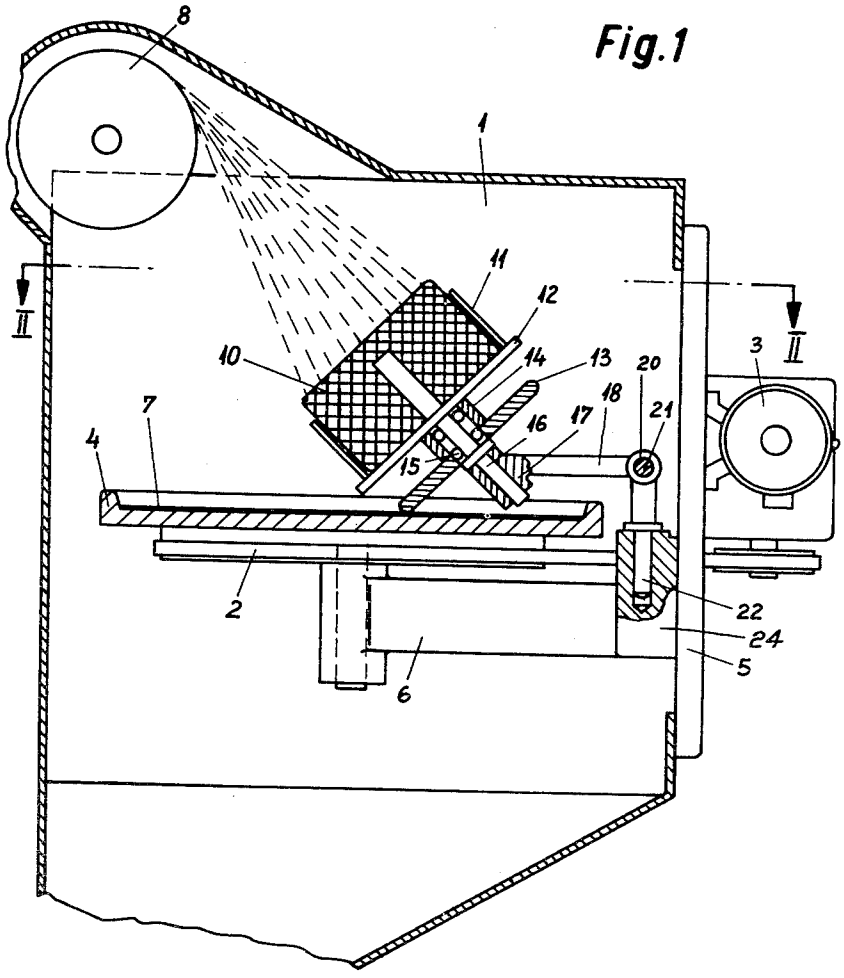
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BLASTING MACHINE

