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T. GILL.

GREASE POT.

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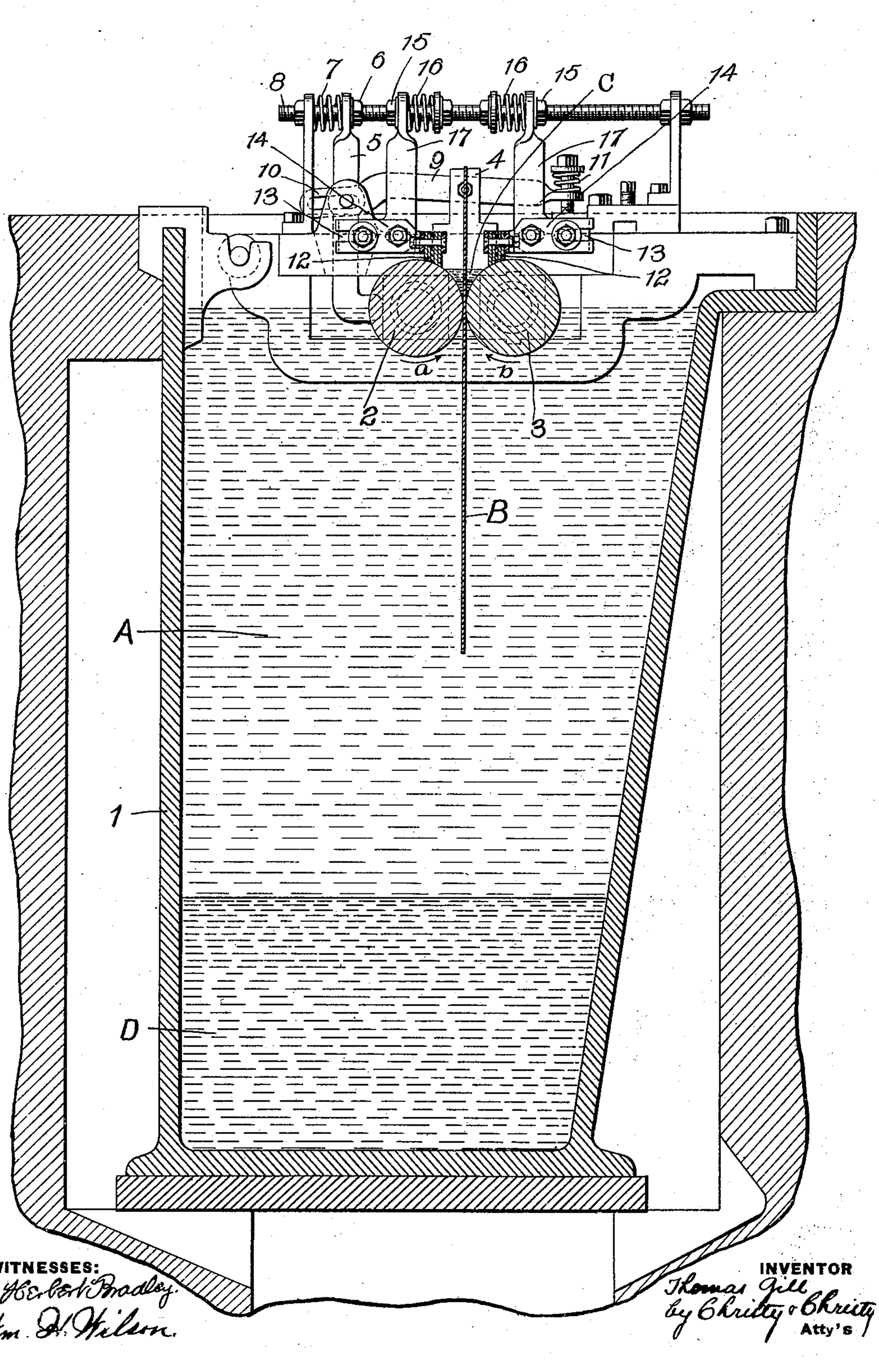

WITNESSES:
J. Herbert Bradley.
Wm. D. Wilson.

INVENTOR
Thomas Gill
by Christy & Christy
Atty's

UNITED STATES PATENT OFFICE.

