

(No Model.)

2 Sheets—Sheet 1.

H. F. TAYLOR & W. P. STRUVÉ.
APPARATUS FOR COATING PLATES WITH TIN.

No. 460,685.

Patented Oct. 6, 1891.

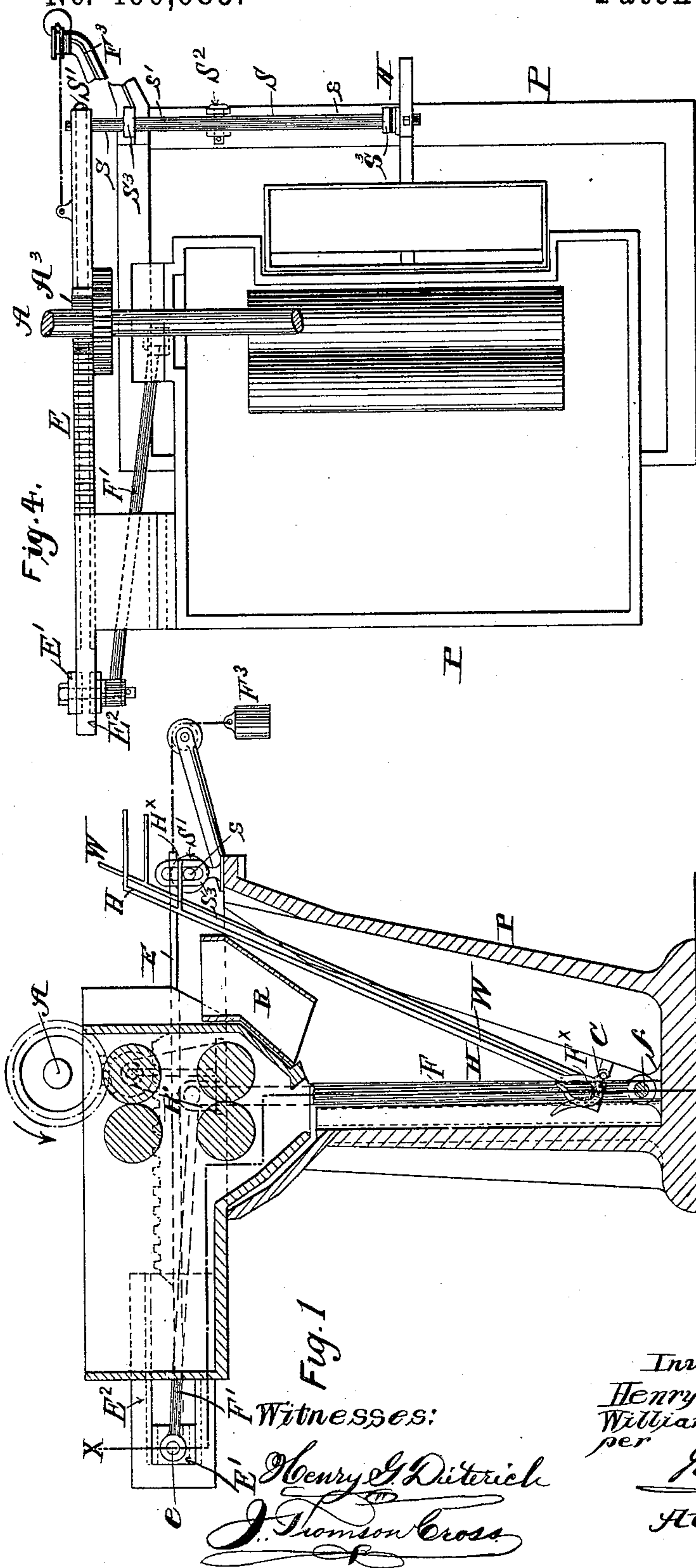


Fig. 1

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J. Thomson Cross

Inventors
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per
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Attorney:

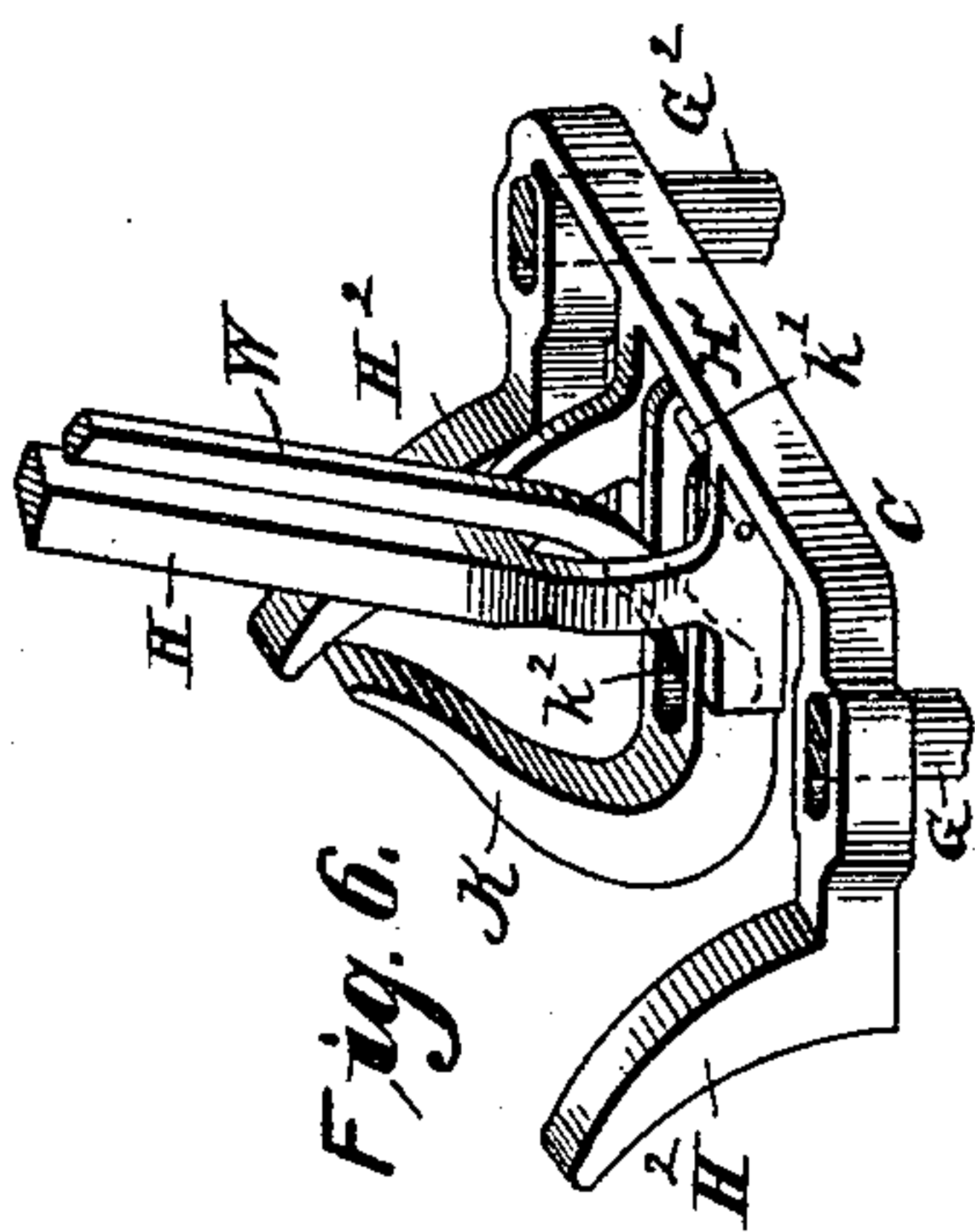


Fig. 6.