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Fig.1



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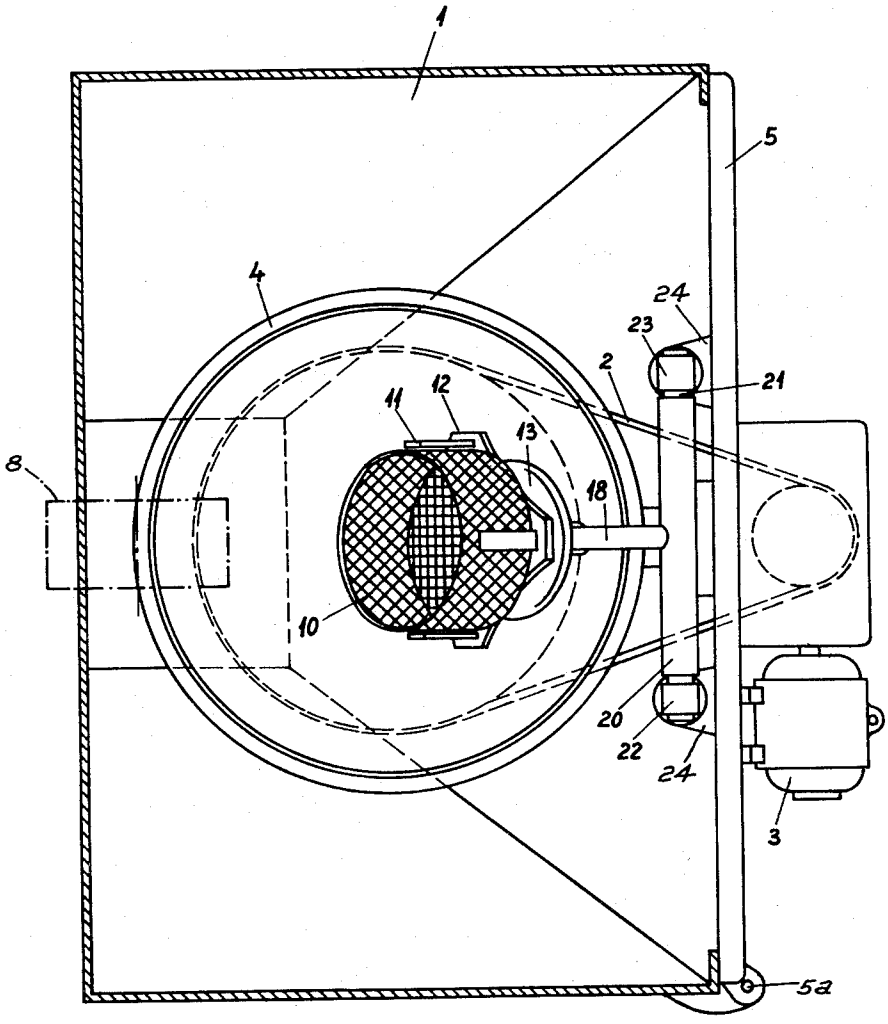


Fig.2

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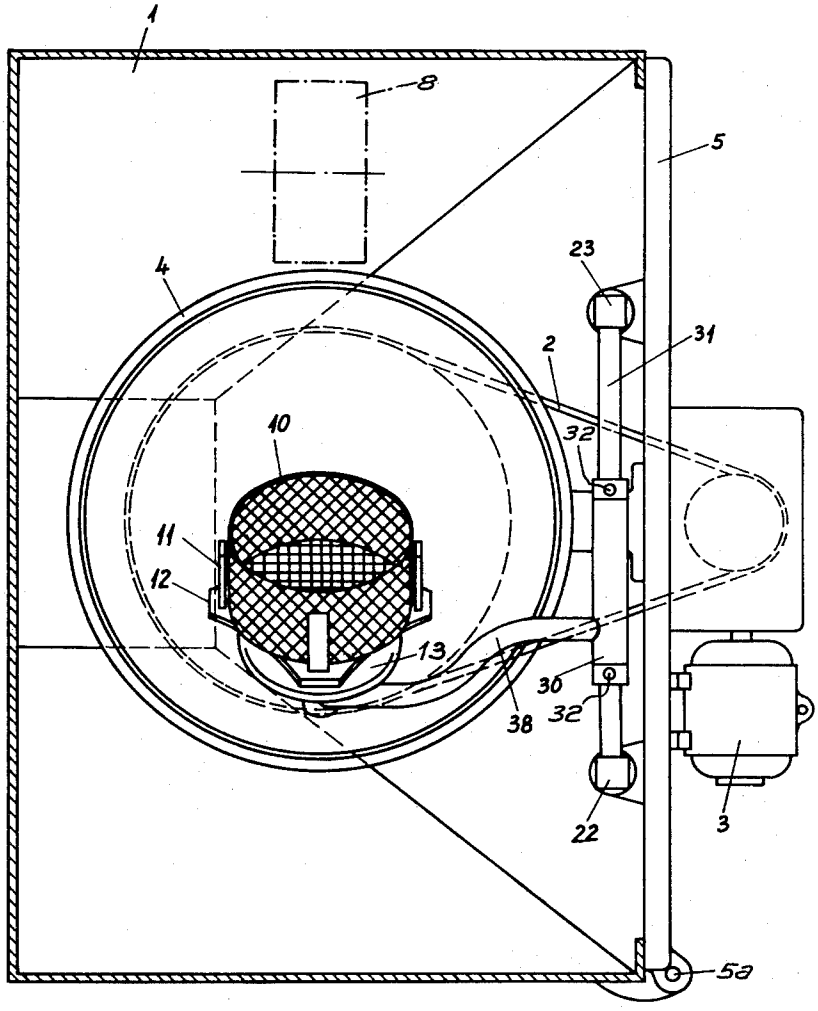


