Oct. 5, 1943. W. F. H. BRAUN 2,330,949

MACHINE FOR CLEANING CASTINGS AND THE LIKE

Filed May 28, 1942 2 Sheets-Sheet 1

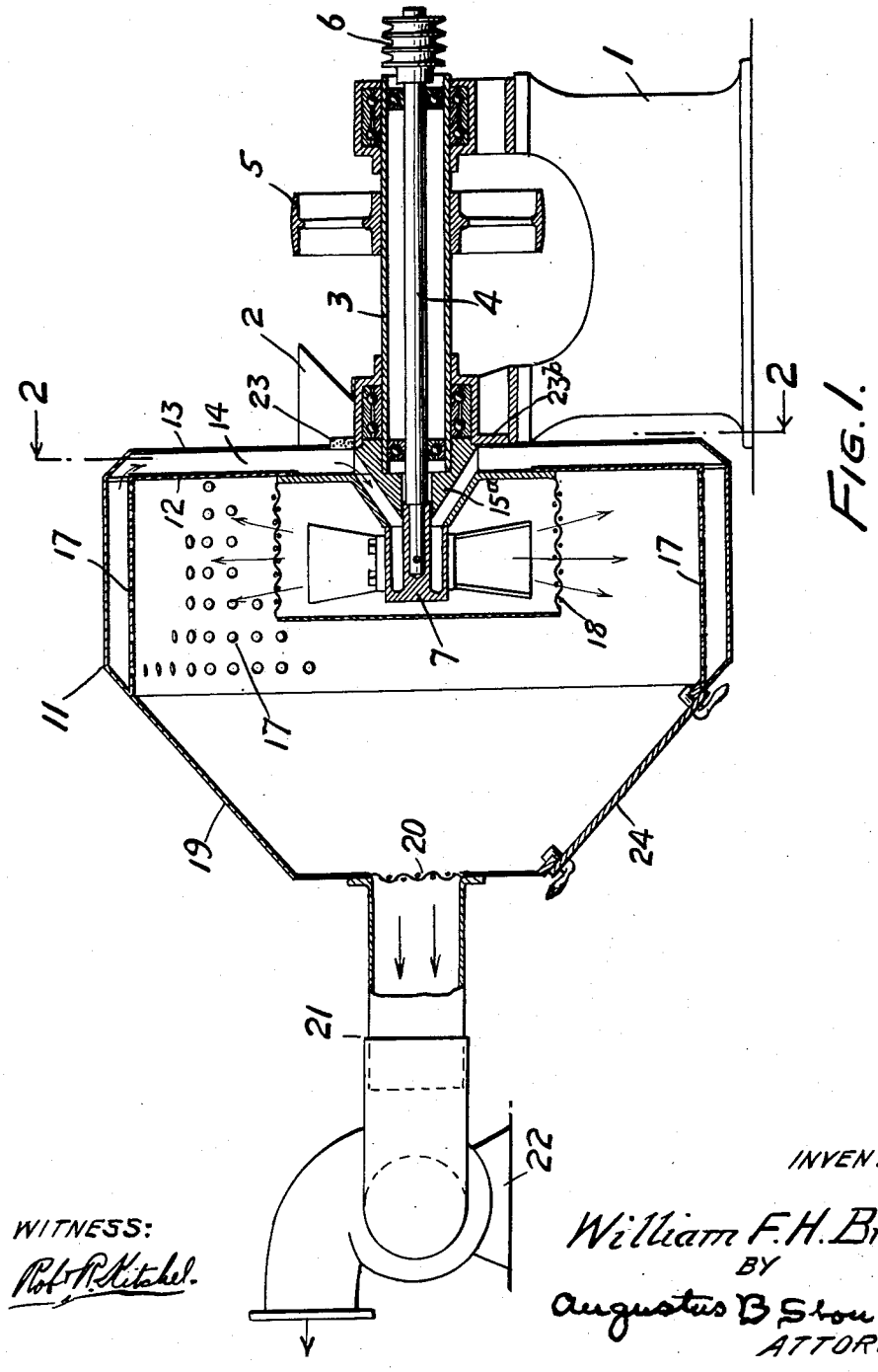


FIG. 1.

