

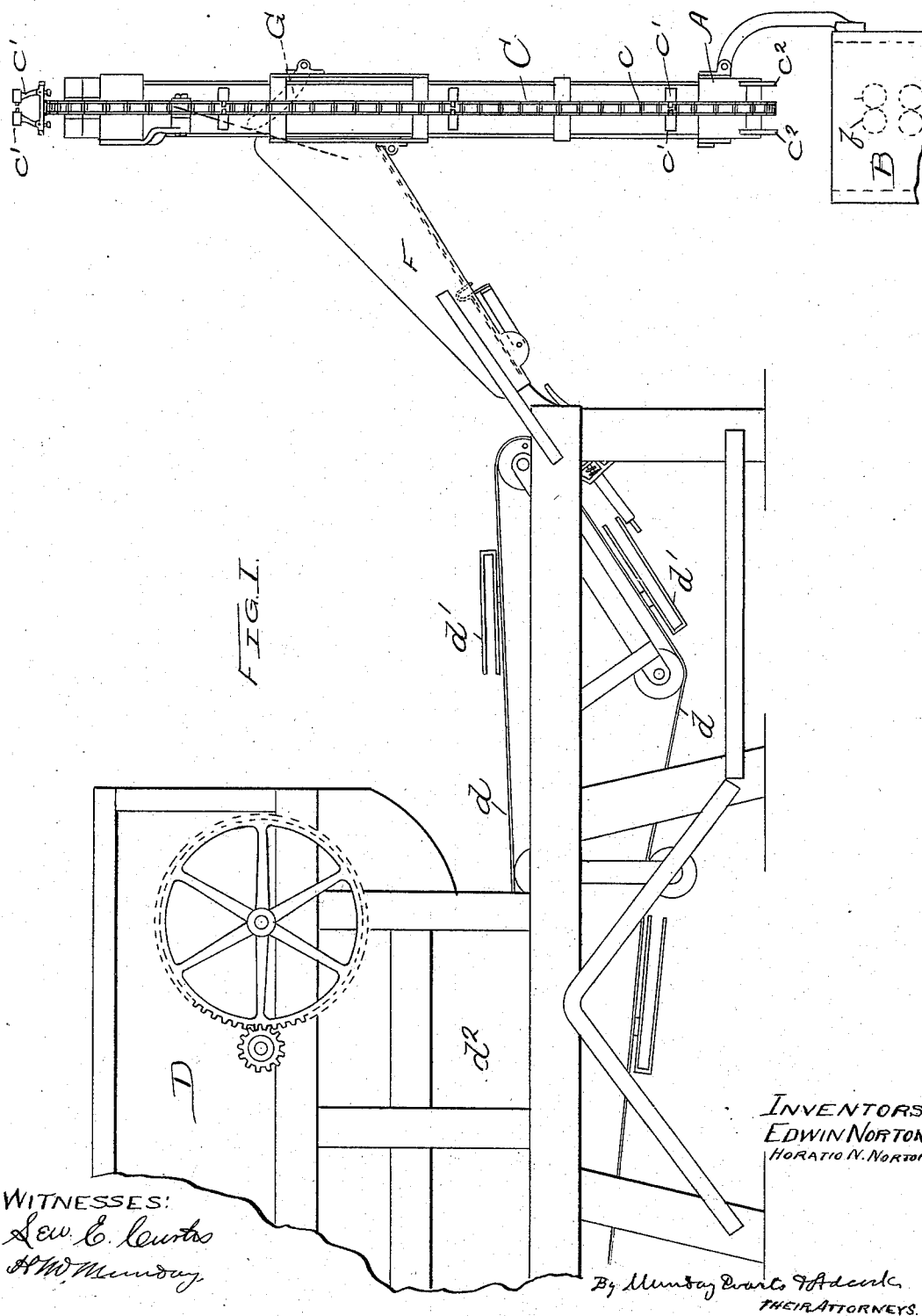
(No Model.)

2 Sheets—Sheet 1.

E. & H. N. NORTON.
MACHINE FOR MANUFACTURING TIN PLATE.

No. 535,396.

