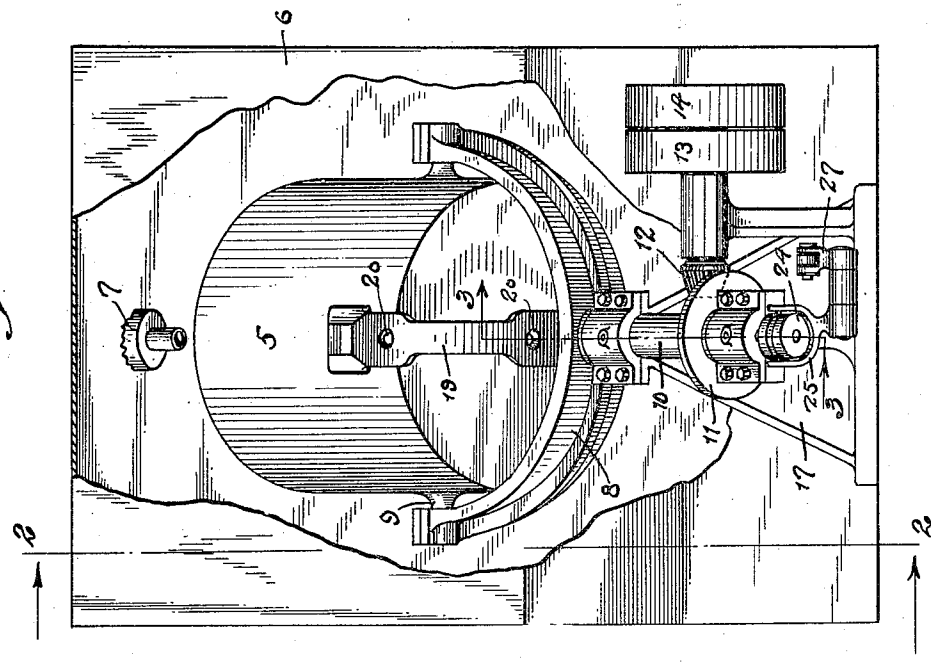
April 22 , 1924. 1,491,663

C. E. BILLINGS ET AL

SAND BLAST APPARATUS

Filed Oct. 26 , 1921 2 Sheets-Sheet 1

Fig. 1.



Inventors
CLARENCE E. BILLINGS
DONALD S. SAMMIS
By their Attorneys
Storm and Storm

April 22, 1924. 1,491,663

C. E. BILLINGS ET AL

SAND BLAST APPARATUS

Filed Oct. 26, 1921 2 Sheets-Sheet 2

Fig. 3.

