

(No Model.)

3 Sheets—Sheet 1.

G. J. RECORD.

TIN PLATE CLEANING AND POLISHING MACHINE.

No. 523,485.

Patented July 24, 1894.

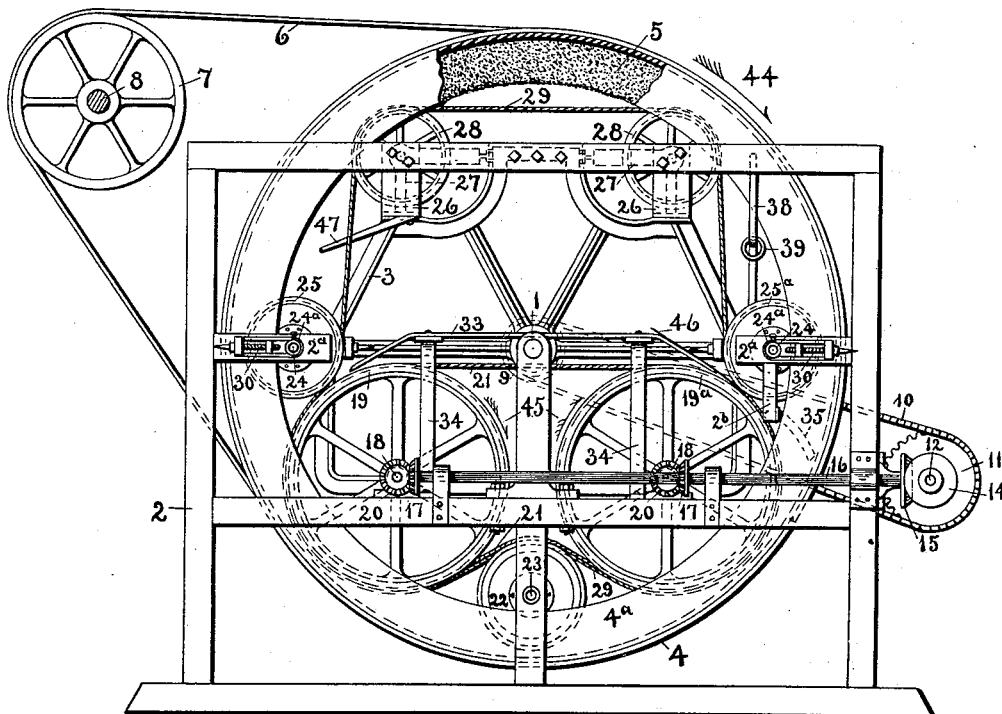


FIG. 1.

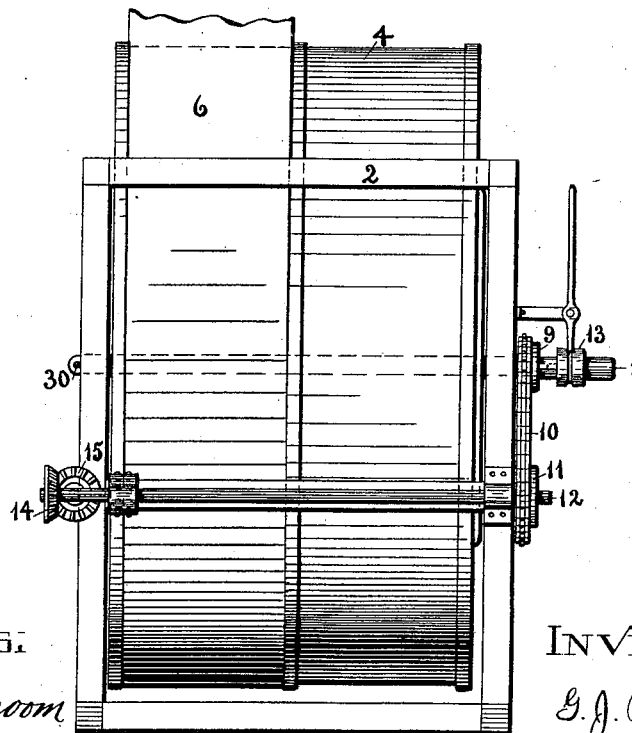


FIG. 2.

WITNESSES:

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*by Burrige & Cutter,*  
*Attys*

(No Model.)