Patented Mar. 12, 1895.



(No Model.)

2 Sheets—Sheet 2.

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FIG. 2.

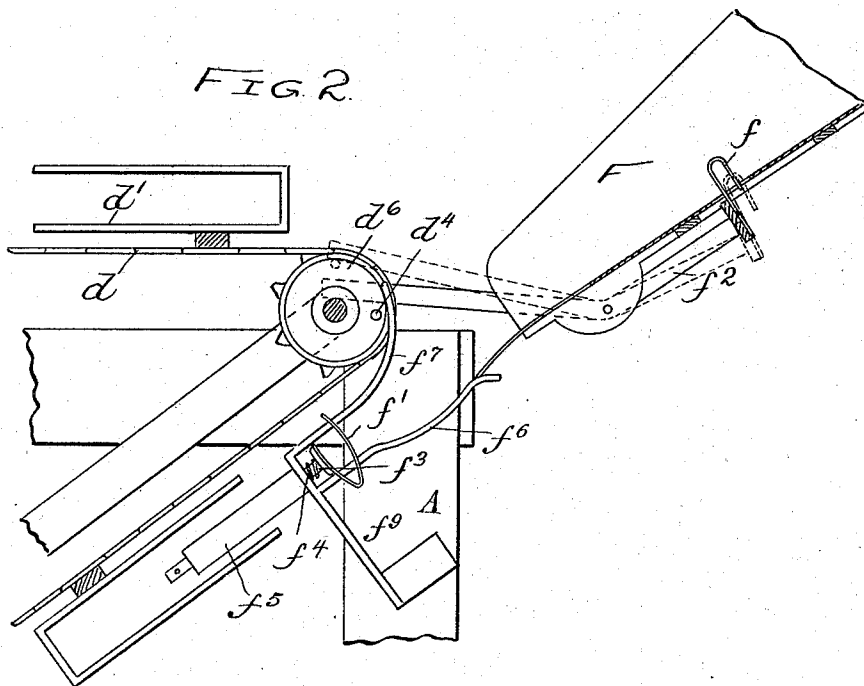
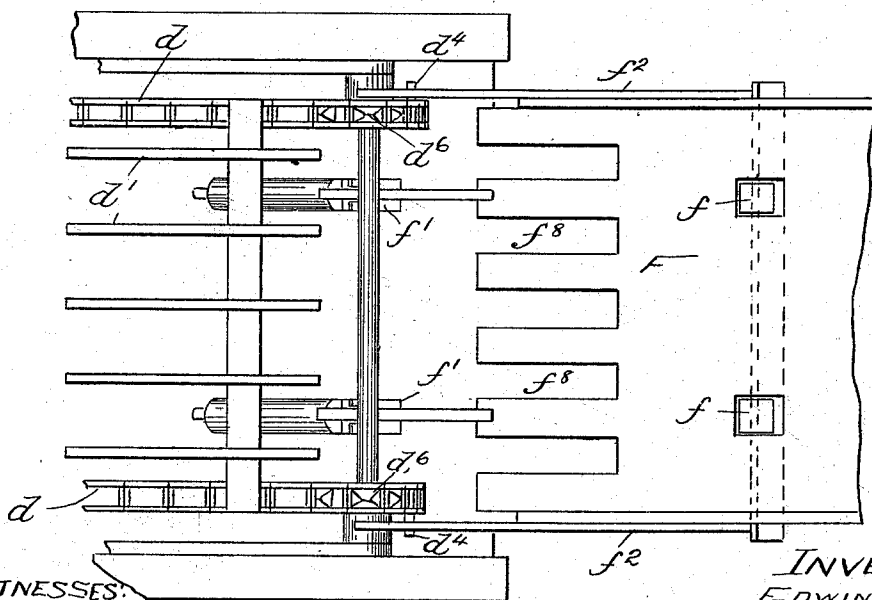


FIG. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN NORTON, OF MAYWOOD, AND HORATIO N. NORTON, OF OAK PARK,
ASSIGNORS TO THE NORTON BROTHERS, OF CHICAGO, ILLINOIS.