WITNESS:
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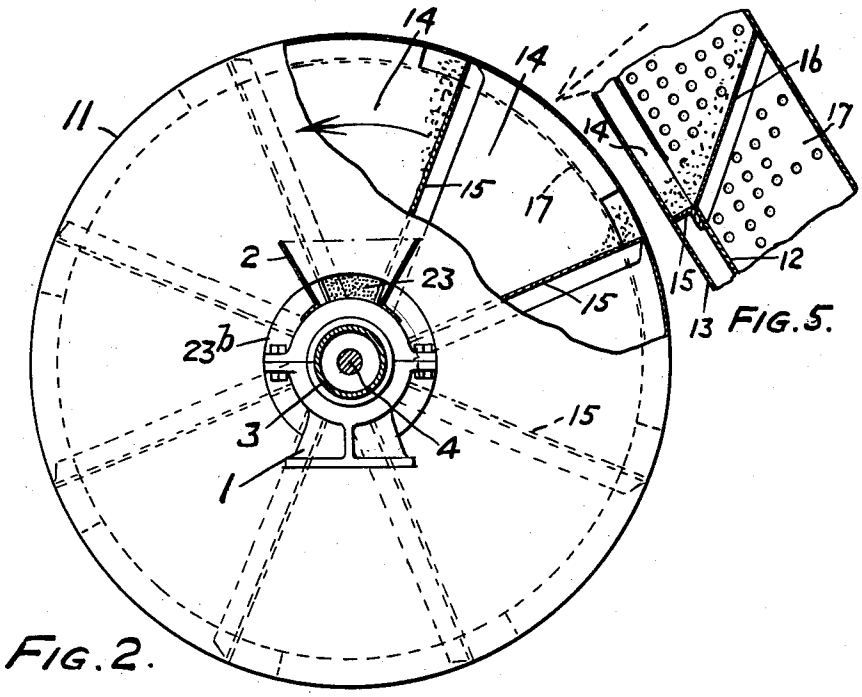


FIG. 2.

FIG. 5.

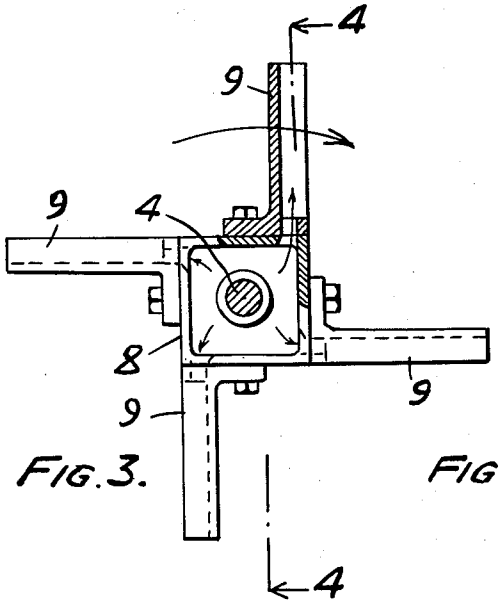


FIG. 3.

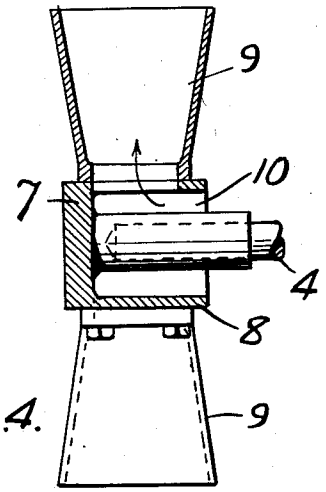


FIG. 4.

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UNITED STATES PATENT OFFICE

2,330,949

MACHINE FOR CLEANING CASTINGS AND THE LIKE

William F. H. Braun, Wynnewood, Pa.

Application May 28, 1942, Serial No. 444,797

7 Claims. (Cl. 51—9)

Objects of the present invention are to provide a durable and efficient machine of the type referred to and in which the abrasive material or sand is automatically re-used without leaving the interior of the body of the machine and in which the abrasive material is applied from the center or axis of the machine outward toward the objects being cleaned while the latter are subjected to a cascading movement of rotation in respect to the same axis; another object of the invention is to minimize the escape of dust from the interior of the machine and to thus protect the driving mechanism from its evil effects.

Other objects of the invention will appear from the following description at the end of which the invention will be claimed.

Generally stated the invention comprises a rapidly revolving abrasive spraying device or head, and a relatively slowly revolving drum concentric with the head and adapted to carry the castings or other objects to be cleaned and having on one of its ends channels which lead to the intake of the head and communicate with the interior of the drum at its periphery by means of guides set at an inclination to its axis so that as the castings are cascaded or rolled back in the drum they are sprayed with abrasive material rapidly passing from and back to the axis of the drum.

The invention also comprises the improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawings forming part hereof and in which,

Figure 1 is a longitudinal central section of a machine embodying features of the invention.

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1 with parts omitted.

Figure 3 is an end view of the spray head with parts broken away.

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 3; and

Figure 5 is a somewhat diagrammatic view of a development of the circumference of the drum with the outside plate removed and looking in the direction of the arrow in Figure 2, shown in dotted lines.

Referring to the drawings, 1 indicates a fixed pedestal or frame carrying a fixed hopper 2. Mounted on the pedestal is a rotatable sleeve 3 and a shaft 4 arranged in concentric relation. The sleeve 3 is driven comparatively slowly, for example at 3 R. P. M. as by a pulley 5 and the shaft is driven comparatively rapidly, for example at two thousand R. P. M. as by means of a pulley 6. Mounted on the shaft 4 is the spray head 7. The spray head is shown as provided with a hollow rectangular hub 8 and with arms 9 providing open channels. The hub 8 is open at one end 10, Figure 4. The drum 11 is mounted on the sleeve 3 and it is provided at one end with spaced heads 12 and 13 which provide channels 14 passing through the inner head and defined by ribs 15 extending between the heads 12 and 13. These channels 14 extend through the hub 15^a of the drum into the open end 10 of the head. At its periphery the drum 11 is provided with deflector plates 16 inclined to the axis of the drum and serving to deflect abrasive material into the channels 14. The drum 11 is also provided with a cylindrical perforated screen 17 and with a smaller cylindrical screen 18 closed at its ends. The drum 11 is provided with a conical end 19 provided with a dust screen 20 and connected by a slip joint 21 with an exhauster 22. 23 is a dust seal interposed where the hopper 2 communicates with the channels 14 through a gap in a flange 23^b provided on the frame 1.