3 Sheets—Sheet 2.

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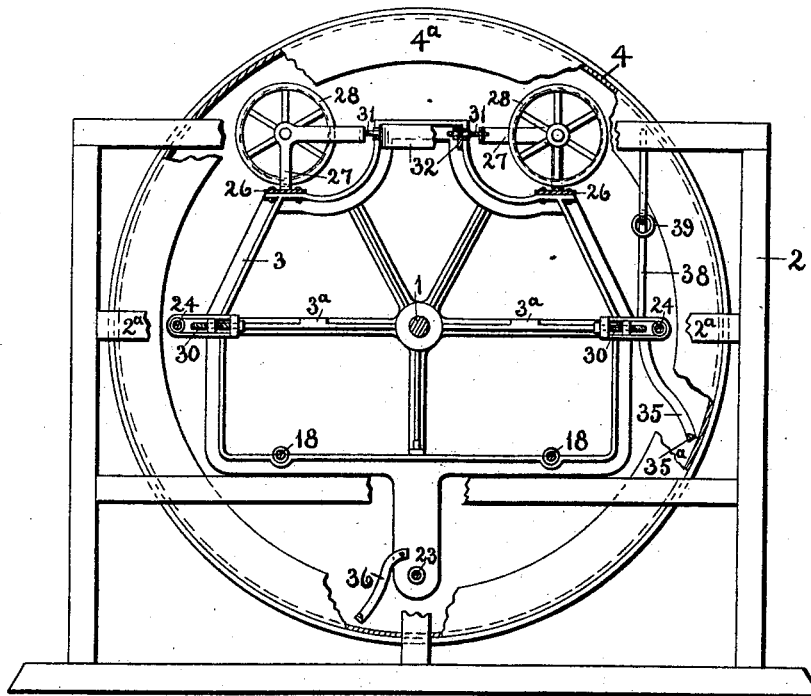


FIG. 3.

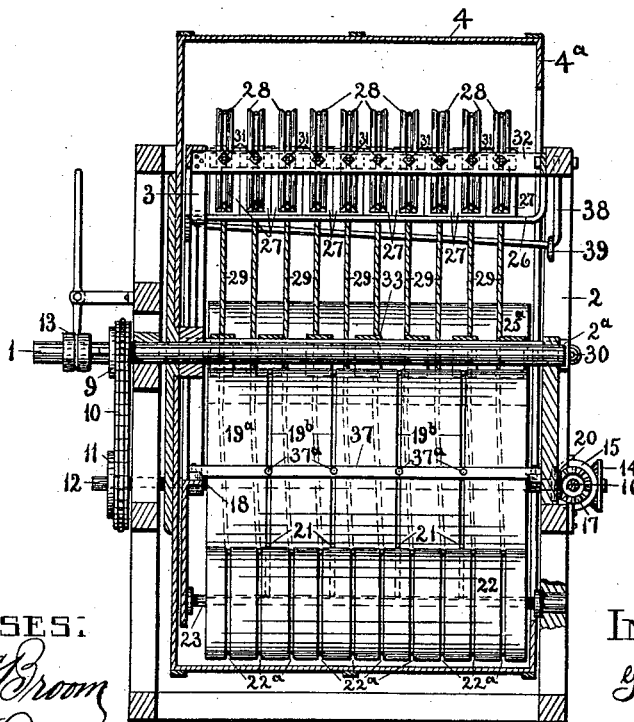


FIG. 4.

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3 Sheets—Sheet 3.

## TIN PLATE CLEANING AND POLISHING MACHINE.

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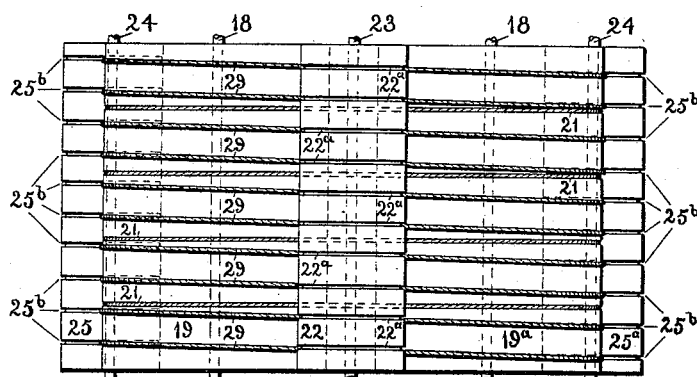


FIG. 5.

