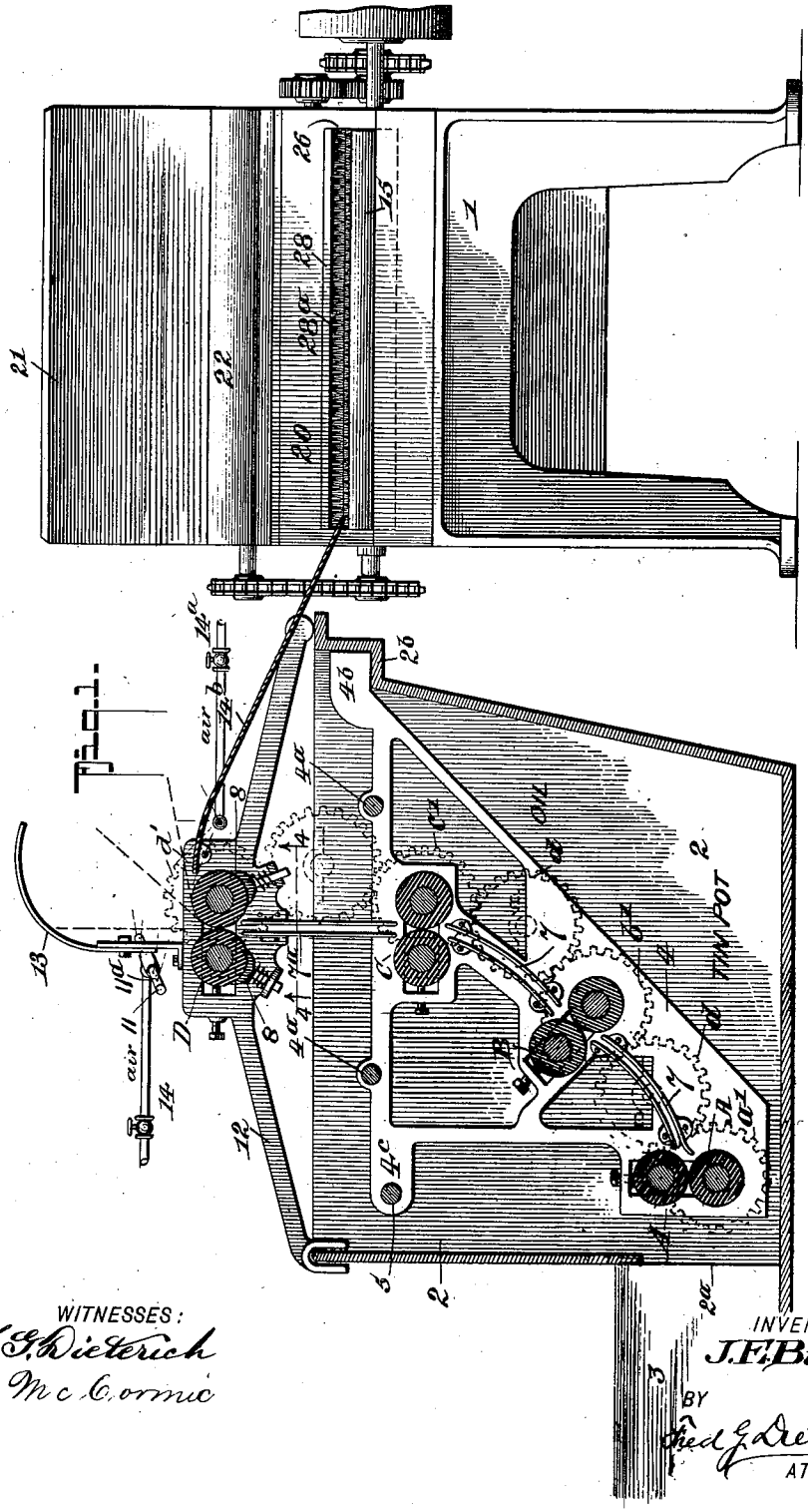
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METAL PLATE CATCHER, BRANDER, AND POLISHING MACHINE.

(Application filed July 16, 1898.)

(No Model.) 3 Sheets—Sheet 1.