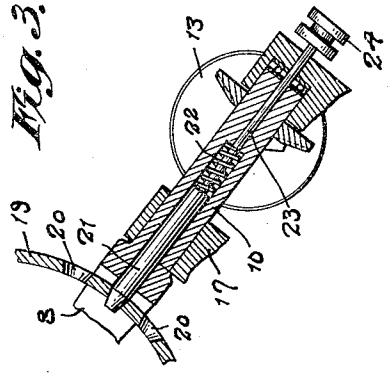
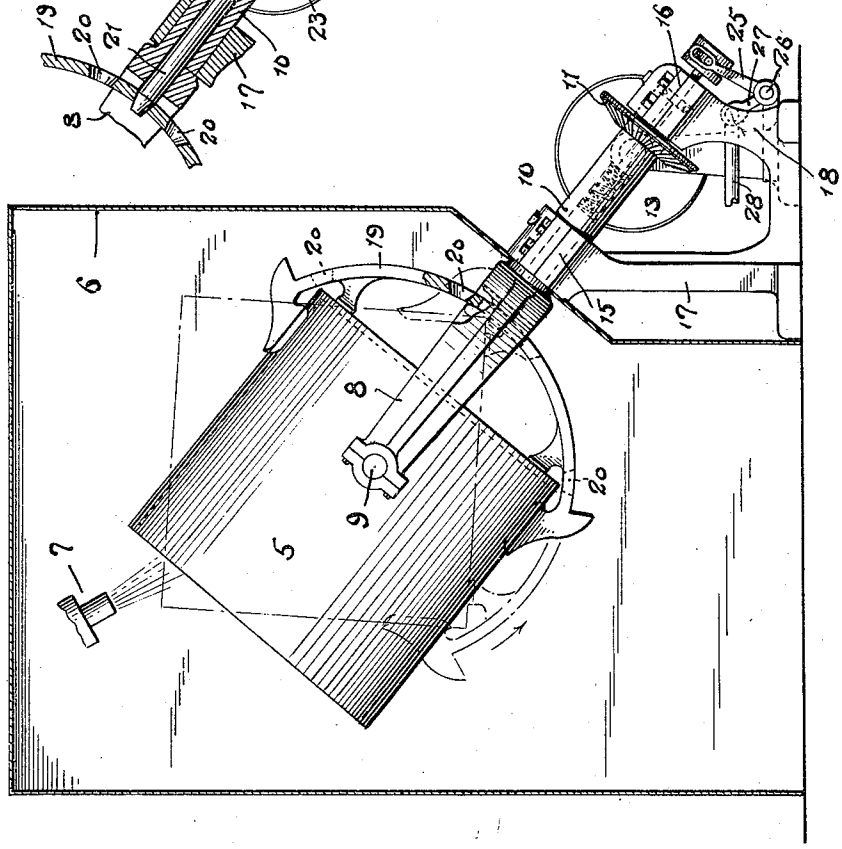


Fig. 2.



Inventors
CLARENCE E. BILLINGS
DONALD S. SAMMIS
By their Attorneys
Storm and Storm

Patented Apr. 22, 1924. 1,491,663

UNITED STATES PATENT OFFICE.

CLARENCE E. BILLINGS, OF NEW HAVEN, AND DONALD STUART SAMMIS, OF STRATFORD, CONNECTICUT, ASSIGNORS TO THE NEW HAVEN SAND BLAST COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

SAND-BLAST APPARATUS.

Application filed October 26, 1921. Serial No. 510,462.

To all whom it may concern:

Be it known that we, CLARENCE E. BILLINGS and DONALD S. SAMMIS, citizens of the United States of America, residing, respectively, at New Haven, in the county of New Haven and State of Connecticut, and Stratford, in the county of Fairfield and State of Connecticut, have invented certain new and useful improvements in Sand-Blast Apparatus, of which the following is a specification.

Our invention relates to sand blast apparatus, and particularly to apparatus of the rotary barrel type. The object of our invention is to provide a tilting barrel having certain features of improvement in construction and operation hereinafter pointed out or illustrated in the accompanying drawings, in which

Fig. 1 is a broken elevation of an apparatus in which our invention is embodied in one form;

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

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

As here illustrated the present blast barrel 5 is housed within a casing 6, in which suitable openings, not shown, are provided for the introduction and removal of the castings. A sand-blast nozzle 7 also projects into the casing in suitable position to operate upon the castings during the rotation of the barrel. The barrel is pivotally supported on opposite arms of the yoke 8 by means of trunnions 9. The yoke in turn is carried by an inclined hollow shaft 10, to which a rotary motion is imparted through the bevel gear 11 fast on the shaft and meshing with a bevel pinion 12, on the shaft of which are fast and loose belt pulleys 13 and 14. Both bearings 15 and 16 for the shaft lie outside the casings and are thus protected from the dust and grit therein. The bearing support may be of any suitable character, that shown being of simple form and comprising a casting, the leg 17 of which carries the bearing 15, and is longer than the leg 18 which carries the bearing 16.