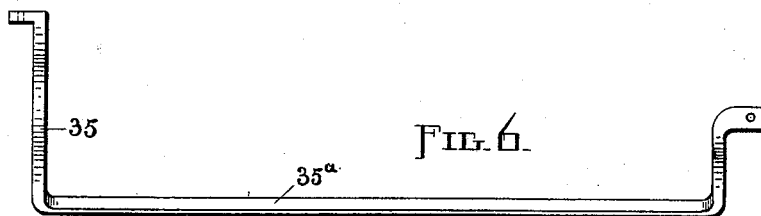


FIG. 6.



FIG. 7.

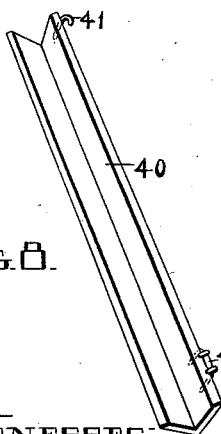
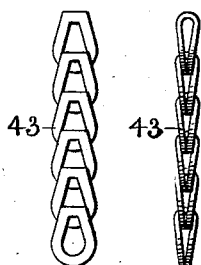


FIG. 8.



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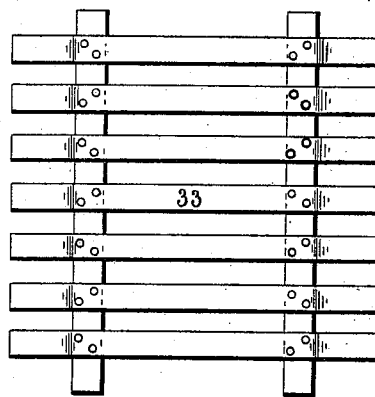


FIG. 11.

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# UNITED STATES PATENT OFFICE.

GEORGE J. RECORD, OF CONNEAUT, OHIO.

## TIN-PLATE CLEANING AND POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 523,485, dated July 24, 1894.

Application filed October 23, 1893. Serial No. 488,869. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE J. RECORD, a citizen of the United States, residing at Conneaut, in the county of Ashtabula and State of Ohio, have invented a certain new and useful Tin-Plate Cleaning and Polishing Machine, of which the following is a full, clear, and exact description.

My invention consists of a large, hollow, rotary drum; smaller drums and pulleys connected by chains, or their equivalent, operating within said large drum; frames for supporting said drums and pulleys; a table, the means for driving the rotatable parts and the several supplementary devices hereinafter fully described. The large drum is designed, when in motion, to hold by centrifugal force a quantity of wheat-shorts, commonly called bran, against the interior of the periphery of said drum.

The object of my invention is to provide a machine for cleaning the grease from tin-plate and for polishing the same.

That my invention may be seen and fully understood by those skilled in the art, reference will be had to the following specification and annexed drawings forming a part thereof, in which—

Figure 1 is a front view of my machine; Fig. 2, a side view; Fig. 3, a front view of the interior frame and the pulleys; Fig. 4, a transverse, vertical section of said machine; Fig. 5, a bottom view of the small drums; Fig. 6, an enlarged view of one of the plows; Fig. 7, a top view of the cleaner for the grooves in the drums; Fig. 8, a perspective view of the trough used to remove the bran from the large drum; Figs. 9 and 10, front and side views of a chain, and Fig. 11, a top view of the table. Similar figures of reference designate like parts in the drawings and specification.

The shaft 1 has its bearings secured to the external frame 2 and supports the internal frame 3. The large, hollow drum 4 is rigidly attached to the shaft 1 and said shaft turns loose in the frame 3. The drum 4 is open in front with the exception of the flange 4<sup>a</sup> which prevents the bran 5 from escaping when said drum is in motion. The drum 4 is connected, by the belt 6, with the pulley 7 on the main driving-shaft 8.

On the rear end of the shaft 1, outside of the frame 2, is the sprocket-wheel 9 connected, by the chain 10, with the sprocket-wheel 11, on the shaft 12. The friction clutch 13 engages or disengages the sprocket-wheel 9 with or from the shaft 1. The shaft 12 is secured to the outside of the frame 2, across one end, and has the beveled-gear 14 fast to the front end thereof. The gear 14 meshes with the gear 15 rigid on the end of the shaft 16. The shaft 16 is attached to the front of the frame 2 and is provided with the two beveled-gears 17 and 17.