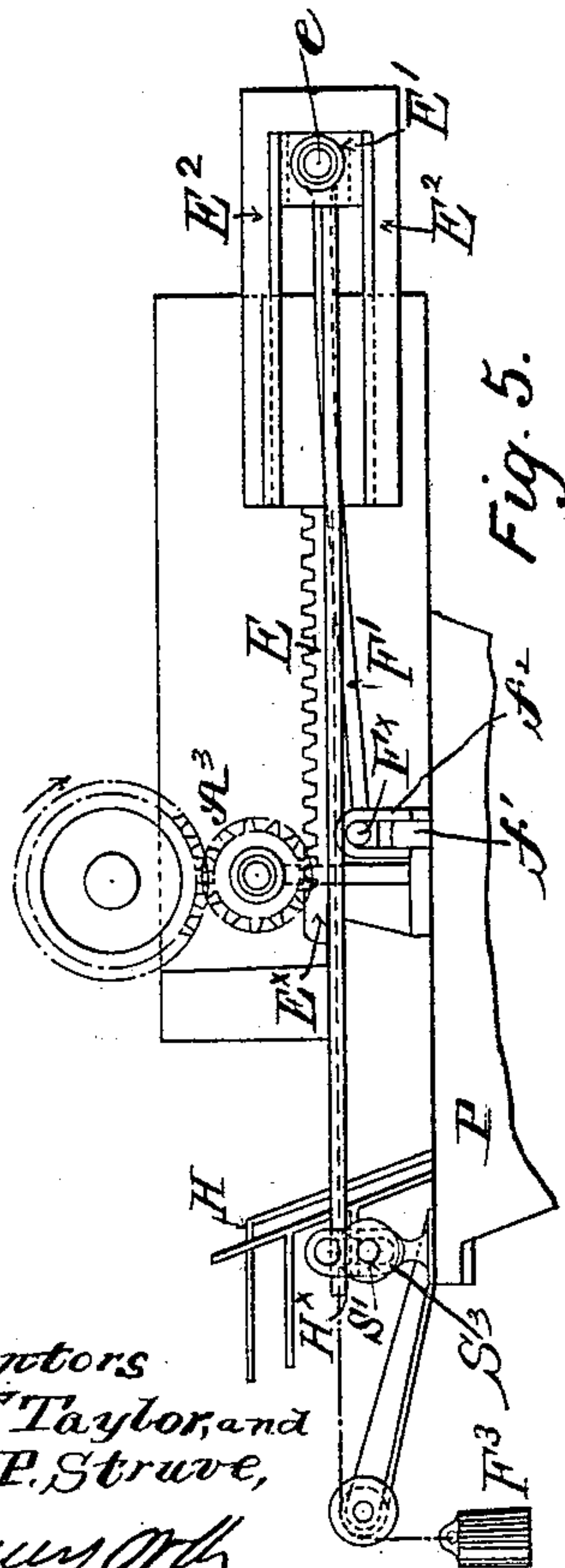


Fig. 5.

(No Model.)

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Fig. 3.

