Feb. 26, 1924. 1,485,116

J. E. KANE ET AL

TIN PLATE POLISHING AND CLEANING MACHINE

Filed June 30, 1922 2 Sheets-Sheet 1

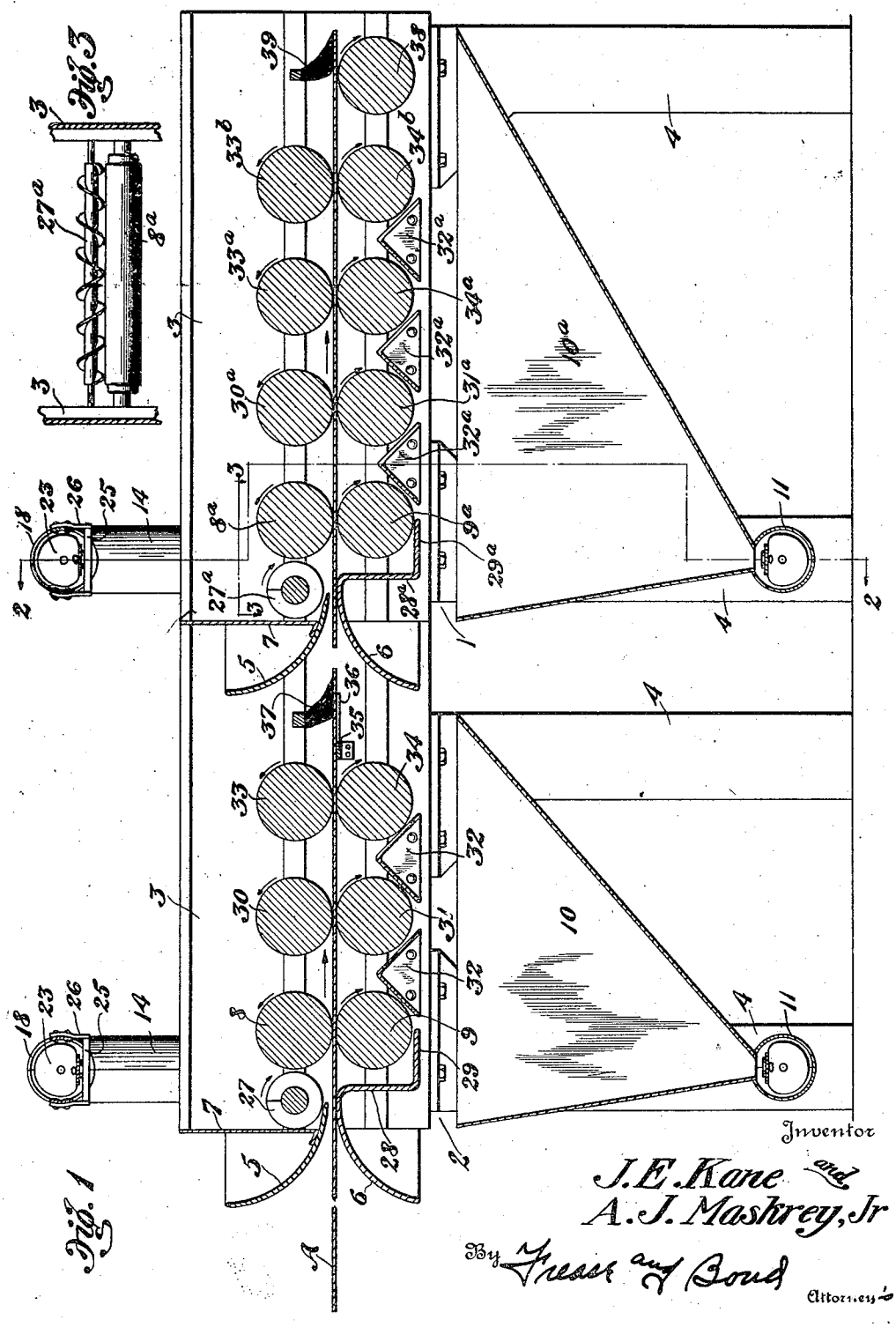


Fig. 1

Inventor

J. E. Kane and
A. J. Maskrey, Jr

By Fraser and Bond

Attorneys

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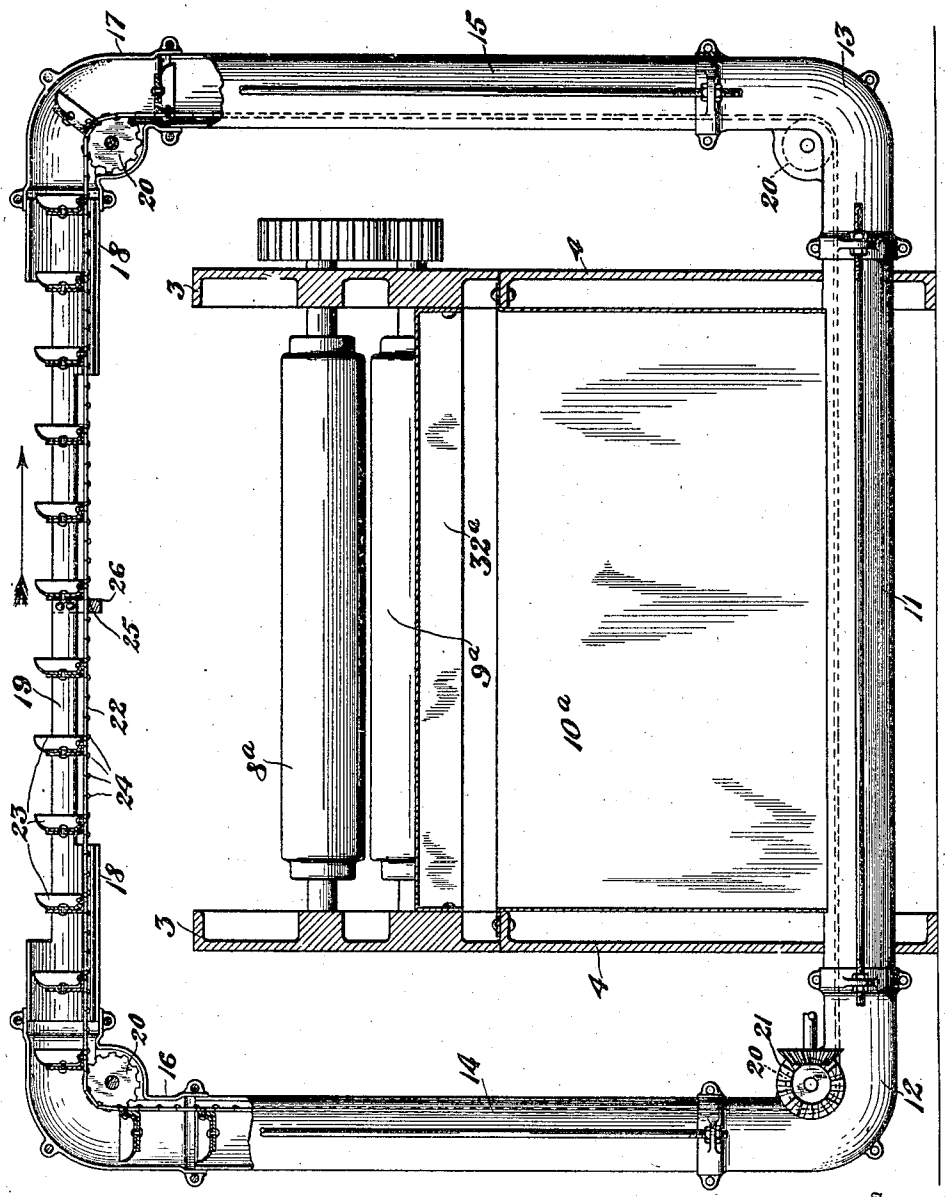


Fig. 2

Inventor

J. E. Kane and
A. J. Mashrey, Jr

By Fraser and Bond

Attorneys

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UNITED STATES PATENT OFFICE.

JAMES E. KANE AND ARTHUR J. MASKREY, JR., OF CANTON, OHIO.

TIN-PLATE POLISHING AND CLEANING MACHINE.

Application filed June 30, 1922. Serial No. 571,910.

To all whom it may concern:

Be it known that we, JAMES E. KANE and ARTHUR J. MASKREY, Jr., citizens of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Tin-Plate Polishing and Cleaning Machine, of which the following is a specification.

