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(71) Applicants:
• **Kawasaki, Shuji**
Hamamatsu-Shi, Shizuoka-Ken 430 (JP)

• **Matsushita, Akitaka**
Hamamatsu-Shi, Shizuoka-Ken 435 (JP)
• **BBF YAMATE CORPORATION**
Hamamatsu-shi, Shizuoka-ken 430 (JP)

(72) Inventors:
• **Kawasaki, Shuji**
Shizuoka-Ken, 430 (JP)
• **Matsushita, Akitaka**
Shizuoka-Ken, 435 (JP)

(74) Representative:
Walter, Helmut, Dipl.-Ing.
Aubinger Strasse 81
81243 München (DE)

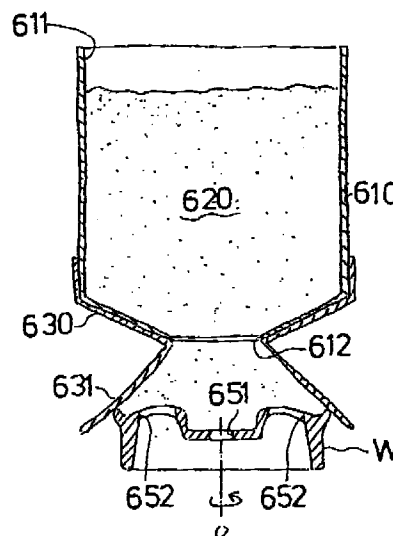
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(54) **Barrel polishing apparatus**

(57) An apparatus (64) for polishing a work in a barrel, wherein the apparatus includes a receiving container (610) for polishing medium having a polishing medium (620) and a work (W) adapted to be vibrated. The container (610) having an upper end opening, a feeding port (612) for the polishing medium (620) at the bottom of said upper end opening. The work (W) is located below said feeding port (612). The polishing medium (620) can continuously be fed to the surface of the work (W) while the work (W) is vibrated.

Fig. 1



EP 0 956 925 A1

Description

BACKGROUND OF THE INVENTION

(FIELD OF THE INVENTION)

[0001] The present invention relates to a barrel polishing apparatus.

(PRIOR ART)

[0002] With respect to the conventional barrel puffing apparatus, each work is subjected to polishing by allowing a polishing medium to flow in a polishing medium receiving container while the work is received in the polishing medium receiving container.

[0003] However, with the conventional barrel polishing apparatus constructed in the above-described manner, since an operational extent attained by the polishing medium is limited within a certain range by the polishing medium, it is required that the polishing medium is replaced with other one in dependence on an object of each polishing operation, i.e., a rough polishing step, an intermediate finish polishing step and a final finish polishing step, and alternatively, it is required that a plurality of barrel polishing apparatuses each including a polishing medium selected in such a manner as to match with a certain object of the conventional barrel polishing apparatus are preparatively arranged. At any rate, there arises an inconvenience that it is practically difficult to improve an operational efficiency of each barrel polishing operation with the conventional barrel polishing apparatus.

(OBJECTS OF THE INVENTION)

[0004] The present invention has been made in order to eliminate the inconvenience inherent to the conventional technique as mentioned above. Therefore, a object of the present invention is to provide a barrel polishing apparatus which assures that a rough polishing operation can initially be performed with a high intensity of pressure generated by the feeding of a single kind of polishing medium, and thereafter, an intermediate polishing step and a finish polishing step can sequentially be practiced as the intensity of feeding pressure generated by the feeding of the polishing medium is gradually reduced.

(STRUCTURE OF THE INVENTION AND ADVANTAGEOUS EFFECTS)

[0005] According to the present invention, the barrel polishing apparatus is constructed such that this apparatus includes a polishing medium receiving container having a polishing medium received therein and a work adapted to be vibratively displaced, the polishing medium receiving container includes an upper end

opening, a polishing medium feeding port is formed at the bottom part of the polishing medium receiving container, the work is located below the polishing medium feeding port, and the polishing medium received in the polishing medium receiving container can continuously be fed to the work while this work is vibratively displaced. Thus, an intensity of feeding pressure acting on the work is gradually reduced, as the polishing medium is increasingly discharged from the polishing medium receiving container.

