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(54) Multiple mill cutter for hollowing blocks of stone or similar material

(57) Perfected multiple mill cutter composed of four concentric mill cutters (3), (4), (5) and (6), attached to an axle, joined to a motor, configurating the mill cutter a spherical or semispherical body obtained from the stone block by the four mill cutters.

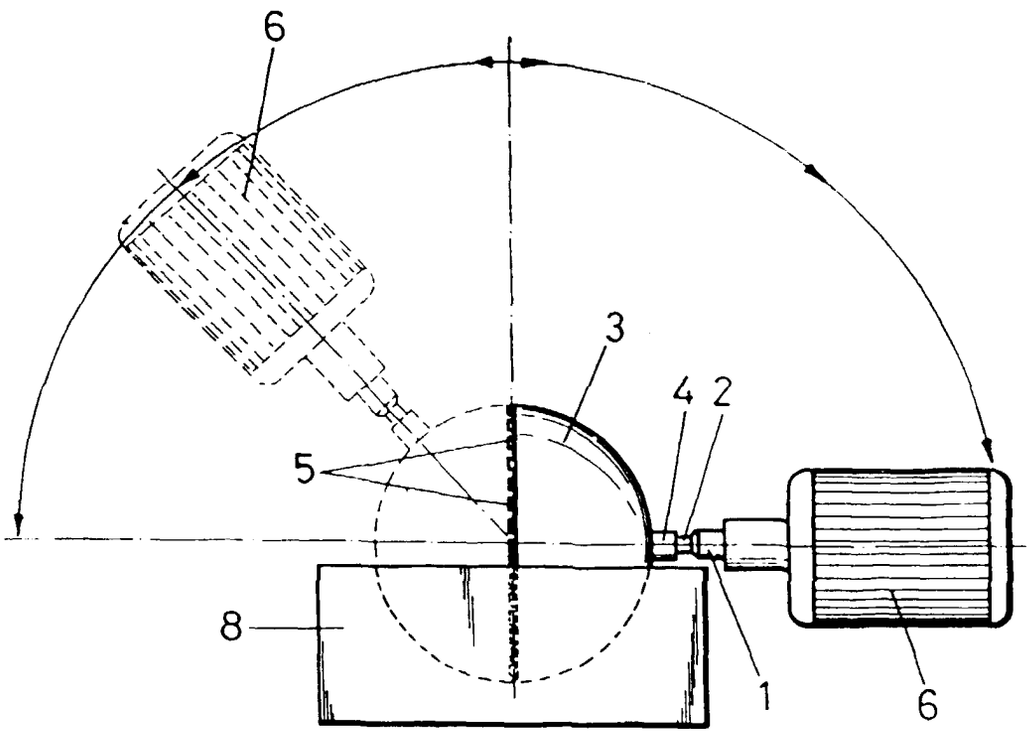

FIG.-4

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Description

OBJECT OF THE INVENTION

[0001] This descriptive report refers to a Utility Model request, regarding a perfected multiple mill cutter, applicable for hollowing blocks of stone or similar material, set up as an effective tool that includes four steel mill cutters of different diameters, joined on a single axis, which produce, through their action on a block of marble, granite, etc., four bodies, three of which constitute kitchen or bathroom sink basins, and the last of which, made with the smallest-diameter cutter, located in the internal area, is a semispherical body useful as an ornamental element. There are rectangular-shaped diamond bits installed in each of the cutters, and the upper cutter is supported by an internally threaded rod that is connected to the appropriate tool, which is connected to the outlet of the motor that provides the rotation, and in the same way, each of the cutters is connected to the one that precedes it.

FIELD OF THE INVENTION

[0002] This invention has its application in the of stone material manufacturing and treatment industry, and may also be used by the industry dedicated to manufacturing mill cutters and similar products.

BACKGROUND OF THE INVENTION

[0003] Currently, a series of flat disks is used for manufacturing round sink basins made from blocks of stone, which requires the essential pretreatment of the internal portion of the stone block, causing elevated wear of the diamond bits used for this purpose.

