No. 821,483. PATENTED MAY 22, 1906.

D. T. GRAHAM.

TUMBLER.

APPLICATION FILED OCT. 2, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

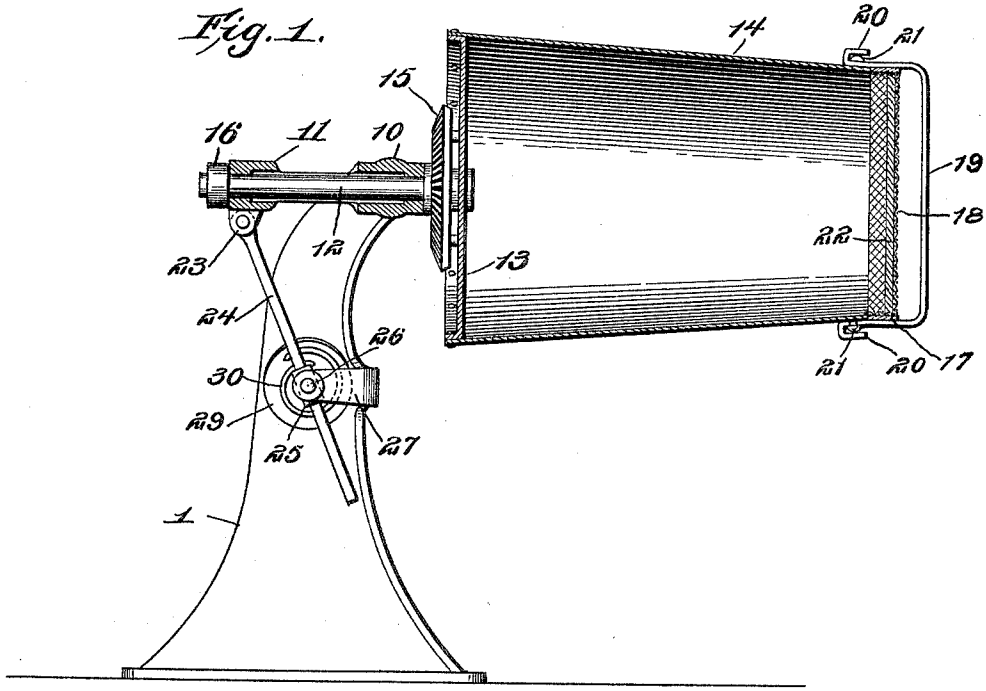
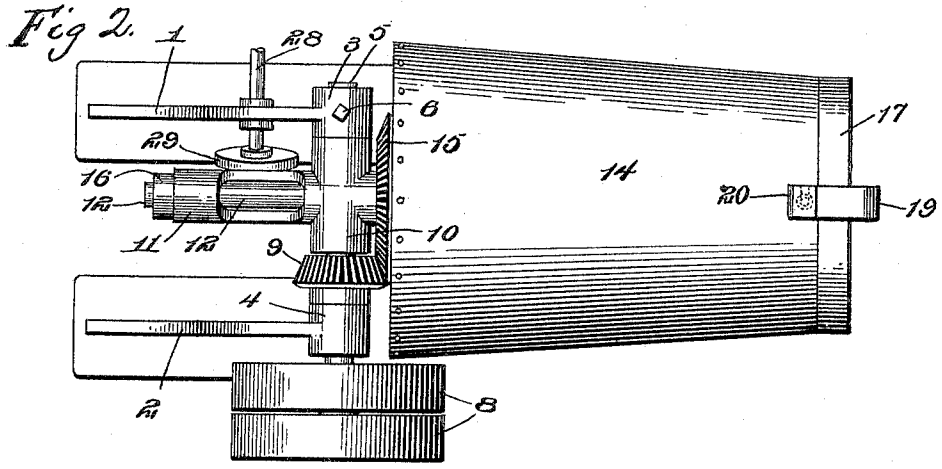


