

April 13, 1926.

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G. C. FATSCHER

SAND BLAST APPARATUS

Filed March 19, 1924

2 Sheets-Sheet 1

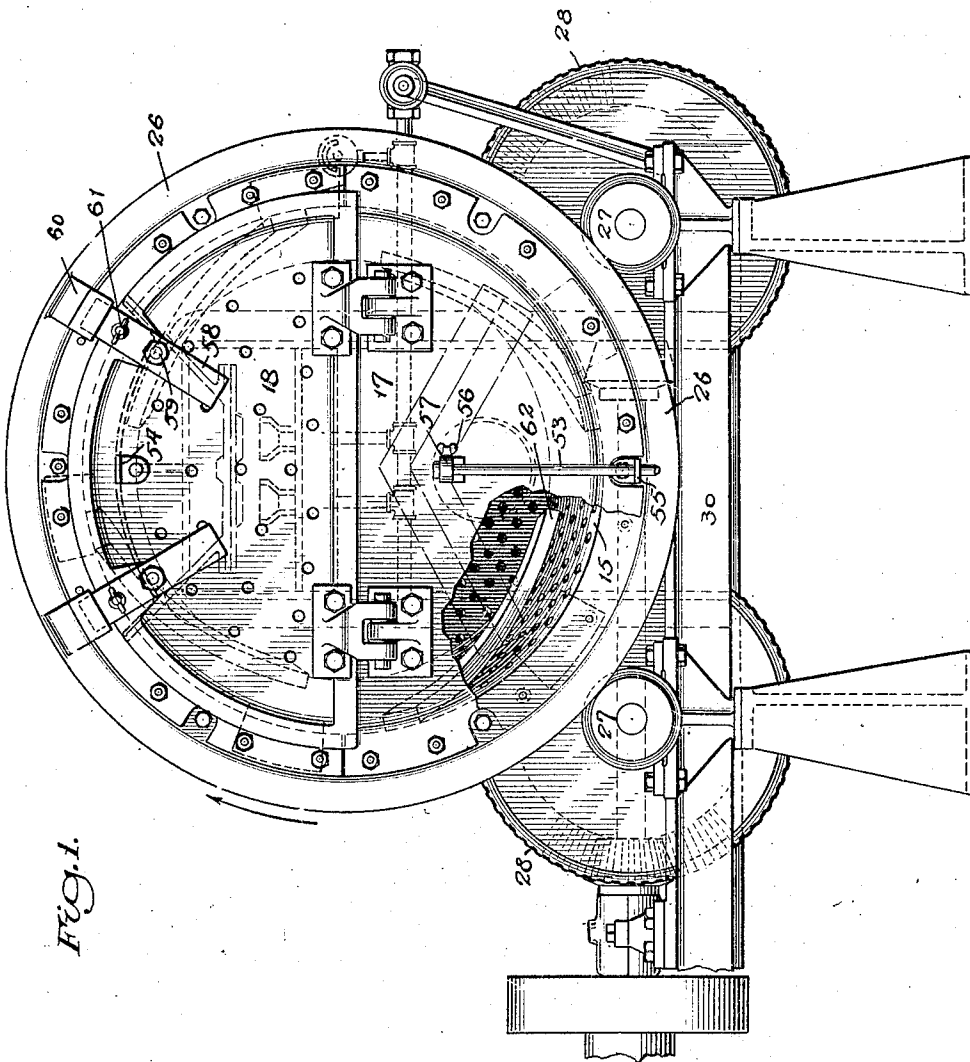


Fig. 1.