THOMAS GILL, OF FOLLANSBEE, WEST VIRGINIA, ASSIGNOR TO FOLLANSBEE BROTHERS COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GREASE-POT.

No. 844,513. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed September 4, 1906. Serial No. 333,202.

To all whom it may concern:

Be it known that I, THOMAS GILL, residing at Follansbee, in the county of Brooke and State of West Virginia, a citizen of the United States, have invented or discovered certain new and useful Improvements in Grease-Pots, of which improvements the following is a specification.

My invention relates to means employed in finishing the surfaces of metal-coated plates with what is known as an "oil finish;" and the primary object of my improvement is a saving in the amount of oil required in this operation. Incidentally I obtain a more even distribution of the metallic coating as well as a more even spreading of the oil upon the surface.

The accompanying drawing, which forms part of this specification, is a vertical section of a grease-pot in which my present invention is employed.

In the ordinary practice of making tin and terne plates, to which my invention is particularly applicable, the sheets (which ordinarily are formed of iron or steel) are given a coating of tin or terne mixture in an initial bath, and the finishing process consists in reducing the thickness of this coating and distributing it as evenly as possible over the surface and at the same time in spreading upon the coated surface a thin film of oil. The sheet as it comes from the metal-bath is introduced into what is termed a "grease-pot," which is a deep vessel filled with oil (ordinarily palm-oil) maintained at a temperature above the melting-point of the metallic coating mixture, and from this grease-pot the sheet is passed between a pair of finishing-rolls, which squeeze off the surplus metal, leaving a relatively thin film of coating adhering to the surface of the sheet, which is in turn coated with a film of oil.

In the accompanying drawing the grease-pot is indicated at 1, and the finishing-rolls indicated at 2 and 3. The grease-pot 1 is filled with a bath of palm-oil A, which preferably rises so as to immerse the lower half of the finishing-rolls, which rolls preferably lie in horizontal position and side by side to form a pass through which the sheet B rises from the grease-pot and from between which it passes in finished state. These finishing-rolls 2 and 3 are suitably sustained in a manner not necessary to describe and are journaled to rotate to permit the passage of the sheet B.

The oil in the grease-pot A being maintained at the high temperature indicated above "burns"—that is, its more volatile constituents are driven off—and the oil so burnt does not afford so good a surface finish as is desired. To overcome this difficulty, the practice has been to maintain on the upper side of and between the rolls 2 and 3 a small pocket or reservoir of oil C. (This small quantity of oil C, protected by the bodies of rolls 2 and 3, does not become heated to so high a temperature as the oil in the main portion of the pot, and accordingly is not burned to the objectionable extent already indicated.) In order to retain this oil in pocket C, plates which are termed "nip-plates" are provided, and one of them is indicated in the drawing at 4. These nip-plates engage the rolls 2 and 3 at their opposite ends and form, together with the surfaces of the rolls themselves, a trough for holding the pocket of oil C. The rolls 2 and 3, rotating in the directions indicated by the arrows *a b*, will pass the sheet B from the grease-pot, causing the oil contained in the pocket between the rolls to be gradually carried away over the rolls and mingled with the oil in the main part of the grease-pot.

My invention is directed, primarily, to the retention of the oil in the pocket C, preventing its escape, and thus effecting an economy in the supply of oil needed and so reducing the cost of production. Incidentally I show an adjustability of parts and a yielding mounting of the parts which renders my arrangement superior, as will be readily understood.

In the first place, rolls 2 and 3 are made adjustable relatively to one another, and to this end the journals of one of the two rolls are held rigidly in the supporting-frame, while the journals of the other roll 2 are laterally adjustable, so that the roll may approach toward and recede from roll 3. Roll 2 is held by the arms 5, pivoted in the frame, and adjustably held in position between nuts 6 and springs 7 on a bolt 8, carried by the frame. It will be understood that movement of nut 6 will determine the width of the pass between rolls 2 and 3. Rolls 2 and 3 being thus

adjustable respecting one another, I provide for a corresponding adjustment of nip-plates 4 laterally, that these nip-plates may accurately engage the rolls 2 and 3 whatever their adjustment in position may be. To this end I mount the nip-plates 4 pivotally upon an arm 9, which is pivoted in the frame of the machine and which may be moved laterally by means of the slots 10, wherein the pivotal connection is made, and I preferably hold these nip-plates 4 in yielding engagement with rolls 2 and 3 by means of spring-enforced bolts 11, which hold down the arms 9 and at the same time hold the nip-plates 4 in engagement with rolls 2 and 3.