Mounted on the barrel is an arcuate yoke 19 having a center of curvature substantially co-axial with the trunnions 9, but lying in a plane substantially at right angles to that of the barrel supporting fork 8. At suitable points in the yoke 19 apertures 20 are formed to receive the latching bar 21. The latter is housed within the hollow shaft 10 and is normally pressed into engagement with the yoke 19 by a spring 22 surrounding the stem 23 of the latch and interposed between the latch 21 and the bottom of the recess in which the latch works. The stem 23 extends through the lower end of the shaft 10 and carries a grooved pulley 24 engaged by a latch shifter 25. The latter is fast on a spindle 26 pivoted on the lower portion of the leg 18 of the base casting. A crank arm 27 fast on the shaft 26 serves to rock the latch shifter. Any suitable means may be used to actuate the crank arm 27, such for instance as a connecting rod 28, which may be operated by hand, or by power, as desired.

During the operation of the barrel it may assume the position illustrated in Fig. 2, that is to say with its axis substantially aligned with the axis of the driving shaft 10, while the blast plays upon the castings as they tumble about in the barrel during its rotation. In some instances, however, it may be desired to give a more irregular motion to the castings as the barrel rotates, and in such case the latch 21 will be withdrawn from the central hole 20 in the yoke 19 and engaged in a hole to one side or the other of the yoke center. When the barrel is now rotated by the drive of the shaft 10, a wobbling motion is imparted to it, with the result that the movement of the castings within the same is more irregular than is the case when the barrel is in the axial position indicated. When the blasting operation has been finished and it is desired to remove the cleaned castings, the latch 21 is withdrawn, permitting the barrel to swing down on the trunnions 9 to discharge position, in which it is halted by the engagement of the latch 21 in one or the other of the holes 20 adjacent the ends of the yoke 19. To re-charge the barrel it may be rotated a half turn, thus bringing the barrel to the upright position illustrated in dot and dash line in Fig. 2, when the new charge of castings may be dumped into the barrel which is now held in upright position. Or the barrel may be swung down to its operating position before the castings are inserted.

Various modifications in detailed arrangement and construction of parts will readily occur to those skilled in the art, which do

not depart from what we claim as our invention.

We claim—

1. In apparatus of the class described, a barrel for the reception of castings, or the like, means having a fixed inclination for supporting and rotating the barrel, and means for varying the inclination of the barrel axis with respect to said support in combination with a stationary casing surrounding the barrel, and within which it rotates, and a blast nozzle adapted to play upon the castings within the barrel during the rotation of the latter.

2. In apparatus of the class described, a barrel for the reception of castings, or the like, an inclined spindle for supporting and rotating the barrel, and cooperating latching elements on said barrel and support for holding the barrel with its axis at different inclinations to the axis of the spindle in combination with a stationary casing surrounding the barrel, and within which it rotates, and a blast nozzle adapted to play upon the castings within the barrel during the rotation of the latter.

3. In apparatus of the class described, a barrel for the reception of castings, or the like, a fork on which the barrel is pivotally supported, an inclined spindle rigid with the fork for imparting rotation to the barrel, in combination with a latching segment carried by the barrel, and means engageable with said segment for holding the barrel in adjusted position with respect to the fork.

4. In apparatus of the class described, a barrel for the reception of castings, or the like, a fork on which the barrel is pivotally supported, an inclined spindle rigid with the fork for imparting rotation to the barrel, in combination with an arcuate yoke secured to the barrel in a plane substantially at right angles to its pivotal axis, and means engaging the yoke to hold said barrel in adjusted position on its pivotal axis.

5. In apparatus of the class described, a barrel for the reception of castings, or the like, a fork on which the barrel is pivotally supported, an inclined hollow spindle rigid with the fork for imparting rotation to the barrel, in combination with an arcuate yoke carried by the barrel and lying in a plane substantially at right angles to the pivotal axis of the barrel, together with a latch arranged within the hollow spindle, and adapted to engage the yoke to hold the latter in adjusted position on its pivotal axis.

In testimony whereof we have signed our names to this specification.

CLARENCE E. BILLINGS.
DONALD STUART SAMMIS.