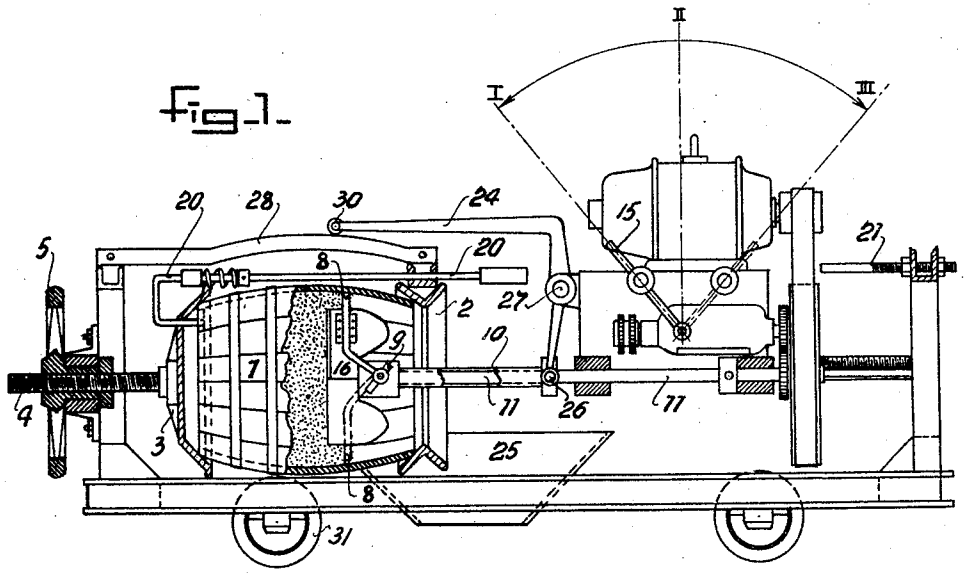
Nov. 15, 1932. J. G. FISCHER 1,888,032

MEANS FOR EMPTYING BARRELS

Filed July 13, 1931

Fig. 1.



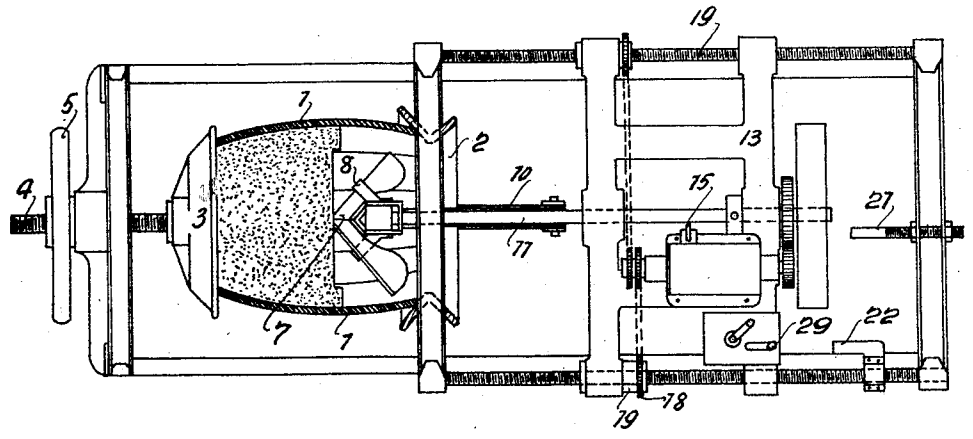


Fig. 2.

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UNITED STATES PATENT OFFICE

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MEANS FOR EMPTYING BARRELS

Application filed July 13, 1931, Serial No. 550,506, and in Germany May 5, 1930.

My invention relates to a device for emptying barrels and it particularly relates to such devices for emptying barrels which are arranged in a horizontal disposition.

Devices for emptying barrels, arranged in a horizontal position, are known. These devices of the prior art, however, did mostly not allow a complete removal of the contents of the barrels, because the devices were not provided with scrapers which automatically adjusted themselves to the diameter of the barrel; usually the barrels increase in volume in their middle part and the material adhering to the walls was not scraped off.

On the other hand one knows barrel washing machines which are adjustable to the bulge of a barrel, but as for their application the contents must be removed first. These barrel washing machines are not suitable for or adjustable to the removal of any paste-like materials according to the purposes for which this invention is intended. The barrel washing machines do not only require that the barrel must be empty, but that often both the top and bottom must be removed from the barrel, because otherwise the barrel cannot be properly arranged within the emptying device.

There are some emptying devices in which scrapers are actuated by the action of a spring to adjust themselves to the bulge of the barrels. But there is no means which regulates the spring action and thereby it is caused that though the scrapers remove the contents from the barrel, they also ultimately scratch the inside wall of the barrels and thereby shave particles off the walls, which particles, or shavings contaminate the material. This contamination of the material and the destruction of the barrels renders these devices unsuitable for the purposes of this invention.