[0006] With such construction, when this barrel polishing apparatus is employed, a rough polishing operation can be performed during the initial period of time when a single kind of polishing medium is fed to the work at a high intensity of feeding pressure, and additionally, a series of steps comprising an intermediate finish polishing step and a final finish polishing step can continuously be practiced as the intensity of feeding pressure of the polishing medium is gradually reduced.

[0007] Further, since the polishing medium is caused to naturally fall down, it is easily introduced into hole portions formed on the work. As a result, the hole portions on the work can more adequately be subjected to polishing.

[0008] Moreover, since the feeding of the polishing medium to the surface of the work is achieved in dependence on the natural falling-down of the polishing medium, few noisy sound is generated from the barrel polishing apparatus, and moreover, a quantity of consumption of energy can be reduced with the barrel polishing apparatus.

[0009] Incidentally, when a guide sleeve is arranged between the feeding port of the polishing medium receiving container and the surface of the work, the feeding of the polishing medium to the work can be achieved without any particular loss.

[0010] In addition, when the guide sleeve is vibrated integrally with the work, the feeding of the polishing medium to the work can more smoothly be achieved.

[0011] Additionally, when the polishing medium received in the polishing medium receiving container can be compressed by actuating suitable means, an operational extent attained by each polishing operation performed for the work can be changed.

(BRIEF DESCRIPTION OF THE DRAWINGS)

[0012]

Fig. 1 is a sectional view showing a polishing apparatus operable in accordance with the present invention.

(DESCRIPTION OF PREFERRED EMBODIMENTS)

[0013] Now, the present invention will be described in detail hereinafter with reference to the accompanying drawings which illustrate preferred embodiments

thereof.

[0014] In Fig. 1, reference numeral 610 designates a polishing medium receiving container for a barrel polishing apparatus 64. A polishing medium (aggregate) 620 is received in the polishing medium receiving container 610. Incidentally, any kind of usually used polishing medium such as ceramic grain or the like can be employed for the polishing medium 620.

[0015] Reference numeral 611 designates an upper end opening which is formed at the upper end of the polishing medium receiving container 610, and the interior of the polishing medium receiving container 610 is communicated with the atmosphere via the upper end opening 610.

[0016] Reference numeral 612 designates a polishing medium feeding port which is formed at the bottom part of the polishing medium receiving container 610. The polishing medium 620 received in the polishing medium receiving container 610 is caused to naturally fall down via the polishing medium feeding port 612. An intensity of pressure generated by the falling polishing medium 620 at this time is gradually reduced as the polishing medium 620 is increasingly removed from the polishing medium receiving container 610.

[0017] Reference numeral 630 designates a guide sleeve, and the guide sleeve 630 is fitted to the bottom of the polishing medium receiving container 610 from the outside in such a manner as to enable it to be rotated. In addition, reference numeral 631 designates a trumpet-like sleeve, and this trumpet-like sleeve 631 is arranged at the lower end of the guide sleeve 630 so as to constitute a part of the guide sleeve 630. A function of the guide sleeve 630 will be described later.

[0018] Reference character W designates a wheel usable for a vehicle or the like

and the wheel W is received in the inside of the trumpet-like sleeve 631 without any substantial gap remaining therebetween. Incidentally, the guide sleeve 630 inclusive of the trumpet-like sleeve 631 is integrally rotated and vibrated when the wheel W usable for a vehicle or the like is rotated.

[0019] When the polishing medium 620 is caused to naturally fall down from the grinding medium receiving container 610 while the wheel W usable for a vehicle or the like is vibratively rotated, the polishing medium 620 continuously reaches the surface of the wheel W via the guide sleeve 30 without any substantial gap remaining therebetween. Thereafter, the polishing medium 620 is discharged in the downward direction via a plurality of holes 651 and 652 while the surface of the wheel W is subjected to polishing.

[0020] As mentioned above, as the polishing medium 620 is increasingly removed from the polishing medium receiving container 610, the intensity of feeding pressure acting on the wheel W usable for a vehicle or the like is gradually reduced.