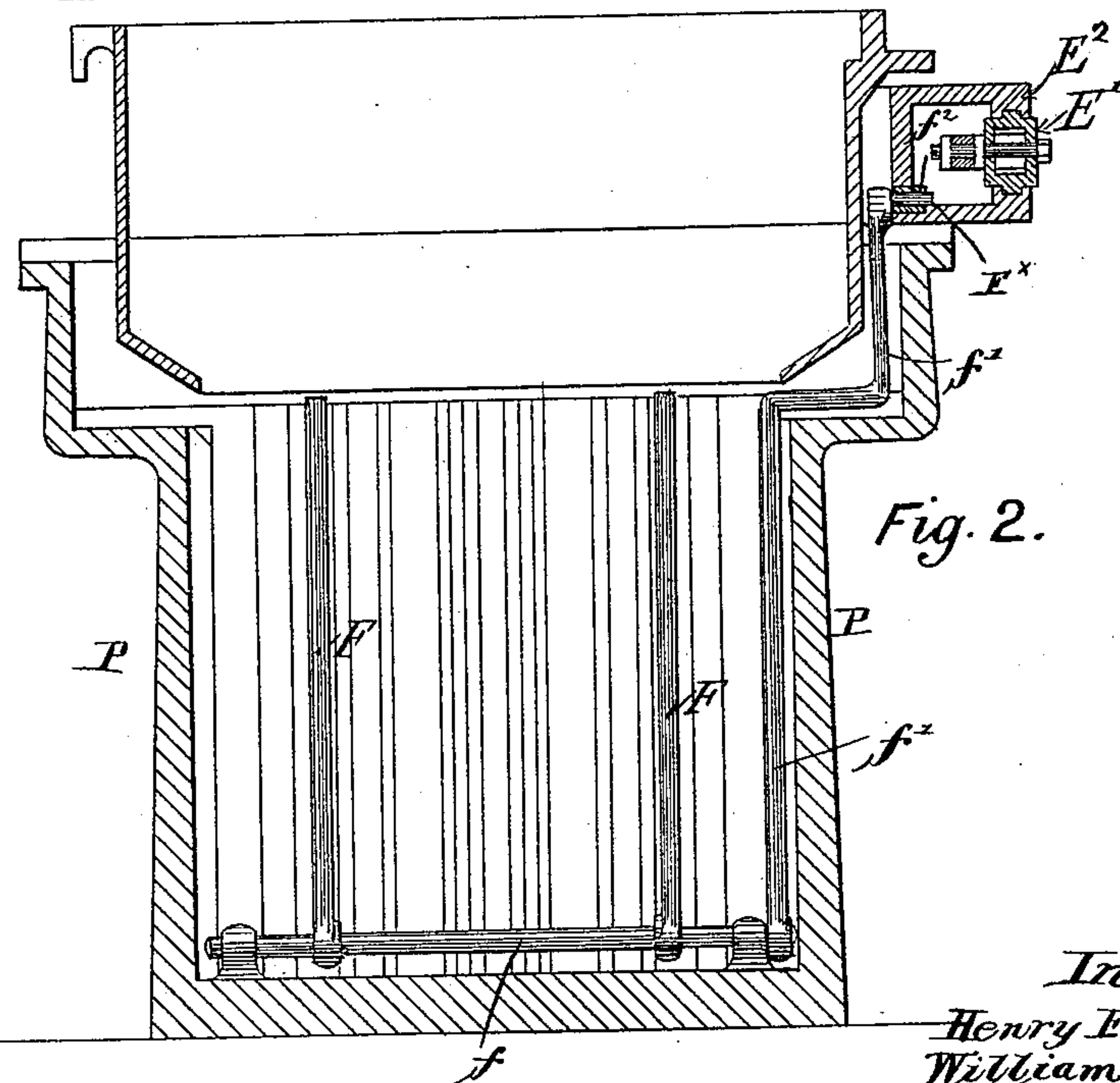
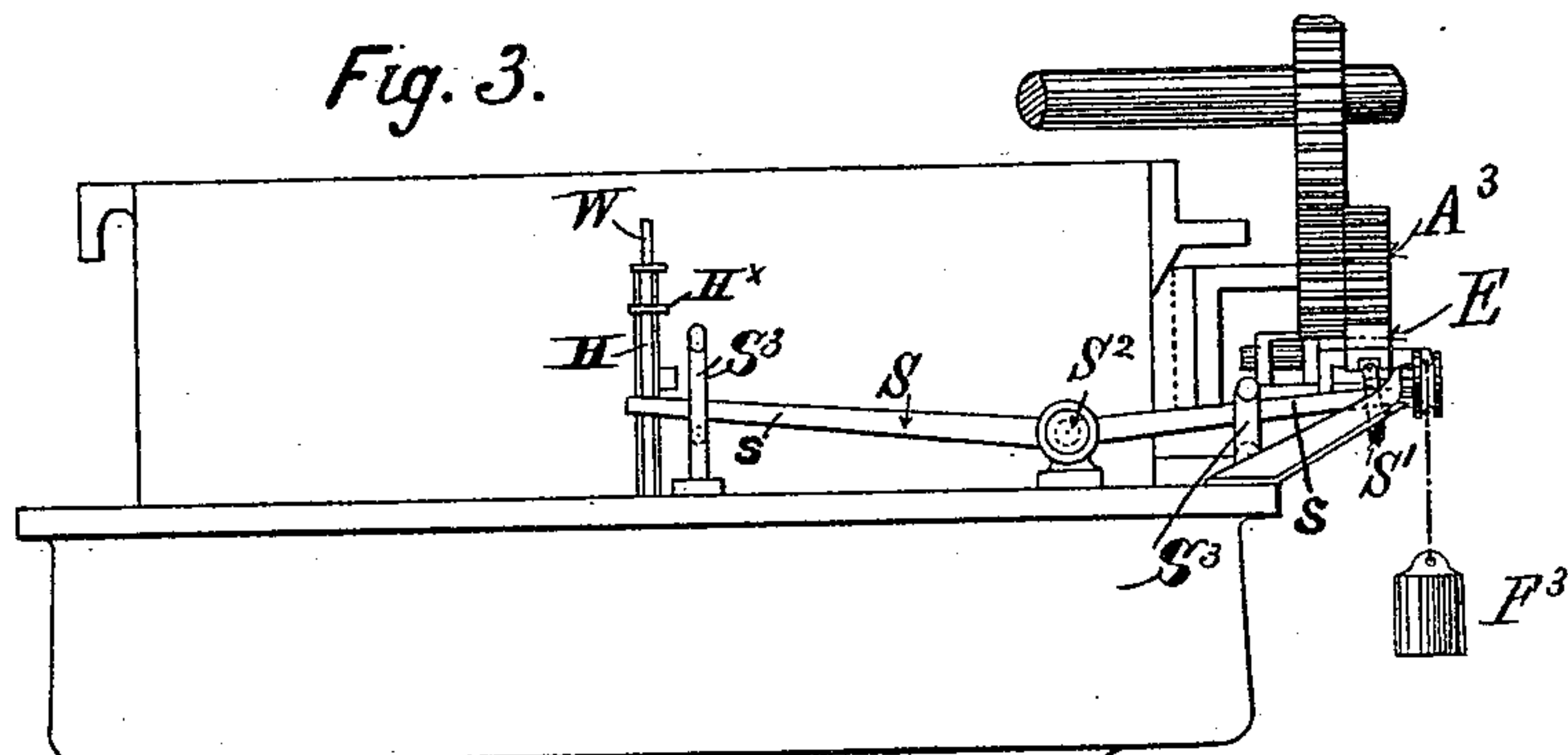