MACHINE FOR MANUFACTURING TIN-PLATE.

SPECIFICATION forming part of Letters Patent No. 535,396, dated March 12, 1895.

Application filed June 18, 1894. Serial No. 514,916. (No model.)

To all whom it may concern:

Be it known that we, EDWIN NORTON, of Maywood, and HORATIO N. NORTON, of Oak Park, in the county of Cook and State of Illinois, citizens of the United States, have invented a new and useful Improvement in Machines for Manufacturing Tin-Plate, of which the following is a specification.

Our invention relates to improvements in machines or apparatus for manufacturing tin plate, and more particularly to a combined apparatus for automatically lifting and cooling the tinned sheets as they issue from the tinning pot and cleaning the same.

Our invention consists in the novel devices and novel combinations of parts and devices herein shown and described and more particularly pointed out in the claims.

In the accompanying drawings which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a side elevation of a device embodying our invention. Fig. 2 is an enlarged detail view of parts hereinafter described, and Fig. 3 is a plan view of the parts shown in Fig. 2.

In the drawings A represents the frame of the machine.

B is a tinning pot and *b* the finishing rolls therein between which the tinned sheets issue from the tinning pot. This tinning pot and mechanism may be of any suitable kind or construction known to those skilled in the art.

C represents the lifting mechanism by which the tinned sheets are lifted and suspended or supported while being given an opportunity to cool. This lifter mechanism may be of any suitable kind or construction known to those skilled in the art.

The lifter mechanism which we prefer to employ is indicated in the drawings and consists essentially of an endless link chain carrier *c* furnished with a series of pairs of opening and closing fingers *c'* *c'* which grasp the sheet at or near its upper edge, these fingers being automatically operated by stationary cams *c²* on the frame A of the machine.

D is a cleaner device or mechanism for cleaning the oil from the tinned sheets. This cleaner mechanism may be of any suitable

kind or construction known to those skilled in the art.

The cleaner mechanism which we prefer to employ is indicated in the drawings, and consists essentially of an endless flexible skeleton conveyer *d* furnished with a series of open racks, pockets or fingers *d'* for receiving and holding the tinned sheets in connection with a bin or receptacle *d²* containing bran or other cleaning material, through which cleaning material the sheets are drawn or passed successively and continuously by the conveyer *d*.

F is a chute or passage way along which the tinned sheets pass automatically from the lifter into the conveyer of the cleaning mechanism; and G is a deflector device for pushing or deflecting the lower edge of the sheets over the mouth or upper edge of the chute F as the sheets are released by the lifter, so that the sheets will pass into the connecting chute F. This deflector device consists preferably of one or more revolving arms as indicated in the drawings.

The connecting chute F is arranged preferably in substantially the same direction or inclination as the receiving portion or loop of the endless flexible conveyer *d* of the cleaning mechanism, so that when the tinned sheets pass down to the lower end of the chute F they will be in the path of the open pockets or fingers *d'*, and thus be received thereby. The chute F is provided with one or more, preferably two, spring stops *f* and *f'* to cushion the fall or motion of the sheet to prevent injury to the same. The upper one *f* of these stops is mounted on a movable arm *f²* so that it may be moved out of the way at intervals to permit the sheet to pass down against the next stop *f'* in position to be received by the carrier pocket *d'*. The arm *f²* is operated at suitable intervals by a cam or projection *d⁴* on the pulley *d⁵* of the carrier *d* of the cleaning mechanism. The movable stop *f* thus operates as a feed, check or device to prevent more than one sheet being fed or passed at a time down against the stop *f'* in position to be received by the carrier of the cleaning mechanism. The stop *f'* is preferably itself made in the form of a spring as indicated in the drawings, and is also secured to a sliding

stem f^3 which is surrounded and supported by a coil spring f^4 . The construction of the cleaning mechanism which we have shown or indicated in the drawings is familiar to those skilled in the art, and as the particular form of this mechanism constitutes no part of our present improvement it is not necessary to enter into a detailed description of this old method.