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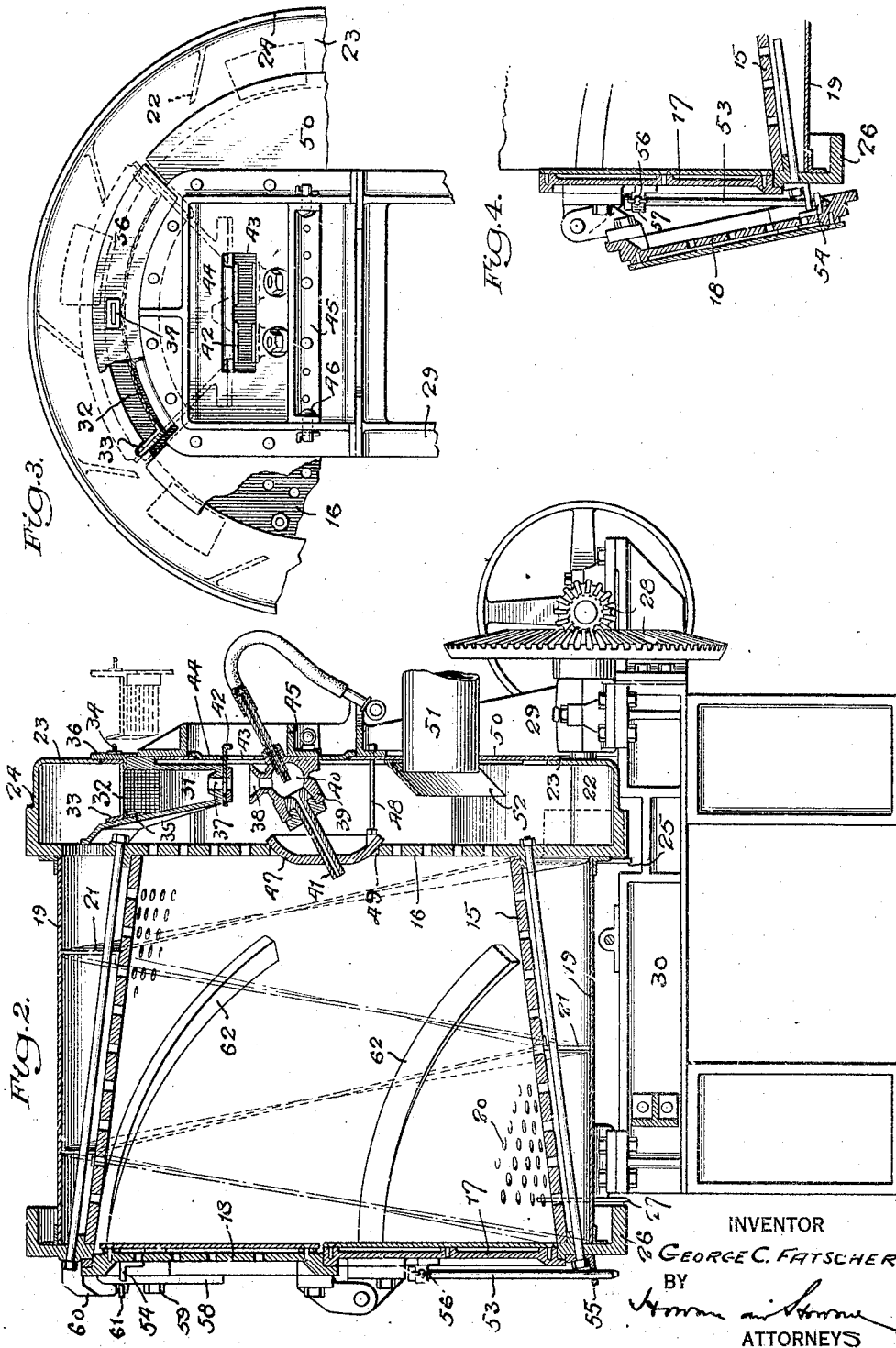
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE.

GEORGE C. FATSCHER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE NEW HAVEN SAND BLAST COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

SAND-BLAST APPARATUS.

Application filed March 19, 1924. Serial No. 700,279.

To all whom it may concern:

Be it known that I, GEORGE C. FATSCHER, a citizen of the United States of America, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Sand-Blast Apparatus, of which the following is a specification.