Fig. 2.

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UNITED STATES PATENT OFFICE.

HENRY FRANCIS TAYLOR AND WILLIAM PEDDIE STRUVÉ, OF BRITON FERRY, ENGLAND.

APPARATUS FOR COATING PLATES WITH TIN.

SPECIFICATION forming part of Letters Patent No. 460,685, dated October 6, 1891.

Application filed September 21, 1889. Serial No. 324,646. (No model.)

To all whom it may concern:

Be it known that we, HENRY FRANCIS TAYLOR and WILLIAM PEDDIE STRUVÉ, subjects of the Queen of Great Britain, both residing at Briton Ferry, in Wales, have invented certain new and useful Improvements in Apparatus for Coating with Tin, Lead, or other Metals or Alloys, of which the following is a specification, reference being had to the accompanying drawings.

In the specification of an application filed on or about February 13, 1889, Serial No. 299,791, we have described devices for mechanically operating the nipping appliance and the cradle or parts supporting the plate to be coated, such nipping appliance and cradle being used in apparatus such as described in our patent, No. 329,240, of October 27, 1885. Now, according to this our invention we provide as an addition to such latter apparatus or in connection with apparatus operating in such or similar manner certain mechanical appliances for canting the parts supporting the plate, such appliances being operated self-actingly and consisting of a tooth-rack impelled in one direction by a revolving shaft—such, for instance, as the one which imparts motion to the rolls of the apparatus—means being provided for throwing the impelling part out of gear at the proper moment, so that parts may return freely into the original position ready for a fresh operation.

Referring to the accompanying drawings, Figure 1 is a vertical longitudinal section; Fig. 2, a vertical transverse section on or about on line xx of Fig. 1. Fig. 3 is a front elevation, and Fig. 4 a plan, of this apparatus for canting the cradle mechanically, while the other operations are done by hand, as heretofore; and Fig. 5 is a rear elevation of the upper part of the apparatus. Fig. 6 is a perspective view of the cradle and connections.

F is the gate hinged on pintle f , Fig. 2, to which pintle is secured an arm f' , that extends to the upper edge of the pot P and has its upper end connected by a rod F' with one end of a rack rod or bar E, said arm f' carrying at its upper end a pin F^x , over which hooks the forked end f^2 of the connecting rod F' , so

that the latter may be readily disengaged from the gate-pintle arm f' . One end of the rack-rod E is connected with a slide-block E' , that is guided between flat guide-bars E^2 , the connecting-rod F' being pivotally connected with said block through the medium of the pivot-pin e . The opposite end of the rack-rod E is supported by a roller S' , journaled to one end of a two-armed lever S, fulcrumed on a pin S^2 , that is journaled in suitable bearings formed on the pot, said lever extending into the path of a tappet or arm on the cradle-operating handle H, which is connected with and designed to operate the cradle C, substantially as shown and described in our said application for patent hereinbefore referred to, W being the weight-rod for the cradle C. The handle H and weighted rod W are to be grasped at their upper end by the workman, said rod W being pivoted on a pin k^2 in the slot of hook K, while the latter is pivoted on a pin k' in the branching arms at the lower end of handle H.