WITNESSES:
H. G. Dieterich
E. Mc Cormic

INVENTOR
J. F. Burson
BY
Fred G. Dieterich & Co
ATTORNEYS

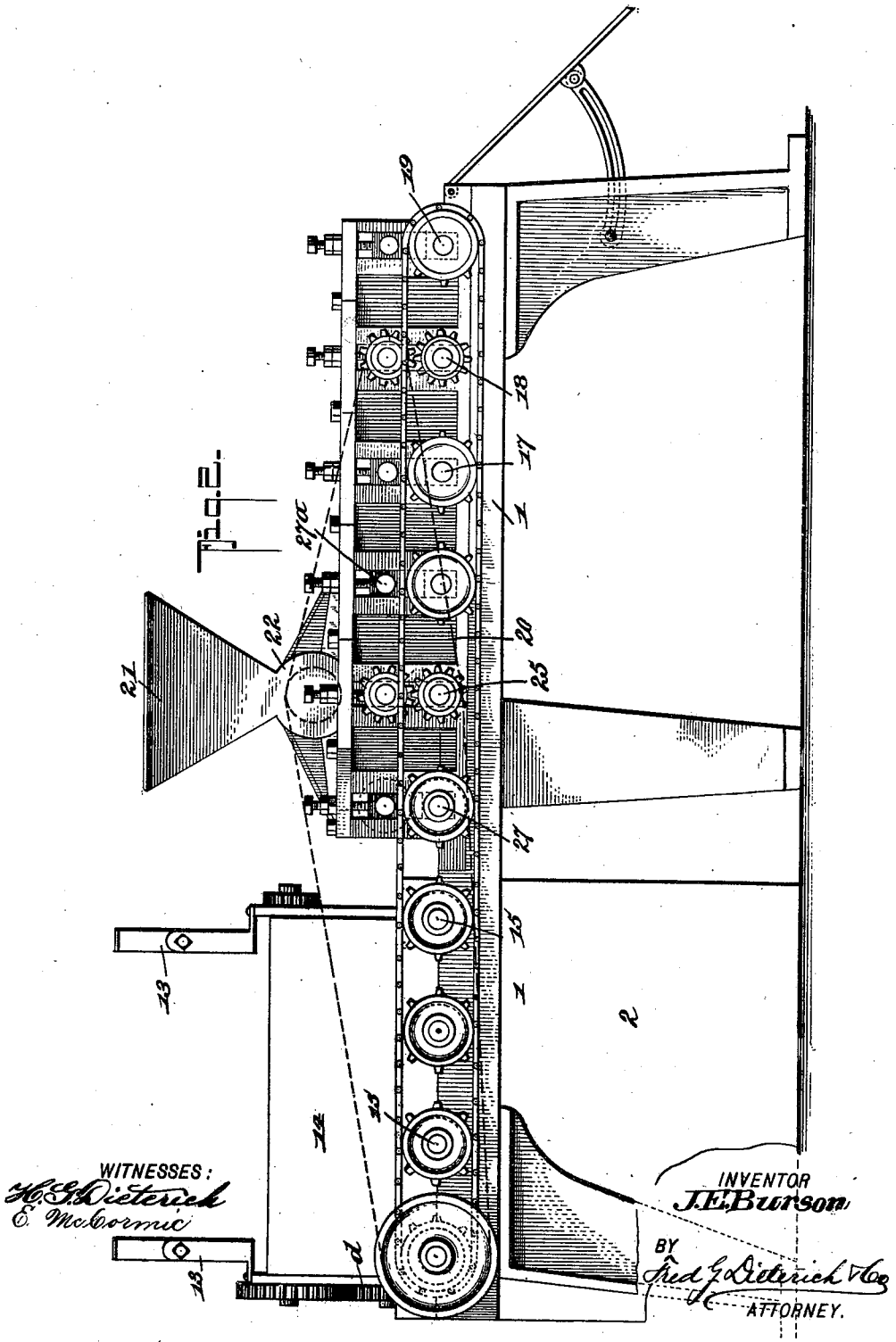
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Fig. 3.