My invention relates to sand blast apparatus, and particularly to apparatus of the rotary blast barrel type. The object of my invention is to increase the efficiency and to facilitate the use of the barrel by improvements in various particulars which will be hereinafter stated, or shown in the accompanying drawings in which—

Fig. 1 is a broken end elevation of a sand blast barrel in which my improvements are embodied in one form;

Fig. 2 is a longitudinal section thereof;

Fig. 3 is a broken partial end elevation of the barrel viewed from the end opposite that shown in Fig. 1; and

Fig. 4 is a partial longitudinal section through the door end of the barrel, showing the door latched in open position.

The present construction has a general resemblance to that shown in copending application Ser. No. 627,679, filed March 26, 1923. As in that construction, the barrel comprises a perforated frusto-conical body closed at its end of less diameter by the rotary head 16, and at its opposite end by the rotary head 17 which is apertured and carries the semi-circular door 18. Surrounding the barrel body, but spaced therefrom, is the imperforate cylindrical shell 19. The sand which passes through the perforations 20 in the barrel body to the shell, is deflected by the intermediate scroll 21 to lifting scoops 22 arranged between the rotary head 16 and a parallel annular flange 23, spaced from the head 16 by the integral bearing ring 24, from which the scoops project. The bearing ring rests on a pair of supporting rollers 25, and the head 17 at the opposite end of the barrel, is also provided with a bearing ring 26 which rests upon the pair of rollers 27. Both pairs of rollers 25 and 27 are driven through gearing 28 to bodily rotate the barrel, shell, heads, scroll and scoops.

The blast mechanism and associated elements are supported in stationary position

by the standard 29 rising from one end of the bed frame 30. Located in the upper portion of the sand recovery chamber is a stationary hopper 31, to which the scoops 22 discharge the sand lifted thereby during the rotation of the barrel. Inasmuch as fragments of metal cleaned from the castings by the blast are lifted with the sand by the scoops for delivery to the hopper, but are undesirable since they are often of sufficient size to choke its outlet, or if they pass the latter are apt to foul the nozzles, I provide a screen 32 to prevent their entry into the hopper. This screen is of arcuate form with side and end flanges formed by an auxiliary frame 33, and is readily mounted and withdrawn from position by means of the handle 34. A support for the inner end of the screen is afforded by an arcuate flange 35 secured to the wall of the hopper. A face plate 36 for the screen overlaps the annular flange 23 of the head 16 and forms therewith a seal which prevents air and dust leakage at this point during the operation of the barrel.

In the bottom of the hopper 31 are feed ports 37 which register with funnel-shaped mouths 38 of passages in body 39 leading to the mixing chamber 40 and the blast nozzles 41. Slide valves 42 control the ports 38. It is highly desirable that some means be afforded to ascertain that the nozzles are receiving a proper feed of sand in order to enable them to function properly. For this purpose, the lower end of the hopper is spaced from the nozzle body 39, and a sight aperture 43 is opened in the plate 44 in such location that the flow of sand to the nozzles from the hopper may be readily observed and regulated by the attendant by means of the slide valves 42.

The nozzles 41 require frequent renewal. To facilitate this nozzle body 39 is mounted upon an angle iron 45 which is detachably secured to the standard 29 by any suitable means, such as locking pins 46. The closure plate 44 may also be supported on the angle iron 45 and removed therewith, thus leaving ample space for inspection of the sand recovery chamber.

The nozzles 41 pass through a stationary guard 47 detachably supported by bolts 48 at the central aperture 49 in the rotary head 16. While the guard 47 is sufficiently supported by the nozzles 41, while the latter

are in position, a support of some sort is necessary if the guard 47 be not removable with the nozzles. Since the guard 47 is not subject to great wear and needs only occasional replacement, it is preferable to make it independent of the nozzles so that the latter can be withdrawn without disturbing the guard.