As shown in Fig. 6, the lower end of handle H is forked and constitutes the cradle C, which is of substantially rectangular form, the arms projecting from the back H' terminating in outwardly-curved horns H^2 , and in said arms are formed eyes for the rods G G.

The cradle-operating handle H has a tappet or arm H^x , that projects over the arm s of the two-armed lever S, whose vibratory movements are limited by slotted guides S^3 .

When the cradle and the sheet to be coated are moved down into the pot to the necessary depth at the entrance side, the arm H^x of handle H will strike the lever-arm s and depress the same, thereby lifting the arm s' of said lever with its roller S' and the end of the rack-bar E, to bring the toothed portion thereof into engagement with the pinion A^3 , to which a continuous motion is imparted from the nipping-roll driving-shaft A, said pinion A^3 being secured on the journal of one of the upper pair of rolls R' . The rack-rod E is thus moved over toward the exit side of the pot, and through the connecting-rod F' the gate F is also canted toward the said exit side. When the rack-bar has been moved to its position—that is to say, when the gate F has reached the limit of its motion toward the

exit side of the pot—the toothed portion of said rack-rod has also moved out of gear with the pinion, said pinion riding on the untoothed portion E^x of the rack-rod, thereby arresting the movement of the gate F , and at the same time depressing the arm s' of lever S and raising the arm s of such lever, which latter arm, impinging on the tappet or arm H^x of the cradle-handle H , lifts the latter slightly, and thereby advises the workman who has hold of said handle that the plate is in proper position for being raised to the nipping-rolls R' , so that he may now continue the upward movement of the handle and cradle to bring the plate to the nipping-rolls for withdrawal from the pot. As the toothed portion of the rack-rod moves out of gear with the pinion A^3 it is moved back to its normal position through the medium of the weight F^3 , thereby returning the gate also to its normal position at the entrance side of the pot ready to receive a fresh plate. A fresh plate having been placed in the cradle the workman lowers the same, when the tappet H^x will again engage the arm s of lever S and lift the arm s' thereof to bring the toothed portion of the rack-rod into engagement with the pinion A^3 , whereby the gate is again canted over to the entrance side of the pot.

The rack-rod E is preferably constructed of channel-iron to provide a guide-channel for the roller S' , and the toothed portion secured thereto.

The described devices for canting the gate F are preferable to those described in our said application for Letters Patent in cases where frequent changes of depth of plates operated upon occur.

R is the flux-box, which may be constructed similar to that described in our application for patent referred to, or in our Letters Patent hereinbefore mentioned, or in any other desired manner.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a machine of the class described, the

combination, with the metal-pot, the gate-lever pivoted to the bottom of said pot, and the cradle-operating rod provided with a tappet, of a toothed rack having an untoothed portion, a pinion adapted to gear with the rack and impel it in one direction and then ride upon the untoothed portion thereof, a connection between the rack and gate-lever, and a lever one arm of which is adapted to engage the end of the toothed rack, the other arm lying in the path of the tappet in the cradle-operating rod, for the purpose set forth.

2. In a machine of the class described, the combination, with the metal-pot, the gate-lever pivoted therein, the cradle, and the cradle-operating rod provided with a tappet, the toothed rack E , provided with a raised untoothed portion E^x , a pinion adapted to impel the rack in one direction and then ride upon the untoothed portion thereof, and a connection between the rack and gate-lever, of an actuating device for impelling the rack in a reverse direction to that in which it is moved by the pinion, and a lever one arm of which is adapted to engage the toothed rack, the other arm lying in the path of the tappet on the cradle-operating rod, for the purpose set forth.

3. In a machine of the class described, the combination, with the pinion A^3 , the rack E , provided with the untoothed portion E^x and a channel in its under side, the guide-block E' , connected with the rack, the guide E^2 for said block and rack, the gate-lever F , connected with said block, and the lever S , carrying the roller S' , working in the channel of the rack E , of a weighted chain connected with said rack, substantially as and for the purposes set forth.

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