Fig.3

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BLASTING MACHINE

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5 Claims. (Cl. 51—9)

This invention relates to machines for cleaning or shot-peening cast, molded or otherwise semi-finished parts made of metal, plastics or other materials. More particularly, the invention relates to improved means for holding the workpieces to be treated in position and presenting them to the abrasive or shot throwing operation.

In prior machine arrangements provisions are typically made for presenting the workpieces to the blasting mechanism or mechanisms in several fashions; for example, by straight line conveyance of the workpieces through a cabinet in which blast machines are operating; by tumbling the workpieces in rotating drums or the like into which the blasting devices are throwing the blast media; or by mounting the workpieces on rotating tables operating within the range of the blasting machines. Each of the aforesaid general types of arrangements are especially suited to the handling of different kinds and sizes of workpieces; but it is a primary object of the present invention to provide still another arrangement for mounting the workpieces and presenting them to the blast stream, which under certain circumstances will provide improved operative features and advantages not furnished by the arrangements of the prior art.

More specifically, an object of the present invention is to provide an improved workpiece support and handling mechanism which is especially adapted to accommodate in batch quantities relatively fragile and small sized workpieces, and to present them to the blasting operation in a novel and improved manner whereby to obtain overall improved economies and finishing results.

Another object is to provide a novel mechanism as aforesaid which may be readily furnished as a simple adjunct to a conventional rotating table type workpiece support; thereby making an existing table type blasting machine readily convertible to the method of the present invention.

Still another object of the invention is to provide a mechanism as aforesaid which is simple and rugged in construction, and economical to manufacture and maintain in use.

Other objects and advantages of the invention will appear from the specification hereinafter.

In the accompanying drawings:

FIG. 1 is a vertical sectional view through a blasting machine embodying the present invention;

FIG. 2 is a horizontal sectional view thereof, taken along line II—II of FIG. 1; and

FIG. 3 is a view corresponding to FIG. 2, but of a modified form of the invention.

As shown in the drawings herewith the present invention may be provided as an adjunct or accessory to an existing rotating table type blasting machine comprising essentially a cabinet or casing 1 having a belt and motor drive unit 2, 3 arranged to rotate the workpiece carrying table 4. As shown in the accompanying drawing the entire workpiece carrying unit is mounted upon the cabinet door 5 by means of an arm 6; the door 5 being hinged as indicated at 5a so as to swing into and out of cabinet closing position. Hence, the workpieces may be loaded and unloaded upon swinging open of the cabinet door and withdrawal of the workpiece carrying table into the open for convenience in handling the workpieces, as is well known in the art. Also, the worktable 4 is preferably furnished with a pad 7 of sheet rubber or the like

to protect the worktable against excessive wear and to facilitate actuation of the workpiece mounting device of the present invention, as will be explained hereinafter.

In accord with the present invention the blast wheel as indicated at 8 is preferably mounted upon the cabinet 1 at some suitable position so as to hurl the blast media therefrom downwardly and toward the center of the cabinet at approximately a 45 degree angle from the horizontal. In the case of the present invention the workpiece carrying device is provided in the form of a basket indicated at 10 which is arranged to be disposed at the approximate center of the cabinet with its cylinder axis and open end directed toward the blast of media which is being hurled from the device 8. The basket 10 is so shaped and provided as to be adapted to hold relatively small workpieces in jumbled batch form, and is arranged to be slowly rotated about its cylinder axis so as to constantly tumble or turn the workpieces as they are being subjected to the blasting operation. Thus, the invention contemplates disposition of the cylinder axis of the basket 10 at such an angle as to present the open end of the basket and the workpieces therein to the blast stream while being at the same time in such an attitude as to cause the workpieces therein to constantly turn among themselves and thereby present all their surfaces to the blast media, as explained hereinabove.