Thus, the surface of the wheel W can be buffed during the initial time when a high intensity of feeding pressure

acts on the surface of the wheel W regardless of a single kind of polishing medium used for each polishing operation. In addition, an intermediate polishing step and a finish polishing step can continuously be practiced for the surface of the wheel W usable for a vehicle or the like, as the intensity of feeding pressure generated by the polishing medium 620 is gradually reduced.

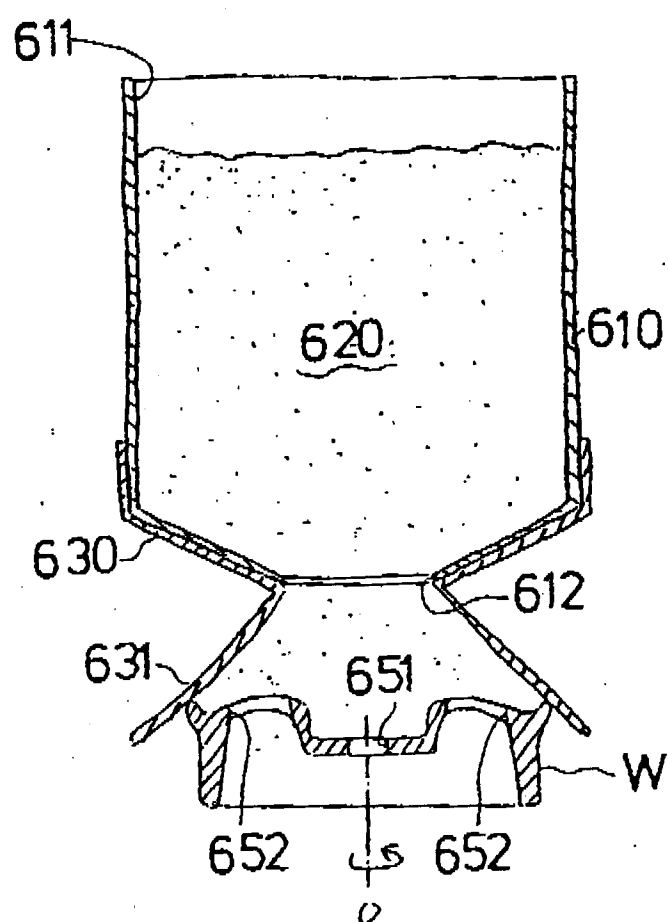
[0021] After the polishing medium 620 is completely discharged in the zone located below the wheel W usable for a vehicle or the like, i.e., after the interior of the polishing medium receiving container 610 becomes empty, the polishing medium 610 is removed again in the polishing medium receiving container 610. Then, the polishing medium 610 can repeatedly be used for continuously practicing a rough polishing step, an intermediate polishing step and a finish polishing step.

[0022] While the present invention has been described above with respect to preferred embodiments thereof, it should be noted that the present invention should not be limited only to those preferred embodiments but various change or modification may be made without departure from the scope of the present invention as defined by the appended claims.

Claims

1. An apparatus for polishing a work in a barrel, wherein said apparatus includes a polishing medium receiving container having a polishing medium received therein and a work adapted to be vibrated, said polishing medium receiving container includes an upper end opening, a polishing medium feeding port is formed at the bottom of said upper end opening, said work is located below said polishing medium feeding port, and said polishing medium can continuously be fed to the surface of said work while said work is vibrated.
2. The apparatus for polishing a work in a barrel as claimed in claim 1, wherein a guide sleeve is arranged between said polishing medium feeding port of said polishing medium receiving container and the surface of said work.
3. The apparatus for polishing a work as in a barrel claimed in claim 2, wherein said guide sleeve is vibrated integrally with said work.
4. The apparatus for polishing a work in a barrel as claimed in claim 2, wherein said polishing medium received in said polishing medium receiving container can be compressed by using suitable means.

Fig. 1





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EUROPEAN SEARCH REPORT

Application Number
EP 99 10 7517

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
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| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
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| | | | TECHNICAL FIELDS SEARCHED (Int.Cl.6) |
| | | | B24B |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 23 June 1999 | Examiner Garella, M |
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