

N. RANSOHOFF.
TUMBLING BARREL.
APPLICATION FILED JAN. 9, 1919.

1,297,400.

Patented Mar. 18, 1919.

2 SHEETS—SHEET 1.

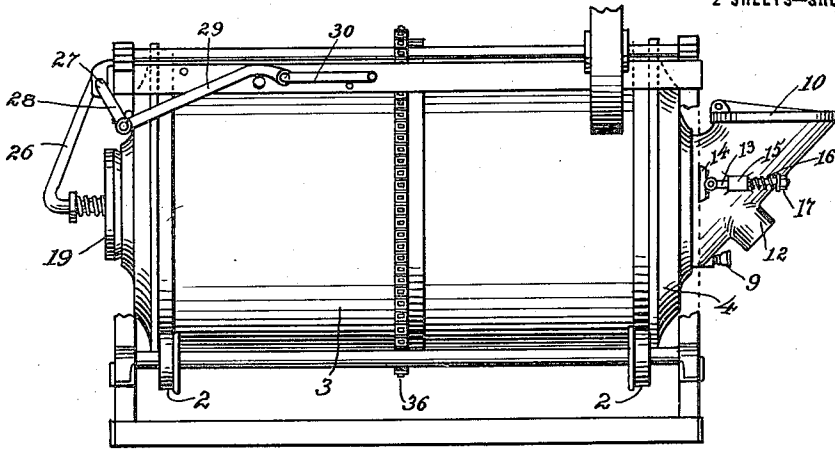


Fig. 1.

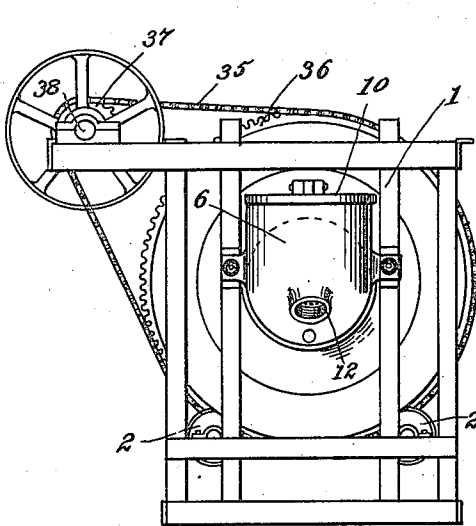


Fig. 2.

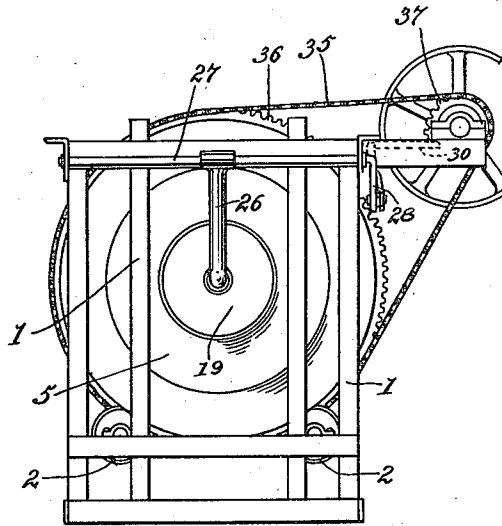


Fig. 3.

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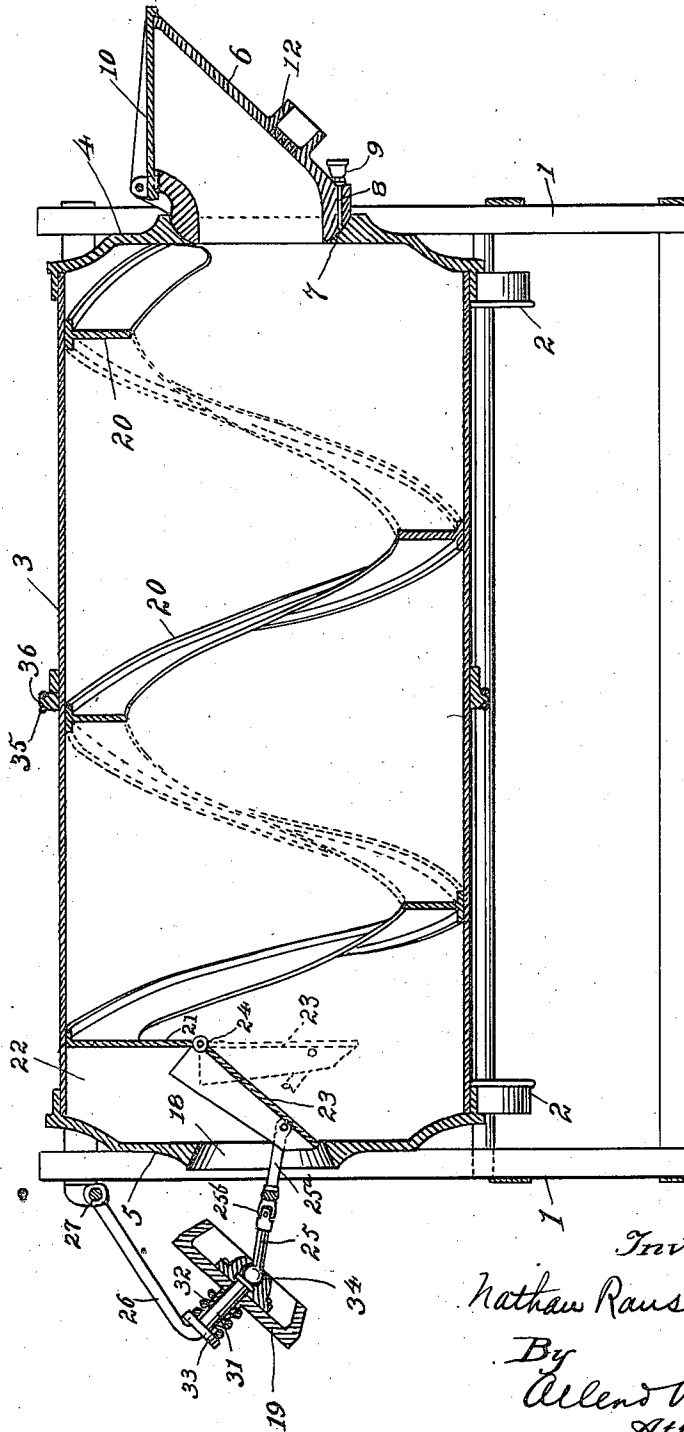