[0004] The pretreatment as previously cited causes a substantial dedication of time and financial expense.

[0005] Also the use of the flat disks does not allow the manufacture of sink basins made from granite, due to the extreme hardness of the material.

[0006] The solicitant has no knowledge of the existence at the present time of any type of cutter that allows for directly hollowing out the basins of multiple sinks, obtained from a single stone block.

DESCRIPTION OF THE INVENTION

[0007] The perfected multiple mill cutter, applicable for hollowing blocks of stone and similar materials, that the invention proposes, is proposed a clear solution to the aforementioned problems, since it precisely reduces the amount of machinery required for hollowing different blocks of stone in order to obtain different bodies to be used as sink basins or similar objects, while at the same time reducing the volume of labor, by allowing the work performed on a single body to produce multiple objects according to the cutter used.

[0008] More specifically, the perfected multiple mill cutter, applicable for hollowing blocks of stone and similar materials, is based on a motor element, from which an axle emanates, to which four threaded pieces, configured as four constitutive semi-spheres in a set of four concentrically placed cutters, are attached. The motor is placed on an appropriate tool in order to allow the basculation of the multiple cutter attached to it, from the 90° position gradually moving to approximately 160°, while at the same time the multiple cutter gradually spins and extracts the material from the interior of the block. This allows for the extraction of three sink basins, with dimensions similar to those of the cutter that performs the extraction of the respective basin, and the production by the cutter situated in the center of a nearly spherical, or at least semispherical, body, that, joined with other semispherical waste materials may be used as an element of ornamentation.

[0009] In summary, the four cutters, upon spinning concentrically, obtain, from the stone block, three basins, similar in diameter to the cutters used, and a residual body, separated with the fourth cutter, meant as a sphere with ornamental use.

[0010] The multiple mill cutter, equipped on the upper part with a hollow cylindrical extension, fitted with an internal helicoidal thread, onto which another extension, equally cylindrical and fitted with an exterior thread, that is directly directly emanated from the active motor, and with cutters of smaller size that will transmit to the fastening head in circular movement, which will be transmitted directly to the multiple cutter, making this motor, being attached to a support, move from the position of 90 ° until reaching an angle of 160°, obtaining the total hollowing of the internal part of the stone block and, consequently, obtaining the desired sink basins in different sizes, and a semi-sphere for ornamentation.

[0011] Each of the bodies of the multiple mill cutter is equipped with an internally hollow half sphere, with several rectangular diamond bits installed in the perimeter of its mouth, with adequate thickness to allow the cutter to act directly on the stone.

DESCRIPTION OF THE DRAWINGS

[0012] In order to complement this description and with the object of improving comprehension of the invention's characteristics, this descriptive report includes, as an integral part, four sheets of plans, in which the following has been represented as illustrations and not limitations:

[0013] Figure 1.- Shows a perspective view of the perfected multiple mill cutter, applicable for hollowing stone blocks, with only the cutter closest to the motor axle installed.

[0014] Figure 2.- A bottom view of the lower part of the object represented in figure 1.

[0015] Figure 3.- An elevated lateral view of the object represented in figures 1 and 2.

[0016] Figure 4.- Shows a view of the object represented in figures 1, 2, and 3, attached to a motor that transmits the corresponding rotation to perform the required work.

[0017] Figure 5.- Shows a view of the object represented in figures 1, 2, and 3, attached to the motor represented in figure 4, with the two tools attached to a support that allows its action in every direction required for the hollowing operation..

[0018] Figure 6.- Shows an elevated lateral sectioned view of the object of the invention, relative to a multiple mill cutter, applicable for hollowing stone blocks, once each of the cutters or hollow semispherical bodies is installed using the threads.