This invention relates to tin plate polishing and cleaning machines and has for its objects to improve the construction of machines of this type such as are now in general use; to provide an improved conveyer for the bran, which is so constructed that an auxiliary cleaning machine may be coupled to the usual cleaning machine without requiring more additional space than is necessary to accommodate the auxiliary machine; and to provide means for evenly distributing the bran upon the cleaning and polishing rolls.

The above and other objects may be attained by constructing the machine as illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view through a machine embodying the invention, showing an auxiliary machine coupled thereto;

Fig. 2, a section on the line 2—2, Fig. 1; and

Fig. 3, a section on the line 3—3, Fig. 1.

Similar numerals refer to similar parts throughout the drawings.

Referring to Fig. 1, the main cleaning machine is indicated generally at 1, the auxiliary machine is indicated generally at 2, and is constructed substantially like the main cleaning and polishing machine, excepting that fewer rolls are provided in the auxiliary machine.

It has been found in practice that tin sheets cannot be entirely cleaned by passing them through one bran and for this purpose, an auxiliary machine is usually coupled to a larger cleaning machine in order that the sheets may be passed through the bran in the auxiliary machine to take off the greater amount of grease, after which they are further cleaned and polished in the larger machine.

With the type of conveyers provided upon cleaning and polishing machines now in general use, considerable additional space is required to attach an auxiliary machine to the large cleaning and polishing machine, and in shops where a great number of cleaning machines are used and the floor space is limited, it is impractical to attach auxiliary machines to all of the cleaning and polishing machines in the shop.

With the present form of conveyer, the auxiliary machine may be attached to the large machine without requiring any space additional to that actually taken up by the auxiliary machine, as the conveyer is so positioned that it does not extend beyond the end of the machine, permitting the auxiliary machine to be placed in close proximity thereto.

The large machine and the auxiliary machine are each provided with the side frames 3 supported upon legs 4 and each has at its rear end a pair of curved guide plates 5 and 6, a rear wheel 7 extending from the upper guide plate 5 to the top of the side walls 3.

Referring now to the auxiliary machine, as each sheet A is passed between the guide plates 5 and 6, it is received between a pair of rolls 8 and 9, the upper roll 8 being driven at a greater speed than the lower roll 9, causing the sheet to move forward through the machine at the speed of the lower roll. while the upper roll cleans the upper surface of the sheet.

This cleaning is accomplished with bran or the like contained in the hopper 10 which is downward and rearwardly inclined and communicates at its lower end with the horizontally disposed tube 11. The tube 11 is connected at opposite ends with elbows 12 and 13 to which are connected the vertical tubes 14 and 15 respectively. Elbows 16 and 17 respectively are connected to the upper ends of the tubes 14 and 15, said elbows being connected by a member comprising the tubular end portions 18 and the central cut away portion consisting of the spaced bars or plates 19.

Sprocket wheels 20 are mounted in the elbows 12, 13, 16 and 17, one of the sprocket wheels being driven as by the gear 21. An endless sprocket chain 22 is located through the tubes and over all of said sprockets and provided at intervals with the cups 23. The under side of the chain is provided with the half round projections 24 which engage the roller 25 suspended upon the depending arms 26 carried upon the side plates 19, tending to give the chain a vibrating motion as it passes between the

plates 19, shaking all of the bran from the cups 23.

The bran thus carried up from the hopper 10 is deposited between the upper roll 8 and the double auger 27 which spreads the bran evenly along the entire length of the roll 8. The inner end of the curved guide plate 6 is provided with the depending portion 28 having the forwardly disposed flange 29 terminating beneath the center of the lower roll 9.

Spaced from the rolls 8 and 9 is a similar pair of rolls 30 and 31 which receive the sheet from the rolls 8 and 9, an inverted V-shaped plate 32 being located between the rolls 9 and 31. A similar pair of rolls 33 and 34 is spaced forward of the rolls 30 and 31, a V-shaped plate 32 being located between the rolls 31 and 34.

All of the cleaning and polishing rolls above described and the double auger 27 are geared in any suitable and well known manner to be driven by a suitable power means in the direction of the arrows shown in Fig. 1.

A transverse bar 35 is mounted between the side walls 3 of the auxiliary cleaner and provided with forwardly extending fingers 36 located in a line to receive the sheets as they pass from the cleaning and polishing rolls, a brush 37 being mounted above the fingers in position to wipe the upper faces of the sheets as they are passed over the fingers.

