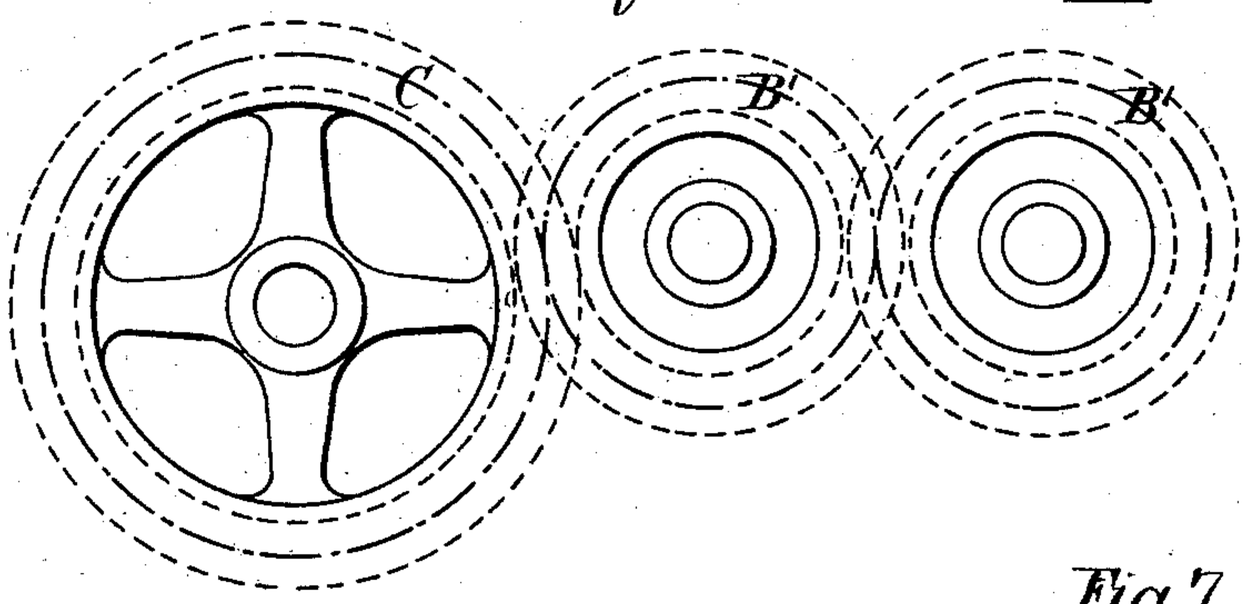


Fig. 7.

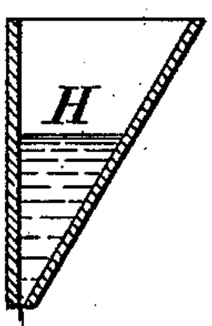
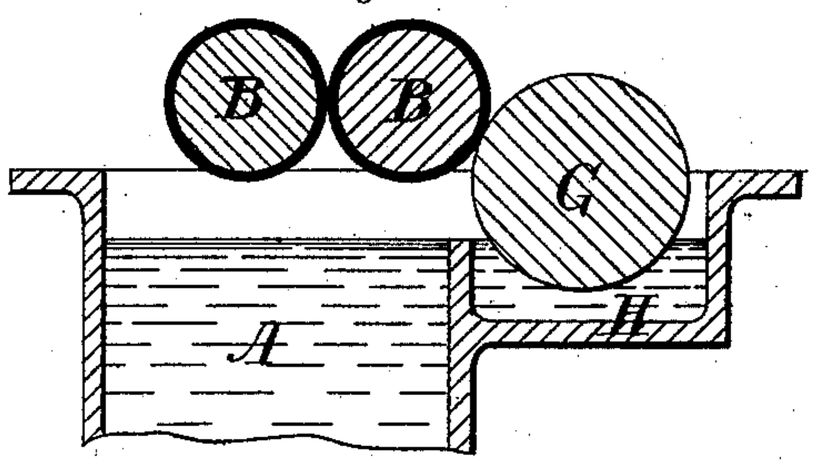
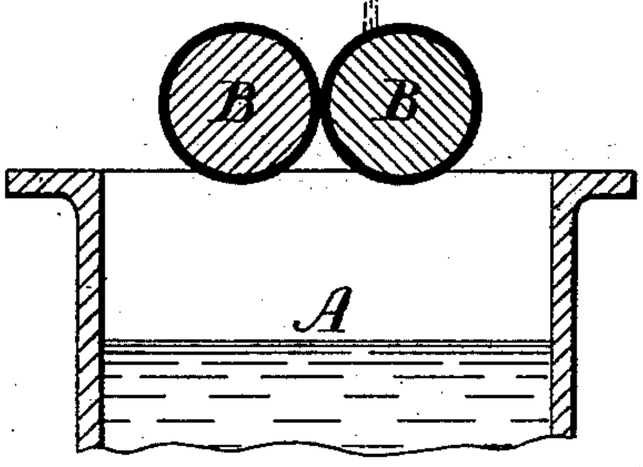


Fig. 8.