Opening through the lower portion of the stationary closure plate 50, carried by the standard 29, is an exhaust pipe 51 through which the barrel is ventilated. In order to prevent sand from being carried into the exhaust pipe, a V-shaped shed 52 is secured to the stationary head 50 above the intake of the exhaust pipe. Such sand as escapes the hopper or nozzle feed is thus deflected to the scoops 22, which again lift it to the hopper 31.

The door 18, through which the barrel is charged and discharged, is held open, during the rotation of the barrel for discharge, by means of a locking pin 53, the end of which is insertable through a hole in the bracket angle 54 on the door. This bracket registers, when the door is open, with the bracket angle 55 on the head 17 by which the locking pin 53 is carried. A set screw 56 passing through the central guide bracket 57 engages and holds the pin in locked or unlocked position.

The door 18 is locked in closed position by latches 58 which swing, on pivot pins 59, beneath the locking lugs 60 on the ring 26. In order to maintain the latches in locking position, I provide wing-headed clamping screws 61 which pass through the latches, bear against the bosses on which the latter are pivoted, and force the engaged ends of the latches into clamping engagement with the latch lugs on the ring. An arrangement of this character insures a door closure tight against the escape of sand and dust.

Secured to the inner face of the barrel are tumbling ribs 62 extending longitudinally of the barrel but in directions transverse to the longitudinal axis of the barrel. These ribs 62 are so shaped and located with reference to the direction of rotation that during rotation of the barrel the ends of the ribs adjacent the door end of the barrel precede the ends thereof adjacent the blast end of the barrel. These ribs function to return toward the blast end of the barrel and into the zone of the direct blast, the castings or other objects in the barrel which, by reason of the conoidal form of the latter, tend to gather at the discharge end thereof. Moreover, the ribs serve to tumble the castings not only on axes extending longitudinally of the barrel, but also to somersault them on axes at an angle to the longitudinal axis of the barrel. The castings are thus not only brought into the zone of the most efficient action of the blast, but are also exposed

on all surfaces to the latter during the operation of the barrel.

While the present invention is directed to details of improvement, it will be obvious that the betterments may be attained by various other specific embodiments than those shown. With the understanding therefore that my invention is not limited to exact details, I claim—

1. A rotary sand blast barrel having at one end a rotary head comprising a substantially semi-circular door pivoted to and forming portion of said head, together with latch lugs on the respective head members, said lugs lying substantially in register when the door is in fully open position, and a latch bar carried by one of said head members and slidable through said latch lugs to hold the door against closure during the rotation of the barrel.

2. A rotary sand blast barrel, comprising a barrel body of frusto-conical shape, means for rotating the same on a substantially horizontal axis, blast mechanism arranged at the barrel end of less diameter and adapted to play upon articles placed within the barrel, in combination with ribs on the inner face of the barrel shaped to engage said articles and to displace the same from the barrel end of greater diameter toward the barrel end of less diameter during the rotation of the barrel.

3. A rotary sand blast barrel, comprising a barrel body of frusto-conical shape, means for rotating the same on a substantially horizontal axis, blast mechanism arranged at the barrel end of less diameter and adapted to play upon articles placed within the barrel, in combination with ribs on the inner face of the barrel shaped to engage and somersault said articles lengthwise of the barrel.

4. A rotary sand blast barrel having at one end lifting scoops, means for delivering to said scoops the sand used in the barrel, a hopper to which said scoops discharge, a casing enclosing said scoop and hopper, and a removable screen overlying the hopper and through which the sand from the scoops is discharged to the hopper.

5. A rotary sand blast barrel having at one end an endless series of lifting scoops, means for delivering to said scoops the sand used in the barrel, a hopper arranged adjacent but beneath the arcuate upper travel of the scoops, and to which the latter discharge during said travel, a casing enclosing said scoops and hopper, and a removable arcuate screen overlying the hopper and through which the sand from the scoops is discharged to the hopper.

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

GEORGE C. FATSCHER.