The shafts 18 and 18, having their bearings in the frame 3 and attached to the frame 2, support the drums 19 and 19<sup>a</sup> respectively. Fast on the front end of each of the shafts 18 and 18 is the gear 20 meshing with one of the gears 17 on the shaft 16. The drums 19 and 19<sup>a</sup> are provided with the grooves 19<sup>b</sup>, as best shown in Fig. 4, in which run the endless wire-cords 21. The cords 21 pass over the drum 22 on the shaft 23, said shaft being journaled in the frames 2 and 3. The drum 22 is provided with the grooves 22<sup>a</sup>. The nearest points between the interior of the periphery of the drum 4 and the peripheries of the drums 19 and 19<sup>a</sup> are separated by a very narrow space, as shown in Fig. 1, for the purpose hereinafter explained.

Journaled in the frame 3 and the projecting portions 2<sup>a</sup>, 2<sup>a</sup> of the frame 2 are the shafts 24 and 24 supporting respectively the drums 25 and 25<sup>a</sup>. Said drums 25 and 25<sup>a</sup> are provided with the grooves 25<sup>b</sup>. Bolted to the upper part of the frames 2 and 3, each side of the center, are the supports 26 and 26 and the pulley-boxes 27 rest upon said supports. Each box 27 has the pulley 28 pivoted therein. The endless cords 29 pass over the pulleys 28, down through the grooves 25<sup>b</sup> in the drums 25 and 25<sup>a</sup>, around the drums 19 and 19<sup>a</sup> and through the grooves 22<sup>a</sup> in the drum 22, in the manner best illustrated in Fig. 1.

The shafts 24 and 24 are provided with the collars 24<sup>a</sup> and 24<sup>a</sup> and set-screws for the purpose of laterally adjusting said shafts and the drums 25 and 25<sup>a</sup> thereon to give the proper direction to the cords 29. Said shafts 24 and 24 may be adjusted longitudinally by means of the screws 30, thereby giving the desired

pitch to the plate in its passage between the drums 19 and 19<sup>a</sup> and the cords 29. The pulley-boxes 27 may also be adjusted, through the medium of the screws 31 which extend through the sides of the U-shaped bar 32, said bar being bolted to the top of the frames 2 and 3. The supports 26, 26 and the bar 32 prevent any rocking motion of the frame 3 when the shaft 1 is revolved.

The table 33 is supported, by the projections 3<sup>a</sup>, 3<sup>a</sup> (Fig. 3) on the frame 3, and the brackets 34, 34, above the shaft 1 and the ends of said table are deflected downward at an angle of about thirty-five degrees until they just clear the peripheries of the drums 19 and 19<sup>a</sup>. The brackets 34, 34 are secured to the frame 2.

The plow 35 is attached at one end to the horizontal arm of the frame 3 back of the drum 25<sup>a</sup>, and at the other end to the arm 2<sup>b</sup> extending downward from the projecting portion 2<sup>a</sup>, forward of the drum 19<sup>a</sup>. The blade 35<sup>a</sup>, of the plow 35, lies near the inside of the periphery of the drum 4 and is for the purpose of breaking up the bran 5, which would otherwise become tightly packed in between said drum and the drum 19<sup>a</sup>. A similar plow 36 is shown in Fig. 3, for the purpose of breaking up the bran 5 forward of the drum 19 and other plows may be employed if deemed necessary. The cleaner 37 extends from the frame 3 to the frame 2, between the drums 19 and 19<sup>a</sup>, and is provided with the fingers 37<sup>a</sup> which extend into the grooves 19<sup>b</sup> in said drums and clear said grooves of the bran 5. Other cleaners may be used in connection with the drums 22, 25 and 25<sup>a</sup>.

The rod 38 extends upward from the frame 3, back of the drum 25<sup>a</sup>, across the interior of the drum 4 with a slight downward pitch and then turns upward to be attached to the frame 2, outside of said drum 4. The rod 38 is provided with the ring 39.

The trough 40, shown in Fig. 8, has the hook 41, at one end, and the handle 42, at the other end. When it is desired to remove the bran 5 from the drum 4, the hook 41 is passed through the ring 39, on the rod 38, and the trough 40 is reciprocated by hand on said rod until said bran is entirely drawn out of the revolving drum 4.

The chain 43, shown in Figs. 9 and 10, is preferable for use in place of the wire-cords 21 and 29. I do not wish to confine myself to the means set forth for adjusting the drums 25 and 25<sup>a</sup> and the pulleys 28 as any other suitable device may be utilized for that purpose.