With the above objects in view the invention may be embodied for example in a basket type support and driving mechanism as shown herein which may be furnished either as a complete machine entity or as an adjunct or accessory to an existing rotating table type blasting machine. In the case illustrated the basket 10 is arranged to be supported with its cylinder axis canted at approximately 45 degrees from the vertical by being slip-fitted into mounted position between radially disposed holding arms 11 extending from a base plate 12. To rotatably support and drive the base plate, it is provided with a friction-drive wheel 13 connected to the plate 12 by means of a hub 14. The hub 14 is rotatably supported by means of bearings 15 upon a stub shaft 16 which is fixed to extend at the required angle from a bracket portion 17 of a support arm 18. The arm 18 rigidly extends from a tubular collar 20 which is arranged to freely rotate by means of end axles 21 upon support bearing posts 22, 23, carried by bracket devices 24 extending from the cabinet door 5.

Thus it will be appreciated that the basket and drive wheel unit is hingedly supported at 20 to extend into the cabinet when the door 5 is closed, with the drive wheel 13 resting at its lower periphery upon the table 4 and thereby supporting the basket 10 to face its open end into the blast stream from the device 8. By proper regulation of the length of the arm 18, and other appropriate dimensioning of the parts, the table contacting peripheral portion of the wheel 13 will be disposed to rest upon the rubber facing 7 of the table 4 at a position offset from the axis of its rotation, so that rotation of the latter by means of the belt and motor unit as explained hereinabove will cause the wheel 13 to drive the basket 10 to rotate so as to relatively turn and/or tumble the workpiece.

Thus it will be appreciated that the basket 10 may be readily loaded and unloaded by simply shutting down the blast machine 8 and swinging the door 5 to open position so that the basket will then be brought out of the cabinet 1 to facilitate workpiece loading and unloading operations. The basket 10 may of course be constructed of any preferred material such as wire mesh of suitably abrasive-resistant metal, or in any other form to provide a preferably perforated container for the workpieces to be handled. The apertures through the bottom and side walls of the container are sized so as to suitably retain the workpiece while permitting the spent blast media to fall through the basket openings to forestall loading of

the basket with spent blast media and to thereby permit the workpieces to remain free to tumble and move about in the basket so as to present to the blast stream all of the workpiece surfaces.

Thus, it will be appreciated that by virtue of this arrangement of the invention a conventional rotating table type blast machine, such as is suited primarily to the handling of relatively large workpieces standing on the rotating table, may be readily converted into a machine adapted to process relatively small and fragile workpieces such as may only be satisfactorily handled in a basket type container. For example, small size and light weight workpieces such as would be "blown" off the table 4 by the blast stream if loosely disposed thereon, may be very satisfactorily placed in the basket 10 and slowly rotated therein so as to present all surfaces of the workpieces to the blast, without "tumbling" damage to the workpieces even though such workpieces may be relatively fragile. The rate of basket rotation may of course be arranged to suit different type of workpieces, taking into consideration their fragility and shape complexities, by appropriately dimensioning the basket support arm 18.

As shown in FIG. 3, arrangement may be readily made to render the accessory basket support device freely adjustable so as to move the basket drive wheel toward and away from the center of rotation of the table 4, thereby causing the basket to be rotated at any preferred speed. In such case, the drive wheel and basket unit is arranged to be carried by an arm 38 extending rigidly from a relatively short bearing tube 30 which is axially slidable and positionally adjustable on a relatively long support bar 31 which in turn is carried at its opposite ends in the bearing posts 22, 23. Thus, by means of simple lock nut arrangements as indicated at 32, 32, the position of the mounted tube 30 on the bar 31 may be readily adjusted so as to dispose the driving wheel 13 at the proper distance from the center of rotation of the table 4 to give the basket the desired speed of rotation.