In contradistinction to these devices of the prior art the present invention of my barrel emptying device is characterized by its adaptability to the bulge of the barrel so as to completely remove its contents without destroying the walls of the barrel, because the scrapers are controlled by a guide so that they do not scratch the walls, thus protecting the material against a contamination by wood shavings.

With these and other objects in view, the invention consists essentially of a governing device for the adjustment of the wings of the screw-like scrapers inside the barrel cooperatively engaged by a curved guide-way arranged outside along the barrel; as will be further shown by the description below and by the accompanying drawing, which illustrates as an example one of the ways by which I may carry my invention into effect.

In said drawing:

Figure 1 shows a side elevation of the device, parts being broken away so as to lay the parts inside the barrel open for inspection; and

Figure 2 shows a plan and partly sectional view, the section being made along line 2—2 of Figure 1.

In the drawing the numeral 1 denotes a barrel arranged between the faces 2 and 3 of a clamping device. The face 2 has the form of a ring with a V-bent in its middle so that funnel-shaped openings are formed on both sides. The face 3 has the form of a cup arranged with its center on the screw threaded spindle 4 which is horizontally arranged in the frame F within a threaded journal secured to said frame; the spindle 4 is operated by the hand-wheel 5. The frame F is mounted perpendicularly on the truck having wheels 31.

The barrel is put between the face, or cup, 3 and the left face of the ring 2 and by suitably turning the hand-wheel 5 the barrel is fastened tightly between said members 2 and 3.

The face 3 is provided with a perforation to support therein a U-shaped terminal of a rod 20 pressing elastically against the bottom of the barrel, without regard to the size of the barrel which may be arranged between members 2 and 3. 20 acts as a stop device to limit the operation of the clearing spindle 7 and its wings 8. These are operated by the shaft 11. This shaft is suitably driven by an electro-motor. The device acts in the manner, that the electro-motor by means of the gears 18 on the spindles 19 slowly forces the clear-

ing device 16, with the wings 8, into the barrel and bores out the raw material, discharging it into the opening 25. In order to perfectly remove the paste-like contents of the barrel, it is necessary that the wings 8 press closely against the sides of the barrel and strip off the paste-like raw material. For that reason, the present arrangement comprises a displaceable slot 9, in which is placed a lever carrying the scrapers, so that by a guidance arranged on the hollow shaft 10, which consists of the bell crank lever 24 hingedly arranged at 26 and 27, it is possible to push apart and together the wings 8 in the direction from and to the middle axis. The movement of aforesaid arrangement is controlled by the shape of the barrel; to accomplish this the lever is provided at its end with a roll 30 which runs on a curved guideway 28 arranged outside along the barrel, the curvature of the guideway corresponding to the usual contour or shape of the barrels. As soon as the scrapers have reached the bottom of the barrels, the lever 15 hits against the stop device 20 by which the transport is switched over and so the reversal of the direction of the moving device 13 is effected. During the operations described above, the device does not run at the normal speed, for the same must be much slower during the removal of the contents from the barrel; it returns, however, at nearly three times the previous speed, because at the reversal it is switched over to another speed. (Not shown.)

If at the inverted working of the clearing drill the part 29 of the bearing frame 13 reaches the stop 22, the starter is thereby actuated, i. e. the electric motor is switched off. In case this switching-off for some reason or other does not work, the stop 21 (Fig. 1) is provided to bring about this effect. The stop bears on the lever 15 and soon stops the device.

For operating the machine the starter 29 is set in action, whereby the motor is switched on and brought into action without causing any transport of the bearing frame 13. Then the lever 15 is moved by hand from its position II (shown in dotted lines) into the position I; the device is thus switched over and the running of the machine is thereby effected.

The invention may also be used for semi-solid, dough or paste-like, solid and pulverulent raw material.

What I claim is:

In a device for emptying barrels containing paste-like material, the combination of a truck formed with a guide-way conforming in curvature to that of the inner contour of the barrel, a bi-concave ring arranged on and between the truck and the inside end of aforesaid frame, a journal secured to the rear end of said frame, a tightening gear at the outer end of said journal and a concave cap at its inner end, a screw-threaded shaft operable in said journal, a rotary shaft supported on said truck in axial alinement with said screw-threaded shaft, reversible driving means adapted to cooperate with said rotary shaft to impart a reciprocating motion thereto, radially alined adjustable scrapers secured to the end of the rotary shaft adjacent the barrel, a hollow sleeve slidable over said rotary shaft engageable with said scrapers, a bell-crank lever hinged to said driving means and having one end pivoted to said sleeve and its other end slidable along said curved guideway, and a stop device adapted to stop the rotation of the scrapers when they have reached the bottom of the barrel and to reverse the direction of the rotary shaft to withdraw the scrapers from the barrel after the contents thereof has been removed.

In testimony whereof I have signed my name to this specification.

JOHANN GEORG FISCHER.