The means which I employ for preventing the escape of the oil C over the surface of rolls 2 and 3 and back into the main bath A consist, preferably, of brushes 12, which contact with the surfaces of rolls 2 and 3, adjacent to the trough-like receptacle which the rolls form and contact with rolls 2 and 3 upon their upper surfaces, and these brushes 12, engaging the surfaces of rolls 2 and 3 as they rotate, swab off the oil, which otherwise would pass on in adherence with the surfaces and hold it confined in the trough. Thus frequent renewal of the pocket of oil is rendered unnecessary. These brushes 12 are formed, preferably, of asbestos in several plies. The asbestos may advantageously be reinforced or strengthened by wire contained within it. The brushes may be clamped, as indicated, between suitable plates and suitably carried in a frame. I provide for a lateral adjustment of the brushes, so that whatever be the relative position of the rolls 2 and 3 the brushes may be correspondingly arranged. Such lateral adjustment is indicated in bolt-and-slot connections 13, between the arms 14 carrying the brushes and the frame of the, structure. Pressure is applied to brushes 12 to hold them in firm contact with rolls 2 and 3 by means of adjustable nuts 15, which advance on the bolts 8 against the pressure of springs 16, and thus swing bell-crank levers 17, with which the arms 14, carrying the brushes, are made integral, held pivotally in the frame in the manner described.

The operation of the parts will be readily understood. The sheet or plate comes from the bath in which the coating of metal is applied and is introduced into the grease-pot. The rolls 2 and 3 and the other parts having been previously adjusted, sheet B enters the pass between rolls 2 and 3 and is drawn up between them. As it is drawn up the pressure which rolls 2 and 3 exert squeezes the fluid metal from the surface of the sheet, removing all surplus metal and leaving the sheet simply wetted, as it were, with metal. The surplus metal thus stripped off settles to the bottom of the grease-pot, as at D, from whence it may be pumped or otherwise removed. As the sheet B rises between rolls 2 and 3 it passes through the pocket of fresh oil C, where it receives its final coating of oil of suitable quality, and thence it passes as a finished sheet. As this operation progresses, the brushes 12, contacting with rolls 2 and 3, sweep from the surface of rolls 2 and 3 all or a greater part of the oil which otherwise would pass over upon their surfaces, and so prevent waste of the oil in pocket C.

I claim as my invention—

1. In combination with a grease-pot wherein an oil finish is given to the surfaces of metal-coated plates, and a pair of finishing-rolls rotatably mounted therein, a pair of nip-plates engaging said rolls at opposite ends and forming with the surfaces of said rolls a trough wherein oil may be poured and retained, and means for preventing the escape of oil from said trough as said rolls rotate, substantially as described.

2. In combination with a grease-pot wherein an oil finish is given to the surfaces of metal-coated plates, and a pair of finishing-rolls mounted therein, of a pair of nip-plates held in yielding engagement with said rolls at opposite ends thereof and forming with the surfaces of said rolls a trough wherein oil may be poured and retained, substantially as described.

3. In combination with a grease-pot wherein an oil finish is given to the surfaces of metal-coated plates, and a pair of finishing-rolls rotatably mounted therein, a pair of nip-plates engaging said rolls at opposite ends and forming with the surfaces of said rolls a trough wherein oil may be poured and retained, and brushes contacting with the upper surfaces of said rolls, substantially as described.

4. In combination with a grease-pot wherein an oil finish is given to the surfaces of metal-coated plates, a pair of relatively adjustable finishing-rolls rotatably mounted therein, a pair of laterally-adjustable nip-plates engaging said rolls at opposite ends thereof and forming with the surfaces of said rolls a trough wherein oil may be poured and retained, and laterally-adjustable means for preventing the escape of oil from said trough as said rolls rotate, substantially as described.

In testimony whereof I have hereunto set my hand.

THOMAS GILL.

Witnesses:
WILLIAM BAUFIELD,
W. J. KIRK.