It will of course be appreciated that although only one specific form of workpiece support basket and drive mechanism therefor has been shown and described in detail herewith, the invention may be embodied in constructions involving various modifications of the parts.

What is claimed is:

1. A blasting machine comprising in combination, a table disposed in horizontal attitude and adapted to support thereon a plurality of workpieces and driven to rotate about a vertical axis, a blast media hurling device disposed to throw blast media toward said table, and a second workpiece support device comprising an open top basket-shaped container and removably mounted means mounting said container above said table to dispose the open end portion thereof in apposition to the thrown blast media, and a drive wheel keyed to said basket and rotatably carried upon said mounting means and being thereby disposed in canted attitude relative to said table with a peripheral portion of said wheel resting in friction-driving relation upon said table at a position offset from the axis of rotation thereof.

2. A blasting machine comprising in combination, a cabinet having a workpiece loading opening at one side thereof, a door normally closing said opening, a table carried by said door to extend into said cabinet when the door is closed while being disposed in horizontal attitude and adapted to support thereon workpieces to be blasted, means carried by said door to drive said table to rotate about a vertical axis, a blast media hurling device mounted upon said cabinet and disposed to throw blast media toward said table when in operative position, and a second workpiece support device comprising an open top basket-shaped container, means removably secured to said cabinet mounting said container above said table to dispose the open end portion thereof in apposition to the thrown blast media, and a drive wheel keyed to said basket and rotatably carried upon said mounting means and being thereby disposed in canted attitude relative to said table with a peripheral portion of said wheel resting in friction-driving relation upon said table at a position offset from the axis of rotation thereof.

3. A blasting machine comprising a cabinet having a workpiece loading opening at one side thereof, a door normally closing said opening, a workpiece support table carried by said door to extend into said cabinet when the door is closed, means carried by said door to drive said table to rotate about a vertical axis, a blast media hurling device mounted upon said cabinet and disposed to throw blast media toward said table when in operative position, a workpiece support device comprising an open top basket-shaped container, arm means extending from said container to a sliding connection with said door for mounting said container above said table to dispose the open end portion thereof in apposition to the thrown blast media, and a drive wheel keyed to said basket and rotatably carried upon said mounting means and being thereby disposed in canted attitude relative to said table with a peripheral portion of said wheel resting in friction-driving relation upon said table at a position offset from the axis of rotation thereof, whereby said arm means may be positionally adjusted on said door to vary the position of friction contact between said drive wheel and said table to vary the speed of rotation of said container.

4. A blasting machine comprising a housing having an access opening, a door hingedly mounted on said housing for normally closing said access opening, a horizontal table rotatably mounted within said housing, drive means mounted on said housing and connected to said table for rotating the same, a blast media hurling device mounted within said housing and disposed to throw blast media toward said table, mounting means fixed to the inner side of said door, a pair of posts removably engaged in said mounting means and disposed in horizontally spaced and aligned relation, an arm assembly rotatably carried between said posts and including an arm projecting over said table, and a bracket mounted at the free end of said arm; a friction-drive wheel journalled on said bracket about an inclined axis extending toward said blast media hurling device and having its edge resting upon said table in offset relation to the axis of rotation of said table to be driven thereby, and an open top container mounted on said drive wheel.

5. The assembly as defined in claim 4 wherein said arm assembly is mounted for selective adjustment along its pivot axis to vary the effective speed of said friction-drive wheel.

References Cited in the file of this patent

UNITED STATES PATENTS

2,116,160	Rosenbarger et al.	May 3, 1938
2,276,345	Rosenberger	Mar. 17, 1942
2,429,742	Barnes	Oct. 28, 1947

FOREIGN PATENTS

1,115,486	France	Apr. 25, 1956