Fig 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

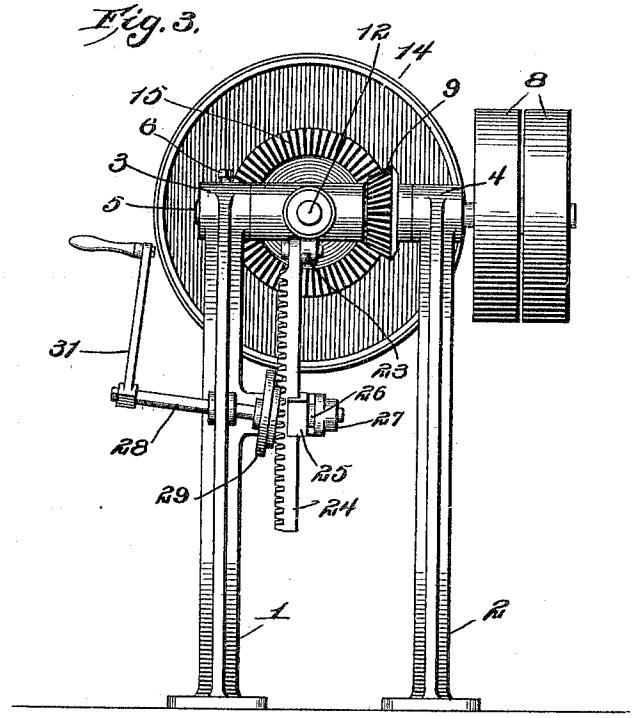


Fig. 4.

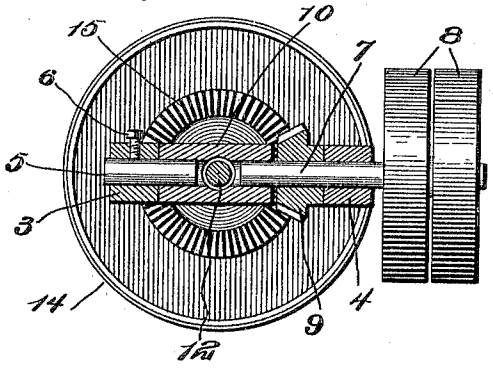
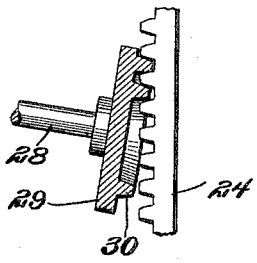


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TUMBLER.

No. 821,483. Specification of Letters Patent. Patented May 22, 1906.

Application filed October 2, 1905. Serial No. 281,019.

To all whom it may concern:

Be it known that I, DAVID T. GRAHAM, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Tumblers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to tumblers for cleaning castings; and its object is to provide a device of this character the barrel of which is mounted in a peculiar manner, whereby the same can be swung to any desired angle without interfering with its rotation.

A still further object is to provide novel means for adjusting the barrel and for holding it in adjusted position.

With the above and other objects in view the invention consists of standards having alining fixed and movable shafts which constitute bearings for a cross-head which is pivoted on the shafts and has a tubular arm in which is rotatably mounted the stem of a barrel. A gear is secured to the barrel and meshes with a gear on the rotatable shaft in the cross-head. A rack is pivoted to the arm of the cross-head and is engaged at all times by a rotatable spindle.

The invention also consists of the further novel features of construction and combination of parts, the preferred form whereof will be hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings, which form a part of this application, I have shown the preferred form of my invention.

In said drawings, Figure 1 is a vertical longitudinal section through my improved tumbler. Fig. 2 is a plan view thereof. Fig. 3 is an end elevation. Fig. 4 is an enlarged vertical section through the cross-head, showing the barrel and the bearing-shafts of the cross-head in elevation; and Fig. 5 is an enlarged view showing the spiral in section and a portion of the rack engaged thereby in elevation.