PREFERRED IMPLEMENTATION OF THE INVENTION

[0019] Considering these figures, it may be observed that the perfected multiple mill cutter, applicable for hollowing stone blocks, is made up of a motor body (1) to which an axle (2) is attached, to which four concentric cutters are joined (3), (12), (13), and (14), each of which is made up of an internally hollow half-sphere, that presents a hollow circular and cylindrical prolongation or extension (4), with a machined helicoidal threading incorporated into its interior, provided to allow its adaptation to and attachment onto the threaded rod (2) of the axle (1) of a motor (6), onto which it is coupled in order to provide circular rotation.

[0020] The upper internal part of cutters (12) and (13) also have externally threaded cylindrical extensions that allow smaller-sized cutters to be attached.

[0021] The mouth of bodies (3), (12), (13), and (14) of the steel-manufactured multiple mill cutter include several diamond bits (5) that, along with the rotation of the motor, produce, with their action on a stone block (8) of granite, marble, etc., corresponding basins (15), (16), and (17), to be used as bathroom sinks, basins, kitchen sinks, etc., and a central semispherical body (18) that, joined with other semispherical wastes, may constitute an ornamental element.

[0022] In summary, the four cutters, (3), (12), (13), and (14), attached to axle (2), are placed in rotational movement by the motor (1), producing multiple treatment of the piece of stone material, producing, in a single operation, three basins to be used for distinct purposes.

[0023] In order to allow the motor (6) to which the cutter (3) is attached to move in an angle oscillating between 90° and 160°, the motor (6) is attached to a tool or support (9), that has a vertical extension (10) and a horizontal prolongation (11), allowing for the desired graduation of half spheres (3), (12), (13), and (14), in order to gradually extract from stone block (8) the material that the hollowing operation requires in order to form the sink basins in different sizes.

[0024] It is not considered necessary to make this description more extensive in order for any expert in the material to comprehend the extent of this invention and the advantages derived from the same.

[0025] The materials, shape, size and placement of the elements will be subject to variation as long as this does not suppose an alteration of the essence of the invention.

[0026] The terms in which this report has been written shall always be considered broad descriptions and not limitations.

Claims

1. Perfected multiple mill cutter, applicable for hollowing blocks of stone or similar materials, for the manufacture of sink basins, driven with a conventional motor (6), provided with an axle (1), the axle (1) being equipped with an external helicoid-threaded extension (2), the cutters being bodies (3), (12), (13), and (14), in the shape of a semi-sphere, manufactured from steel, that include cylindrical extensions (4) in their upper parts, with a helicoid-threaded internal space with a diameter coinciding with the extension (2) of the axle (1) of the motor (6), that allows the cutter (3) to be attached, with several rectangular diamond bits (5) on the perimeter of the circular area of the body of the half-spheres (3), (12), (13), and (14).

2. Perfected multiple mill cutter, applicable for hollowing blocks of stone or similar materials, based on a driving element (1), from which emanates an axle (2), to which the cutters are attached, characterized by four concentrically situated cutters, (3), (12), (13), and (14) on the axle (2) attached to the motor (1), that produce, with their movement, rotation and oscillation between 90° and 160°, three basins, (15), (16), and (17), with sizes corresponding to the respective cutters used for treating the stone block.

3. Perfected multiple mill cutter, applicable for hollowing blocks of stone or similar materials, according to the first claim, characterized because the cutter attached to the motor (6) by its axle (1) through the attachment of extensions (2) and (4) of the axle (1) and the cutters (3), (12), (13), and (14) will rotate in a circular motion based on the motion generated by the motor, which is attached to a support (9) equipped with a vertical extension (11) that allows for the rotation of the half-sphere (3) on the stone medium (8), from 90° to 160°.

4. Perfected multiple mill cutter, applicable for hollowing blocks of stone or similar materials, according to the first claim, characterized because the cutter (14) produces a spherical or semispherical body (18) also manufactured in stone material.