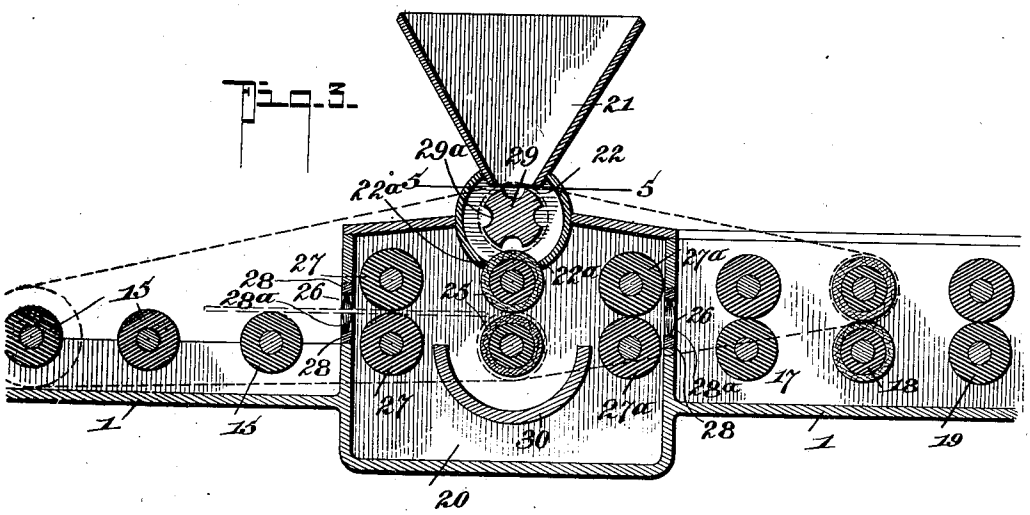


Fig. 5.

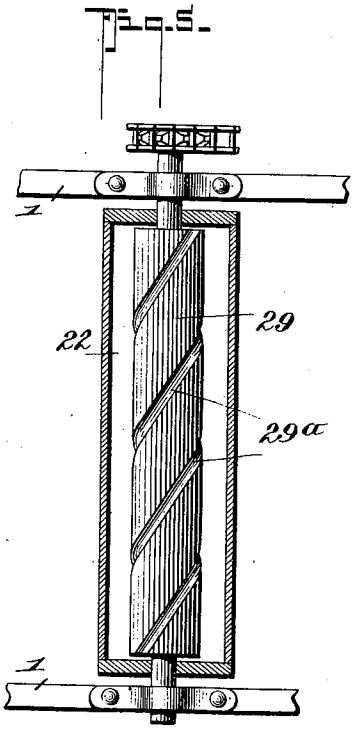
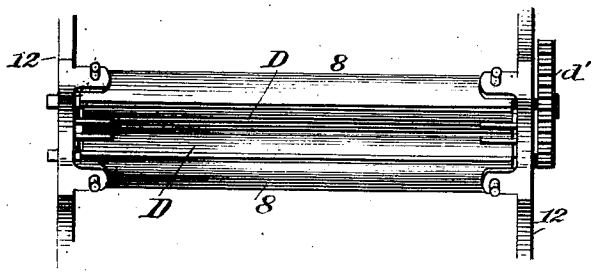


Fig. 4.



WITNESSES:

H. G. Dieterich

E. Mc. Cormic

INVENTOR

J. E. Burson

BY

Fred G. Dieterich & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN E. BURSON, OF MARTIN'S FERRY, OHIO, ASSIGNOR OF ONE-HALF TO WILLIAM JONES, OF SAME PLACE.

METAL-PLATE CATCHER, BRANDER, AND POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 620,085, dated February 21, 1899.

Application filed July 16, 1898. Serial No. 686,148. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. BURSON, residing at Martin's Ferry, in the county of Belmont and State of Ohio, have invented a new and Improved Metal-Plate Catcher, Brander, and Polishing Machine, of which the following is a specification.

This invention is in the nature of an improved mechanism comprehending a novel construction and arrangement of parts whereby metal plates after receiving an external coating can be practically and automatically handled as they leave the hands of the dipper and be subjected to successive and continuous actions, whereby the plate without the aid of manual labor is first caught, branded, cleaned, and then polished in an effective, quick, and economical manner.