Referring to the figures by numerals of reference, 1 and 2 are suitable standards having bearings 3 and 4 at their upper ends, respectively, and extending inwardly from the bearing 3 is a short shaft 5, which is held against movement by a set-screw 6. Another shaft 7 is rotatably mounted in the bearing 4 and alines with the shaft 5. Pulleys 8 are mounted on the shaft 7, and a gear 9 is secured to said shaft at a point between the bearings 3 and 4. Shafts 5 and 7 project into opposite portions of the cross-head 10, having a tubular arm 11 extending at right angles thereto, and within this arm and extending transversely through the cross-head is a rotatable stem 12, which is secured in any desired manner to the large end 13 of a frusto-conical barrel 14. A large gear 15 is concentrically disposed upon the end 13 of the barrel and rotates therewith, and this gear meshes at all times with the gear 9, hereinbefore referred to. Longitudinal movement of the stem 12 in either direction is prevented by the gear 15 and by a head 16, which is secured to said stem adjacent its free end. The small end of barrel 14 is adapted to be closed by a cap consisting of a metal ring 17, having a covering 18 of metal fabric, which constitutes a screen. A bail 19 is fastened to the ring at diametrically opposite points and terminates in slotted hooks 20, which are adapted to be slid into engagement with headed lugs 21 on the barrel 14 by rotating the cap after the same has been placed against the end of the barrel. A metallic disk 22 is adapted to fit snugly within the cap, so as to prevent the escape of material through the screen; but this disk can be readily detached by forcing it out of the cap with any suitable tool. An ear 23 extends downward from the tubular arm 11 of the cross-head, and pivoted to it is a rack 24, which is slidably mounted in a guide-block 25. This block has a stem 26, which is pivoted within an angular arm 27, extending from standard 1, and therefore the block is capable of a rocking movement and can therefore accommodate itself to all the movements of the rack when the same is raised or lowered. A shaft 28 is journaled within the standard 1 and is preferably inclined upward therefrom. A disk 29 is secured to the inner end of this shaft and has a spiral 30, which engages the teeth of rack 24, so that each time the disk and its spiral are rotated the rack is moved one tooth. A crank 31 or other operating means is disposed upon the outer end of the shaft 28, so that the same may be readily rotated manually.

In using the tumbler herein described the barrel 14 is swung upward by rotating shaft 28 and causing the spiral 30 to slide the rack 24 downward. Arm 11 will therefore be swung downward therewith and cause the cross-head 10 to partly rotate on shafts 5 and

7. After the proper adjustment has been secured the shaft 28 may be released, but will remain fixed under any pressure applied thereto through rack 24, and therefore no particular locking means need be employed. After the adjustment the cap is removed from the end of the barrel by rotating it so that it becomes disengaged from lugs 21. The castings to be cleaned are then placed within the tumbler, after which the cap is again fastened upon the open end thereof. The tumbler can then be rotated by transmitting motion thereto through pulleys 8, shaft 7, and gears 9 and 15. While the tumbler is rotating, it can be adjusted to any desired angle in the manner hereinbefore described, and after the castings have been properly cleaned the tumbler can be stopped and the cap removed. The disk 22 can then be taken out and the cap replaced, and upon the further operation of the barrel the particles which have been separated from the castings will be discharged through the screen 18.

It will be seen that this tumbler is very strong, but simple in construction, and can be quickly adjusted to any desired angle and locked without stopping the rotation of the barrel and without utilizing any particular form of locking device. The cross-head employed by me is very durable and forms a rigid bearing for the stem of the barrel.

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

1. The combination with a standard; of a tumbler-barrel, a stem projecting therefrom and pivotally supported by the standard, a rack pivoted to the stem at a point removed from its pivot, and a rotatable spiral mounted upon the standard and engaging the rack.

2. The combination with a standard; of a cross-head mounted thereon, a rotatable shaft constituting a pivot for the cross-head, a barrel, a rotatable stem projecting therefrom and into the cross-head, means for transmitting rotary motion to the barrel, a rack pivoted to the cross-head at a point removed from the pivot thereof, a rocking guide for the rack and mounted upon the standard, and a rotatable spiral engaging the rack.

3. The combination with standards; of a cross-head pivotally mounted therebetween and having a tubular arm, a barrel, a stem projecting from the barrel and rotatably mounted within the arm, a bracket upon one of the standards, a rocking guide mounted within the bracket, a rack pivoted to the tubular arm at a point removed from the pivot of the cross-head, a shaft extending through one of the standards at an acute angle thereto, and an inclined spiral upon said shaft and engaging the rack and holding the stem within the guide.

4. A tumbler-barrel having one end open, a screen-cap, means for detachably securing said cap upon the open end of the barrel, and a solid disk detachably mounted within the cap and closing the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID T. GRAHAM.

Witnesses:

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