As the sheets pass from the auxiliary cleaner, they are carried between the guide plates 5 and 6 of the large cleaning machine and pass through the cleaning and polishing rolls 8^a and 9^a, 30^a and 31^a, 33^a and 34^a, 33^b and 34^b which are arranged similar to the cleaning rolls of the auxiliary machine.

A double auger 27^a is arranged adjacent to the roll 8^a and operates in the same manner as the auger 27 to spread the bran evenly along the entire length of the roll 8^a. A hopper 10^a is provided beneath the cleaning and polishing rolls of the large machine and communicates with the tube 11 of the auxiliary machine, said tube being a part of a conveyer identical to the conveyer above described in connection with the auxiliary machine, the same reference numerals being applied in the drawings to similar parts.

The lower curved guide plate 6 of the large machine is provided with a depending portion 28^a and a forwardly disposed flange 29^a extending to a point beneath the center of the roll 9^a. V-shaped plates 32^a are located between the lower rolls 9^a, 31^a, 34^a and 34^b, these plates retaining the bran between the lower cleaning and polishing rolls of the large machine in the same manner as the plates 32 of the auxiliary machine.

A delivery roll 38 is located at the delivery end of the large machine in position to receive the sheets from the cleaning and polishing rolls, a brush 39 similar to the brush 37, being located above the delivery roll in position to wipe the upper face of the sheet as it passes over the delivery roll.

All of the feed rolls, the delivery roll and the double auger of the large machine are provided with suitable gearing by means of which they are driven in the directions of the arrows shown in Fig. 1. The cleaning and polishing rolls of the auxiliary and large machines are both arranged to be driven in the same manner, alternate upper and lower rolls being driven at a fast speed, while the coacting rolls are driven at a slow speed, the sheet taking the speed of the slow rolls, while the fixed rolls tend to clean and polish the surfaces of the sheet. For instance, in the auxiliary machine, the rolls 8, 31 and 33 are driven at a high speed and the rolls 9, 30 and 34 are driven at a slow speed.

The operation of the machine is as follows: The sheets are passed from the tin pot into the auxiliary machine, as shown in Fig. 1, all of the rolls of the two machines being operated in the directions indicated in said figure. The conveyers are driven in the direction of the arrow shown in Fig. 2, carrying the bran upward from the hoppers 10 and 10^a, and depositing the same between the double augers 27 27^a and the cleaning and polishing rolls 8—8^a.

The flanges 29 and 29^a and the V-shaped plates 32 and 32^a retain the bran between the lower cleaning and polishing rolls, while a considerable amount of the bran is carried forwardly upon the sheet, the cleaning and polishing rolls working at two speeds, removing the grease from the surfaces of the sheets and polishing the same, while the brushes 37 and 39 remove the surplus bran from the upper surfaces of the sheets, permitting the same to drop back into the hoppers.

The greater amount of grease and dirt is removed from the sheets as they pass through the auxiliary machine and as the sheets enter the larger machine, they are passed through a second bran which is comparatively clean, removing any slight remaining grease and polishing the surfaces of the sheets as they pass through the larger machine.

With the construction of conveyer illustrated and described in this application, no additional room is required for the conveyers and the auxiliary machine may be butted against the larger machine, permitting the machines to be coupled together with the use of a minimum amount of room.

We claim:—

1. A tin plate cleaning and polishing machine including a series of rolls through which tin plates are adapted to pass hori-

zontally, and a conveyer for depositing cleaning material upon the tin plates as they pass through the machine, the conveyer comprising an endless chain having buckets rigidly mounted thereon arranged to travel transversely across the machine, and means for vibrating the chain as it passes over the plates to evenly distribute the cleaning material thereon.

2. A tin plate cleaning and polishing machine including a series of rolls through which tin plates are adapted to pass horizontally, a conveyer for depositing cleaning material upon the tin plates as they pass through the machine, the conveyer comprising an endless chain having buckets thereon arranged to travel transversely across the machine, spaced projections upon the chain and a roller over which the chain passes to vibrate the chain as it passes over the plates.

JAMES E. KANE.
ARTHUR J. MASKREY, JR.