In its more specific character this invention embodies, in combination, a novel form of catcher, brander, and polishing mechanism working in harmony with the coating mechanism and in such close relation thereto that the plates as they are drawn from the coating or tinning vat proper are moved into engagement with the catcher, then caught by supplemental combined catcher and cleaner rolls, and after being cleaned of the bulk of oil or grease deposited thereon automatically delivered onto a delivery or carrying mechanism, which feeds the partially cleaned plate through a novel form of branning mechanism having an interdependent connection and operation with the catcher or main delivery and the supplemental catcher and cleaning mechanisms, additional plate-engaging means, in the nature of polishing and duster rolls, being also provided and working in unison with the aforesaid mechanism for effecting the final polishing and cleaning operation of the plate.

Another and important feature of this invention is the employment, in connection with the means for simultaneously carrying and cleaning the plate, of an air-blast to engage the plate as it is carried from the coating-vat, whereby to effect a quick and positive set of the coating metal to prevent the danger of scratching or other mutilation on the outer or tin coating of the plate as it passes through the several steps constituting the branning and cleaning operation of the complete machine.

In its subordinate features this invention comprises certain details of construction and novel combination of parts, such as will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a view of one end of the complete machine, the catching or delivery mechanism being shown in section and the supplemental polishing and branding mechanism in end view. Fig. 2 is a side elevation of the branning and supplemental polishing and cleaning mechanism, the catcher or initial-delivery mechanism being shown in end elevation. Fig. 3 is a detail longitudinal section of the branning mechanism. Fig. 4 is a detail sectional elevation taken practically on the line 4 4 of Fig. 1. Fig. 5 is a detail horizontal section taken on the line 5 5 of Fig. 3.

In its general construction my invention comprises a supplemental tin receiving and feeding means in the nature of a set of combined catcher and cleaning rolls, which are arranged in close relation to a main catcher or delivery mechanism located within the tin-vat and having its receiving end so disposed that the dipper after properly manipulating the plate in the coating-vat can conveniently deliver the same into the receiving end of the main catcher mechanism, after which the plate is carried through such mechanism to the supplemental combined catcher and cleaner rolls, and after passing through the same deflected by suitable devices and deposited on a slide, which carries it onto a supplemental carrier, which delivers the plate to the branning mechanism, from whence it passes through supplemental duster and polishing means and is finally discharged from the table into a suitable receiver. In passing from the supplemental combined catcher and cleaner rolls the plate is subjected to an air-blast from one or both sides, which serves to quickly cool the plate and causes the coating material to become firmly set thereon, and thereby avoid the danger of the plate becoming scratched or otherwise mutilated as it passes through the several operations of cleaning and polishing.

In the practical application of my invention I employ my improvements in connection with any ordinary form of initial catcher and delivering mechanism, which will carry the plate as it leaves the dipper through the tin-pot and oil to a discharging-point.

In the drawings I have illustrated an initial-catcher mechanism comprising a housing 2, the mouth or end 2^a of which preferably opens into the coating portion 3 of the vat, whereby to facilitate the passing of the coated plate from the vat to the first set of catcher-rolls.

The combined initial catcher and delivery mechanism, the detail construction of which, *per se*, forms no part of my invention, may comprise a frame consisting of two side members 4, connected at the upper end by transverse brace-rods 4^a, which have at one end a supporting-lip 4^b and at the other a hanger-bracket 4^c, adapted to be supported on a sustaining-rod 5, passed transversely on the housing 2, by means of which and the member 4^b, which engage and are supported on the ledge 2^b of the housing, the initial catcher and delivery mechanism is suitably and rigidly supported within the housing.

A B C indicate a series of initial-catcher rolls which are so disposed that the plate as it is carried from the receiving end to the discharge gradually assumes a vertical position, whereby to properly engage the supplemental catcher and cleaner rolls, presently referred to, it being understood that to facilitate the travel of the plate through the initial-catcher mechanism suitable guides 7 are provided, as shown.

The supplemental combined catcher and cleaner rolls D are mounted in a suitable housing 12, adapted to be detachably but firmly supported upon the housing 2. These rolls may consist of a solid core and outer gripping and cleaning portions, which may be of a solid nature having transverse grooves whereby to effectively grip the plate as it is drawn therethrough. I prefer, however, to form the exterior faces of the rolls D of polished steel, as the danger of injury to the plates as they are drawn therethrough is thereby reduced to a minimum.