As illustrated in the drawings the cam or projection d^4 consists simply of a pin inserted in the side face of the pulley d^6 in position to engage the lever or movable arm f^2 . The sliding stem f^3 to which the spring stop f' is attached is mounted in a suitable case or barrel f^5 which supports the stop in position. This barrel or case f^5 is attached to an open pocket or receptacle $f^6 f^7$, the bottom limb f^6 of which forms a continuation of the chute F and the upper limb f^7 of which is curved upward to tangentially meet the pulley d^6 , as is clearly illustrated in Figs. 2 and 3. Two of the stops f' are preferably employed, one at each side of the center of the sheet as clearly appears in Fig. 3. The slots or openings f^8 are for the purpose of receiving and permitting the fingers or pockets d' of the carrier d to pass. The stationary pockets $f^6 f^7$ and the barrel or case f^5 are supported from the frame of the machine by a bracket or arm f^9 .

We claim—

1. The combination with an upright automatic lifting device or mechanism constructed and adapted to automatically receive, lift and convey in an upright position the separate tinned sheets as they issue one by one from the tinning pot so that they may cool while suspended in an upright position, of a mechanism for cleaning the sheets, and means for delivering the sheets automatically one by one from the lifter to the cleaner, substantially as specified.

2. The combination with a device for lifting the sheets as they issue from the tinning pot, of a cleaning mechanism, a connecting chute or passage way from the lifting mechanism to the cleaning mechanism, and a device for deflecting the sheets into said chute or passage way after being released by the lifter, substantially as specified.

3. In a tin plate manufacturing apparatus, the combination with a lifter of a cleaner, and a connecting chute furnished with one or more spring stops, substantially as specified.

4. The combination with a lifter of a cleaner, a connecting chute and two spring stops in the chute, one of said spring stops being movable, and mechanism for intermittently moving said spring stop to permit the sheets to pass against the succeeding one, substantially as specified.

5. The combination with a lifter of a cleaning mechanism having a sheet conveyer furnished with open pockets or fingers to receive

the sheets and a chute connecting the lifter with said cleaning mechanism to deliver the sheets into the pockets of the cleaner, substantially as specified.

6. The combination with a tinning pot of the lifting mechanism for lifting the sheets from the tinning pot and cooling the same, a cleaning mechanism furnished with a conveyer provided with open pockets or fingers to receive the sheets, a connecting chute or passage way for the sheets and a deflector for pushing the lower edge of the sheets over the mouth or edge of said chute when released by the lifting mechanism, substantially as specified.

7. The combination with a tinning pot of the lifting mechanism for lifting the sheets from the tinning pot and cooling the same, a cleaning mechanism furnished with a conveyer provided with open pockets or fingers to receive the sheets, a connecting chute or passage way for the sheets, a deflector for pushing the lower edge of the sheets over the mouth or edge of said chute when released by the lifting mechanism and a spring stop in said chute to arrest the descent of the sheets, substantially as specified.

8. The combination with a tinning pot of the lifting mechanism for lifting the sheets from the tinning pot and cooling the same, a cleaning mechanism furnished with a conveyer provided with open pockets or fingers to receive the sheets, a connecting chute or passage way for the sheets, a deflector for pushing the lower edge of the sheets over the mouth or edge of said chute when released by the lifting mechanism, a movable spring stop mounted in said chute to arrest the descent of the sheets, and mechanism for automatically moving said spring stop at intervals, substantially as specified.

9. The combination with a tinning pot of the lifting mechanism for lifting the sheets from the tinning pot and cooling the same, a cleaning mechanism furnished with a conveyer provided with open pockets or fingers to receive the sheets a connecting chute or passage way for the sheets, a deflector for pushing the lower edge of the sheets over the mouth or edge of said chute when released by the lifting mechanism a movable spring stop mounted in said chute to arrest the descent of the sheets, mechanism for automatically moving said spring stop at intervals, and a second spring stop succeeding said first mentioned stop to support the sheet in position to be received by the open pockets or fingers in the conveyer of the cleaning mechanism, substantially as specified.

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HORATIO N. NORTON.

Witnesses:

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EMMA HACK.