The operation of my machine is as follows:  
 Revolve the drum 4 in the direction of the arrow 44, by means of the pulley 7 on the main-shaft 8 and the belt 6, and throw into said drum the desired amount of bran 5. The rapid, rotary motion of the drum 4 distributes the bran 5, by centrifugal force, evenly around the inside of the drum's periphery.

By means of the clutch 13 engage the mechanism which actuates the drums 19 and 19<sup>a</sup> with the shaft 1. Motion is now imparted to the drums 19 and 19<sup>a</sup> in the direction of the arrows 45, but since the gears 17 and 17 are smaller than the gears 14 and 15 the speed of said drums is much less than the speed of the drum 4. The tin-plate 46 is placed on the table 33 and moved over the inclined end of said table until it is caught between the drum 19<sup>a</sup> and the chains or cords 29. The plate 46 is now carried slowly around the drum 19<sup>a</sup> and against the bran 5 in the rapidly revolving drum 4. The grooves 22<sup>a</sup>, in the drum 22, are out of alignment with the grooves 25<sup>b</sup> in either of the drums 25 or 25<sup>a</sup>, as will be readily seen by referring to Fig. 5, hence the cords 29 pass diagonally around the drums 19 and 19<sup>a</sup>, for the purpose of exposing the parts of the plate 46, which had been covered by said cords in its passage around the drum 19<sup>a</sup>, to the action of the bran 5 when the drum 19 is reached. The plate 46 moves on, guided by the cords 21 and 29, from the drum 19<sup>a</sup>, over the drum 22 and around the drum 19, when it is thrown upon the table 33 with one side thoroughly cleaned and polished. The plate 46 is now turned over and carried around the drums 19 and 19<sup>a</sup> against the bran 5 again, to clean and polish the opposite side. The bran 5 becomes heated by the introduction of the hot plates 46 and for that reason more readily and thoroughly removes the grease adhering to said plates. One of the stops 47 is attached, between each pair of cords 29, to the under side of the support 26, over the drums 19 and 25, to prevent any plate 46 from following the chains or cords 29 up over the pulleys 28. When the bran 5 becomes foul it is drawn off by means of the trough 40, as before explained, and a fresh supply introduced into the drum 4. The object of placing the drums 19 and 19<sup>a</sup> so that their peripheries are close to the inside of the periphery of the drum 4 is to augment the friction at those points between the bran 5 and the tin-plate 46, whereby the cleansing process is more complete.

I do not claim the method herein described of cleaning and polishing tin-plate as I have made that the subject for a prior application.

I do not wish to confine myself to the exact means herein shown and described for imparting motion to the drums 19 and 19<sup>a</sup> from the drum 4, as any suitable device may be employed for this purpose without departing from the nature of my invention. Nor do I wish to restrict my machine to the use of bran, as a cleansing agent, since other substances which are the equivalents of bran may be utilized, with equally good results, if desired.

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a tin-plate cleaning and polishing machine, an external frame, a shaft supported by said frame, and a hollow rotary drum hav-

ing a front flange, fast on said shaft, in combination with an internal frame supported by said shaft, and a U-shaped bar and supports connecting said frames, in the manner substantially as described.

2. In a tin-plate cleaning and polishing machine, two shafts, the grooved drums 19 and 19<sup>a</sup> and two beveled-gears fast on said shafts, said gears meshing with beveled-gears on the shaft 16, in combination with said shaft 16 and beveled-gears, the gear 15, the shaft 12 having at one end a beveled-gear meshing with said gear 15 and at the other end a sprocket-wheel, a shaft supported by an external frame, a hollow rotary drum, friction-clutch and sprocket-wheel on said shaft, a chain connecting said sprocket-wheels, and an internal frame supported by said shaft, in the manner substantially as specified.

3. In a tin-plate cleaning and polishing machine, an external frame, a shaft supported by said frame, a hollow rotary drum fast on said shaft, and an internal stationary frame supported by said shaft, in combination with the grooved drums 19 and 19<sup>a</sup>, 25 and 25<sup>a</sup>, pulleys and pulley-boxes, the shafts of said drums supported by said frames; the supports for said pulleys and pulley-boxes, chains or cords connecting said drums and pulleys, and the driving mechanism between the drums 19 and 19<sup>a</sup> and the hollow-drum shaft, in the manner substantially as set forth.