The mode of operation of the machine may be described as follows: Castings or other objects to be cleaned are put into the drum for example by way of the removable cover plate 24 and the drum and parts connected therewith are rotated for example at 3 R. P. M. The result of this is that the castings are carried up with the drum through perhaps 90° and are then cascaded so that they are turned over and their surfaces well exposed to the sand blast. The rapidly revolving spray head running at perhaps 2 thousand R. P. M. discharges a spray of sand or other abrasive material through the screen 18 onto the castings or other objects cascading as described on the perforated lining 17 and then the sand or abrasive is deflected by the deflectors 16 into the channels 14 which return it to the hub of the spray head for re-use. The application of the sand blast from the axis of the head onto the cascading castings or other objects cleans them in a most satisfactory manner while the wear on the parts of the machine is minimized. When it becomes necessary or desirable additional abrasive material is introduced by way of the hopper 2.

It will be obvious to those skilled in the art that modifications may be made in details of construction and in matters of mere form without departing from the spirit of the invention.

I claim:

1. A machine for cleaning castings and the like comprising, a spray head having an inlet, and a tumbling drum having a solid bounding

wall rotatable with it, said elements being concentrically mounted for relatively fast and slow rotation, and means rotatable with the drum for feeding abrasive material to the spray head, means for rotating the spray head, one end of the drum being provided with radial channels all parts of which move with it and extend from the interior of the drum near its periphery to the inlet of the spray head, whereby abrasive material is re-sprayed without leaving the interior of the body of the machine.

2. A machine for cleaning castings and the like comprising, a spray head and a tumbling drum having a solid bounding wall rotatable with it, said elements being concentrically mounted for relatively fast and slow rotation, means for rotating the spray head, means for feeding abrasive material to the spray head, one end of the drum being provided with radial channels all parts of which move with the drum and extend from the interior of the drum near its periphery to the inlet of the spray head, whereby abrasive material is re-sprayed without leaving the interior of the body of the machine, and deflectors set at an angle to the axis of the drum for directing material to said channels.

3. A machine for cleaning castings and the like comprising, a rotatable tumbling drum having a solid bounding wall and a spray head arranged in the drum, means affording the drum and spray head movement of rotation about their respective axes, said elements being concentrically mounted for relatively fast rotation of the head and slow rotation of the drum, means for rotating said parts and channels carried by the drum and rotatable with it for feeding abrasive to the head.

4. In a machine for cleaning castings and the like, the combination of, a rotating spray head having an inlet opening at one end of its hub, an independently rotating drum concentric with and enclosing the head and having mounted within it two concentric foraminous cylinders of which one surrounds the head and of which the other is spaced from the inner periphery of the drum and supports the contents thereof, said drum having double heads at one end, and channels leading from the space between the outer cylindrical wall of the drum and the adjacent foraminous cylinder and between the adjacent heads of the drum to the inlet opening of the spray head.

5. In a machine for cleaning castings and the like, the combination of, a rotating spray head having an inlet opening at one end of its hub, an independently rotating drum concentric with and enclosing the head and having mounted within it two concentric foraminous cylinders of which one surrounds the head and of which the other is spaced from the inner periphery of the drum and supports the contents thereof, said drum having double heads at one end, channels leading from the space between the outer cylindrical wall of the drum and the adjacent foraminous cylinder and between the adjacent heads of the drum to the inlet opening of the spray head, and deflectors arranged in said space and disposed at an inclination to the axis of the drum.

6. In a machine for cleaning castings and the like, the combination of, a rotating spray head having an inlet opening at one end of its hub, an independently rotating drum concentric with and enclosing the head and having mounted within it two concentric foraminous cylinders of which one surrounds the head and of which the other is spaced from the inner periphery of the drum and supports the contents thereof, said drum having double heads at one end, channels leading from the space between the outer cylindrical wall of the drum and the adjacent foraminous cylinder and between the adjacent heads of the drum to the inlet opening of the spray head, a conical head applied to the other end of the drum and provided with an inlet opening, an exhauster, and a slip joint connection between the exhauster and the conical head.

7. A machine for cleaning and tumbling castings comprising, in combination, a closed rotatable drum defined by a solid cylindrical wall and having heads all parts of which are secured to and rotatable with it, means for rotating the drum and its heads and solid bounding wall, a spray head arranged in the drum, independent means for rotating the spray head, a foraminous cylinder spaced from the inner periphery of the drum and rotatable with it, and walls defining feed channels and all parts of which are movable with the drum in its rotation.

WILLIAM F. H. BRAUN.