To provide for cleaning the plate of the bulk of the oil and grease after it leaves the pots 2, scraper-shoes 8 are provided, which are yieldingly held against the face of the rolls D in such manner that they will scrape off any oil or other greasy substance which might adhere to the rolls, and thereby leave the face of the rolls engaging the plate as clean as possible to effect a more positive gripping action of the plate and at the same time remove any deposit of oil gathered on the rolls from the plate as it passes therethrough and cause the same to drop back into the pot 2.

7^a indicates a guide for leading the plate from the uppermost set of rolls C of the initial-catcher mechanism to the rolls D.

To quickly set the coating material on the plate as it leaves the pot, I provide air-blast pipes 14 14^a, which in practice are so arranged relatively to the rolls D as to eject a strong current of air onto the plate, on both faces thereof, it being understood that the blast can be produced by a suitable fan operated from the drive-gear which operates the tinning mechanism, from which gear the catcher may also be operated by suitable gear connections, such rolls having gears *a' b' c' d'*, as indicated in dotted lines in Fig. 1. The blast-pipes are extended at convenient points outside of the tinning-pot and provided with cut-off valves, their discharge ends terminating in distributing-pipes 11, having jet-openings 11^a.

Upon the upper end frame 12, in line with the rolls D, are disposed adjustable deflectors 13, one being arranged at each end of the rolls D and so disposed that the plate as it is carried up from the rolls D in the direction indicated by dotted lines in Fig. 1 will engage the said deflector members 13 and be thereby caused to tip over onto an incline chute 14^b, which extends forward over a delivery mechanism forming a part of the branning and supplemental polishing mechanisms, the construction of which is best shown in Figs. 2 and 3 and consisting of rolls 15, as indicated in the drawings, it being obvious, however, that instead of being a series of rolls the same may be in the nature of an endless belt to form a horizontal rest and delivery for feeding the plate to the branning mechanism, which will be presently more fully described.

From the foregoing it will be observed that the plates as they leave the dipper are drawn up through the tin and oil pot by the rolls A B C and delivered vertically endwise to the rolls D, it being understood that as the plate is drawn up from the rolls the oil or grease adhering thereto will drop back into the pot, and such oil or grease as may adhere to the upper peripheral faces of the rolls will be scraped off by the shoes 8 and will drop back into the pot, thereby keeping the plate-engaging portions of the rolls practically free of oil or grease, as heretofore stated.

Referring now more particularly to Figs. 2 and 3, it will be observed that the delivery-rolls 15 are journaled in the same horizontal plane and are arranged at one side of the brander, which is located at a point between such rolls 15 and the final dusting and polishing rolls 17 18 19. The brander consists of a casing 20, closed at the top and having a hopper 21, discharging into a cylindrical receiving-chamber 22, the inner or discharge end 22^a of which receives the upper peripheral edge of the upper one of a pair of combined branding and feed rolls 25, the lower one of which is held in the same horizontal plane as the feed-rolls 15, an additional pair of feed-rolls 27 27^a being disposed at each side of the branding-rolls 25 25 and in line with the openings 26 in the sides of the branding-casing, through one of which the plate is drawn and which as it leaves the brander devices moves

through the other opening and engages the duster and polishing rolls, presently again referred to.

To facilitate the removal of any foreign substance on the face of the plate as it enters the brander and also to assist in brushing it as the plate leaves the brander, and a still further and more essential object to prevent the bran-dust flying out of the brander in the tinning-room, the openings 26 have detachable members 28, carrying brushes 28ª, which when fitted in an operative position are held in close contact and serve to practically close the openings 26 against the discharge of any of the bran-dust within the brander-casing.

In the practical arrangement of the several sets of rolls within the brander-casing I prefer that the first and third sets of rolls 27 27ª be formed of solid shafts having gum bands or rings around it, whereby the rolls will have practically a collared peripheral face to prevent such rolls from choking or clogging up with bran or other absorbent being used. The center rolls 25 consist of wooden cores covered with sheepskin or felt, which will serve to rub the plate with absorbent and also to polish the plate as it is drawn therethrough.