Fig. 4.

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UNITED STATES PATENT OFFICE.

NATHAN RANSOHOFF, OF CINCINNATI, OHIO.

TUMBLING-BARREL.

REISSUED

1,297,400.

Specification of Letters Patent.

Patented Mar. 18, 1919.

Application filed January 9, 1919. Serial No. 270,396.

To all whom it may concern:

Be it known that I, NATHAN RANSOHOFF, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Tumbling-Barrels, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, forming part of this specification.

My invention relates to receptacles for holding metal parts which are shaken up and rolled around upon each other to smooth off and polish the edges by rotating or rocking the vessel in which the articles are placed. These receptacles are usually in the shape of a cylindrical barrel, with an opening in the side for charging and discharging the metal parts, and with this construction it is of course necessary that for charging the tumbling barrel the opening should be at the top, and for discharging the opening must be brought to the bottom, and it therefore follows with the usual construction that the apparatus has to be stopped during the loading and unloading.

It is the principal object of my invention to provide a construction which can be loaded and unloaded while running and which can be arranged to discharge into a wheelbarrow or other receptacle while rotating, and which may be equipped with a power loader for depositing in the barrel a complete batch from the ground level.

Another object is to provide a construction which can be readily and easily equipped with a suction tube for drawing off the dust and powder while the machine is still operating.

The invention consists of that certain novel construction and arrangement of parts to be hereinafter particularly pointed out and claimed under which the above objects are attained.

In the drawings,

Figure 1 is a side elevation of my improved tumbling barrel.

Figs. 2 and 3 are end elevations taken from the right and left hand ends of the machine as illustrated in Fig. 1.

Fig. 4 is a central longitudinal section of the barrel.

Supported in suitable end standards 1, 1, preferably on rollers 2, 2, is a cylindrical

casing 3, with open ends closed by the heads 55

4. 5. One of these heads 4 is formed with a central opening for the reception of a receiving hopper 6. As the hopper is to remain stationary while the casing with its heads is rotated, to provide a dustproof joint between the hopper and the head, I form semi-cylindrical engaging surfaces 7 between the head at the central opening and the inner surface of the hopper and arrange for an oil passageway 8 and a grease cup 9 to keep the joint lubricated. The hopper is provided with a closing lid or cover 10 and a short pipe section 12 which can be readily connected with an exhaust fan (not shown) for exhausting the dust from the barrel. The hopper is held stationary while the barrel revolves by means of spring bolts 13 on each side of the hopper secured to the frame at 14 and with the bolts passing through lugs 15 on the hopper and coiled springs 16 bearing between the adjusting nuts 17 on the end of the bolts and the lugs 15, so that a tight suction joint is maintained between the rotating barrel and the hopper thus held in engagement.

At the central portion of the opposite head 5 of the barrel, I provide a conically shaped discharge opening 18 in which the closing plug 19 is arranged to fit.

On the inside of the barrel is secured a spiral blade 20 extending from the receiving to the discharge end of the barrel. Near the discharge end this spiral blade terminates in a cup formed with a vertical side wall 21 and end wall 22 and a movable or swinging bottom 23, which is hinged to side wall at 24. This swinging bottom is pivotally connected with the plug 19 by the links 25 and 25^a, coupled together with a double swiveled joint 25^b, and when the plug is in its closed position the swinging bottom 23 will take the position shown in dotted lines in Fig. 1 in a direct line with the side wall of the cup, leaving the cup portion entirely open. When, however, the plug is withdrawn, the swinging bottom 23 will be drawn into a slanting position to the edge of the discharge opening. When the discharge opening is closed, the contents of the barrel will continue to tumble around through the open cup; but when the plug is withdrawn, the material will be discharged through the outlet.