Witnesses

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UNITED STATES PATENT OFFICE.

RICHARD J. HUTCHINGS, OF SWANSEA, SOUTH WALES.

MANUFACTURE OF TIN, TERNE, AND METAL PLATES.

SPECIFICATION forming part of Letters Patent No. 245,723, dated August 16, 1881.

Application filed April 11, 1881. (No model.) Patented in England June 26, 1876.

To all whom it may concern:

Be it known that I, RICHARD JAMES HUTCHINGS, of Swansea, South Wales, have invented new and useful Machinery used in the Manufacture of Tin, Terne, and Metal Plates, (for which I have obtained a patent in Great Britain 26th June, 1876, No. 2,632,) of which the following is a specification.

The preliminary operation to which the plates are subjected before being immersed in a bath containing tin or terne metal is by fluxing them, which it has been customary heretofore to do by two operations—videlicet, by immersing the plates in a bath of flux preparatory to their being conveyed to the bath containing the coating metal. Now, according to this invention, the flux or preliminary greasing pot is dispensed with and the plates, instead of being immersed in the flux or grease pot, are passed between a pair of rolls which are situated immediately above the bath or tinman's pot.

The invention will be best understood by reference to the accompanying drawings, and convenient ways of carrying the same into effect are as follows.

Figure 1 is a side elevation; Fig. 2, a front elevation, partly in section; and Fig. 3, a plan of machinery constructed according to one arrangement. A is the bath containing the coating metal. B B are the fluxing-rolls, to which rotary motion is given by the spur-gearing B′, B′, and C. The rolls are preferably cylindrical, to contain a supply of oil, and they are in this arrangement provided with apertures or perforations by which the oil or fluxing agent is admitted to a porous absorbent material surrounding the said rolls.

Fig. 4 is a part-section at one end of such a roll constructed in this manner, drawn on a larger scale than the rolls shown in the previous figures. B is the roll proper, made preferably of wrought-iron tubing, and provided with perforations *a*. D is the absorbent material—such as felt—surrounding the said roll. E E are the brackets containing the bearings for the rolls B B. The said brackets E at one end fit around the driving-shaft F, and when at work are secured to the pot A by pins or bolts *b*, and when these are removed the rolls can be turned back upon the driving-shaft F, which forms a hinge, so as to leave the mouth of the pot open; but in some cases, when so turned back, they fit on another pot which contains another supply of molten metal. *c* is a hollow shaft at one end of the cylindrical roll, working in the bush or bearing *d*, and at the same time allowing of the admission or insertion of the pipe *e* from a tank or reservoir, by which the fluxing-grease is fed to the interior of the rolls and its supply regulated by a tap or otherwise. The pipe *e* may be of india-rubber tubing. These coating-rollers are driven by spur or other gearing and simultaneously flux the plate, and immediately after deliver and immerse it in the bath of metal below.

Fig. 6 is a part side elevation of the wheels B′ B′ and driving-wheel C drawn to a larger scale.

The coating or fluxing of the plates by the before-described means (and preparatory to their being coated with metal) has been found very successful and effectual in work, as the grease or flux is applied so thoroughly and evenly and brought into such intimate contact with the surface of the plate that any further fluxing or greasing in the course of the coating operation is unnecessary, and the plate will take a sufficient coating of metal with a less number of immersions in the metal baths than heretofore. Consequently the number of metal baths may be considerably reduced, and one apparatus of the construction shown and described may be employed for two sides or sets—that is, one tinning apparatus with one pair of rolls will produce sufficient work to supply two washmen or two sets or sides, one tinman supplying both sets or sides with coated plates for the further operations of washing, brushing, and finishing.

Instead of the rollers being made hollow they may be made solid and coated with the absorbent material, the flux or grease being supplied to one or it may be both rollers by a hopper above one roll.

Fig. 7 is a cross-section of such arrangement. A is the metal bath; B B, the rolls, and H the hopper.

Fig. 8 is a cross-section of another modification, but where the flux is applied by a roller dipping in a trough containing fluxing material and supplying one roller. A is the metal

pot; B B, the rolls; G, the flux feed-roll, and H the trough containing the grease.

I do not confine myself to one pair of fluxing-rolls, as more than one pair may be employed, if necessary.

I claim as my invention—

1. In an apparatus for coating metallic sheets with tin or other metal, the combination, with pot containing the melted coating metal, of rollers having porous or absorbent surfaces, and means for supplying flux or grease to the same, substantially as set forth.

2. In an apparatus for coating metallic sheets with tin or other metal, the combination, with the coating-pot, of hollow perforated rolls for receiving grease or flux, and an absorbent envelope around such rolls, substantially as specified.

3. In combination with the coating-pot, the rolls for applying flux or grease to the sheets, hinged bracket-bearings for such rollers, and the driving-shaft and gearing, substantially as specified.

R. J. HUTCHINGS.

Witnesses:

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