4. In combination with a tin-plate cleaning and polishing machine, the pulleys 28 and the adjustable pulley-boxes 27 on the supports 26 and 26<sup>a</sup>, the U-shaped bar 32, the drums 19 and 19<sup>a</sup>, the adjustable grooved drums 25 and 25<sup>a</sup>, and a series of chains or cords passing over said pulleys, through the grooves in said drums 25 and 25<sup>a</sup> and around said drums 19 and 19<sup>a</sup>, in the manner substantially as and for the purpose set forth.

5. In a tin-plate cleaning and polishing machine, the grooved drums 19 and 19<sup>a</sup>, in combination with a groove cleaner having fingers and secured between said drums, substantially as and for the purpose set forth.

6. In a tin-plate cleaning and polishing machine, an external frame, a shaft supported by said frame, an internal frame stationary on said shaft, and one or more plows secured to said frames, in combination with a hollow rotary drum fast on said shaft and having a front flange, substantially as and for the purpose set forth.

7. In a tin-plate cleaning and polishing machine, an external frame, a shaft supported by said frame, an internal frame stationary on said shaft, and one or more plows secured to said frames, in combination with a hollow drum fast on said shaft and having a front flange, the means for rotating said drum, and a quantity of bran within the same, for the purpose set forth.

8. In a tin-plate cleaning and polishing machine, an external frame, a shaft supported

by said frame, an internal frame stationary on said shaft, a bent rod attached to said frames, and a ring on said rod, in combination with a hollow drum fast on said shaft and having a front flange, the means for revolving said drum, a quantity of bran within the same, and a trough provided at one end with a hook for attaching said trough to said ring whereby said bran may be removed from said drum when in motion, substantially as described.

9. In a tin-plate cleaning and polishing machine, an external frame, a shaft supported by said frame, an internal stationary frame on said shaft, and a table secured to said frames, in combination with the grooved drums 22, 25 and 25<sup>a</sup>, 19 and 19<sup>a</sup>, the pulleys 28, the chains or cords connecting said drums and pulleys, a hollow rotary drum fast on said shaft, and the intermediate driving mechanism, in the manner substantially as specified.

10. In a tin-plate cleaning and polishing machine, the drums 22, 25 and 25<sup>a</sup> having grooves therein arranged to carry the chains or cords 29 diagonally around the drums 19 and 19<sup>a</sup>, for the purpose specified.

11. The combination, in a tin-plate cleaning and polishing machine, of a hollow rotary drum, with a series of rotary drums and pulleys within said hollow drum, in the manner substantially as and for the purpose set forth.

12. The combination, in a tin-plate cleaning and polishing machine, of a hollow rotary drum having a front flange and containing bran, with a series of rotary drums and pulleys connected by chains or cords within said hollow drum, in the manner substantially as and for the purpose set forth.

13. In combination with a tin-plate cleaning and polishing machine, the grooved drums 19 and 19<sup>a</sup> connected by a series of chains or cords, the grooved drum 22 below and the adjustable grooved drums 25 and 25<sup>a</sup> above said drums 19 and 19<sup>a</sup>, the adjustable pulleys 28 above said drums 25 and 25<sup>a</sup>, and a series of chains or cords connecting all of said drums and pulleys, substantially as specified.

14. In combination with a tin-plate cleaning and polishing machine, the grooved drums 19 and 19<sup>a</sup> connected by a series of chains or cords, the grooved drum 22 below and the adjustable grooved drums 25 and 25<sup>a</sup> above said drums 19 and 19<sup>a</sup>, the adjustable pulleys 28 above said drums 25 and 25<sup>a</sup>, a second series of chains or cords connecting said drums and pulleys, a table, the supports for the pulleys, and the stops 47 attached to one of said supports above the drums 19 and 25, in the manner and for the purpose set forth.

15. The combination, in a tin-plate cleaning and polishing machine, of an external frame, a shaft supported by said frame, a hollow drum having a front flange, tight on said shaft, the means for revolving said drum, an internal frame on said shaft secured by sup-

ports and a U-shaped bar to said external  
frame; a series of internal grooved drums and  
pulleys connected by chains or cords, a table,  
one or more plows and cleaners, and a bent  
5 rod having a ring thereon, supported by and  
attached to said frames; the actuating mech-  
anism connecting the shafts of the two larger  
of said internal drums with said hollow-drum  
shaft, the stops 47, and a quantity of bran

within said hollow-drum, in the manner sub- 10  
stantially as and for the purpose set forth.

In testimony whereof I affix my signature in  
presence of two witnesses.

GEORGE J. RECORD.

Witnesses:

R. M. STEVENSON,  
W. J. FINDLEY.