The plug is operated by the lever 26 which is secured on the horizontal pivot rod 27 mounted in the upper end of the frame, and this arm is rocked by the rock arm 28 operated by the hand lever 29, provided with the handle 30. In order to maintain spring pressure on the plug 19, the inner end 31 of the lever 26 is connected directly to the end of the link 25, and a coiled spring 32 bears between a collar 33 on the lever and the plug, while the plug itself is loosely mounted on the portion 31, so as to slide on the rod. The connection between the inner end of the lever 26 and the link 25 at 34 is a universal joint connection, so as to permit the link to rotate with the barrel.

For rotating the barrel, the barrel rests on the rollers 2, 2, and it is rotated by the sprocket chain 35 which engages the sprocket wheel 36 formed on the circumference of the barrel and is driven by the sprocket 37 on the power shaft 38, driven by belt and pulley, or in any other suitable way.

It will be evident from the foregoing description that the material to be polished may be dumped in through the hopper 6 and the barrel rotated, and while rotating the full batch may be deposited therein until the receptacle is about two-thirds full. After the parts have been sufficiently tumbled around, the discharge opening is opened and thus draws the bottom 23 up to the edge of the discharge opening and the material is delivered while the barrel is still rotating, and at the same time a new charge may be introduced through the hopper. Before opening up the receptacle for the discharge of its contents, a suction fan may be utilized for drawing off the dust.

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

1. In a tumbling machine, a horizontally disposed rotatable cylindrical casing, with inlet and discharge openings at opposite ends at the axis of rotation of the casing, a fixed hopper, with connection therefor with the inlet opening for the reception of material while the casing is rotated, and a door for the discharge opening, with means for delivering the material to said opening when the door is opened.

2. In a tumbling machine, a horizontally disposed rotatable cylindrical casing, with inlet and discharge openings at opposite ends at the axis of rotation of the casing, a fixed hopper, with connection therefor with the inlet opening for the reception of material while the casing is rotated, and a door for the discharge opening, with means for delivering the material to said opening, and connecting mechanism intermediate the delivery means and the door, whereby when the door is opened the material will be discharged.

3. In a tumbling machine, the combination with the frame and a rotatable casing mounted therein, of a fixed hopper mounted in the frame centrally of the casing, with a coupling joint therefor with the casing to permit the casing to rotate with the hopper stationary, the casing provided with a delivery opening at the opposite end, with a swinging door adapted to be opened or closed while the casing is rotating, whereby the casing can be used without stopping its rotation for loading and unloading the machine.

4. In a tumbling machine, the combination with the frame and a rotatable casing mounted therein, of a fixed hopper mounted in the frame centrally of the casing, with a coupling joint therefor with the casing to permit the casing to rotate with the hopper stationary, a cup receptacle within the casing provided with a swinging bottom, a swinging door or plug for the delivery end of the casing, with connection intermediate the plug and the cup bottom, whereby upon the opening of the plug the cup bottom shall be shifted to direct the material to the discharge opening, and upon the closing of the plug the cup bottom shall be withdrawn.

5. In a tumbling machine, the combination with the frame and a rotatable casing mounted therein, of a fixed hopper mounted in the frame centrally of the casing, with a coupling joint therefor with the casing to permit the casing to rotate with the hopper stationary, a tight cover and an exhaust connection for the hopper, the casing provided with a delivery opening at the opposite end, with a swinging door adapted to be opened or closed while the casing is rotating, whereby the casing can be used without stopping its rotation for loading and unloading the machine.

6. In a tumbling machine, the combination with the frame and a rotatable casing mounted therein, of a fixed hopper mounted in the frame centrally of the casing, with a coupling joint therefor with the casing to permit the casing to rotate with the hopper stationary, a tight cover and an exhaust connection for the hopper, a cup receptacle within the casing provided with a swinging bottom, a swinging door or plug for the delivery end of the casing, with connection intermediate the plug and the cup bottom, whereby upon the opening of the plug the cup bottom shall be shifted to direct the material to the discharge opening, and upon the closing of the plug the cup bottom shall be withdrawn.

7. In a tumbling machine, the combination with the frame and a horizontally disposed rotatable cylindrical casing provided with an internal spiral conveyer and a cup receptacle at the delivery end of the conveyer, provided with a swinging bottom, with

means for rotating the casing in the frame, of a fixed hopper mounted in the frame centrally of the casing, with a coupling joint therefor with the casing to permit the casing to rotate with the hopper stationary, a swinging door or plug for the delivery end of the casing, with a link connection between the plug and the cup bottom, whereby upon the opening of the plug the cup bottom shall be shifted to direct the material to the discharge opening, and upon the closing of the plug the cup bottom shall be withdrawn.

NATHAN RANSOHOFF.