To provide for a uniform and regular dusting of the bran on the plate as it passes from the brander, the cylinder or collector chamber 22 has a rotary distributer, consisting of a solid roll 29, having longitudinally-directed spirally-arranged peripheral grooves 29ª, such roll 29 in practice being held in close relation with the upper face of the upper brander-roll 25, as best shown in Fig. 3.

30 indicates a trough held under the brander-rolls, which may, if desired, have an opening at one of its ends (not shown) to facilitate the removal of bran or other absorbent-material collections, and the casing proper may also have openings for this purpose.

After the plate passes through the brander it is engaged by the rolls 17 18 19 and subjected to a dusting and polishing action, from which it passes onto a suitable adjustable chute or incline onto a receiving table or holder. To facilitate the polishing and dusting action, the rolls 18 have a felt or sheepskin cover, and such rolls 18, together with the brander-rolls 25 and the brander-feeder roll 29, are rotated at a speed greater than the feed-rolls which carry the plate forward, whereby to effect a positive and effective branding and polishing action on the plate as it travels through the several sets of differentially-rotated rollers.

In practice the carrying-rolls, which have plain smooth or yielding cylinders, are driven at a comparatively slow speed, as are also the feed-rolls of the brander and the polishing and duster mechanism, while the polishing-rolls of the brander and of the duster devices are driven at a greater speed.

It will be observed that the operation of the machine is substantially automatic, and whatever manual labor may be necessary in connection therewith can be of a very unskilled character.

The movement of the plate from the time it leaves the tin-pot until it is discharged on the adjustable table at the duster and polishing end of the machine is entirely continuous, the capacity of the entire machine depending entirely on the feed of the plate to the first catcher or tinner roll A by the dipper and the speed of the several parts constituting the complete machine.

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

1. In a machine of the class described, the combination of a casing having an opening at its bottom, a series of combined catcher and wiper rolls arranged within the casing at intervals between the top and bottom thereof, guides leading from one set of rolls to the other, a frame located adjacent to the casing, branding and polishing rolls mounted in the frame, an inclined chute connecting the casing and the frame, and a curved deflector arranged at the top of the chute and extending over the same and presenting its concave face to the said chute, substantially as described.

2. In a machine of the class described, the combination of a series of cleaning and carrying rolls, a series of branding and polishing rolls, an inclined chute connecting the two series of rolls, a deflector located at the upper end of the chute, and air-blast pipes located at opposite sides of the deflector and adapted to deliver a blast of air on both faces of the plates, substantially as described.

3. In a machine of the class described, the combination of a casing, an inclined series of rolls extending from the bottom to the top of the casing and adapted to carry the plates upward, a frame having one end located adjacent to the casing, a horizontal series of rolls mounted on the frame, an inclined chute extending downward from the top of the inclined series of rolls to the horizontal series of rolls, and a curved deflector extending over the top of the chute, substantially as described.

4. In a machine of the class described, the combination of a casing, an inclined series of rolls extending from the bottom to the top of the casing, a horizontal series of rolls, an inclined chute connecting the two series of rolls, and the air-blast pipes located at the top of the chute and arranged to deliver a blast of air on both faces of the plates, substantially as described.

5. In a machine of the character described, in combination; a housing having an opening adapted to be placed in close relation to the tin-pot; a framework detachably suspended therein, said framework supporting the catcher-rolls; gear mechanism for operating the same; a supplemental frame supported on the housing having catcher and

cleaner rolls supported therein and held in an operative relation to the first catcher, substantially as shown and described.

6. In a machine of the class described, a brander comprising a rectangular casing having openings at opposite sides thereof, the rolls 25 arranged therein, the trough located beneath the rolls 25 at a point above the bottom of the casing and adapted to catch the bran, the cylindrical chamber 22, provided at its top and bottom with openings and located at the top of the casing and extending partially into the same, the rotary distributer arranged within the casing, and the tapering hopper located above the chamber and communicating with the same through the top opening thereof, substantially as described.

JOHN E. BURSON.

Witnesses:
T. W. SHREVE,
J. G. PAU.