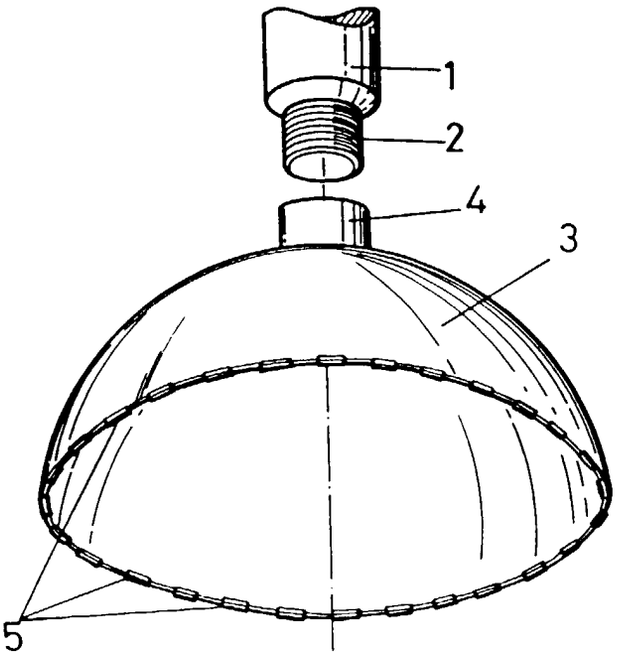

FIG.-1

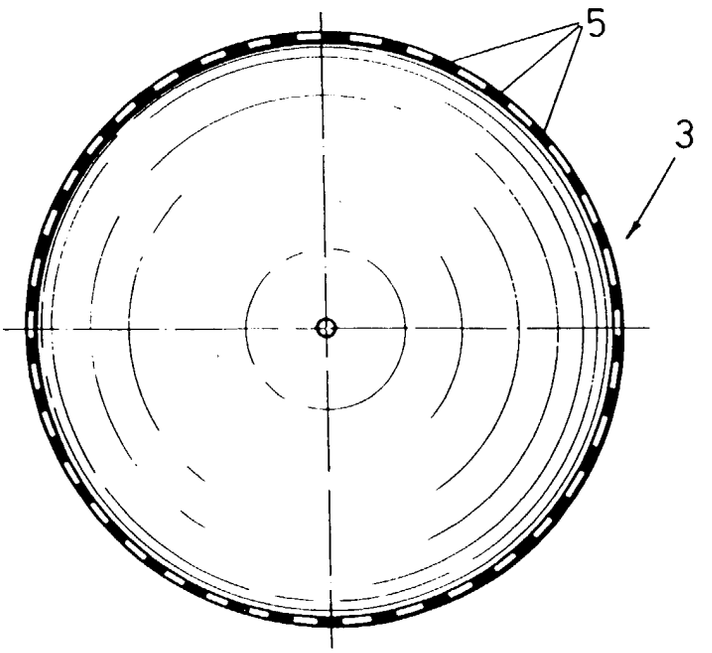

FIG.-2

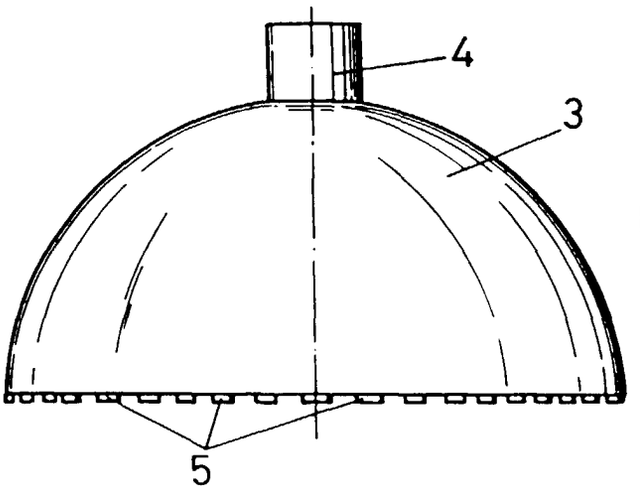

FIG.-3

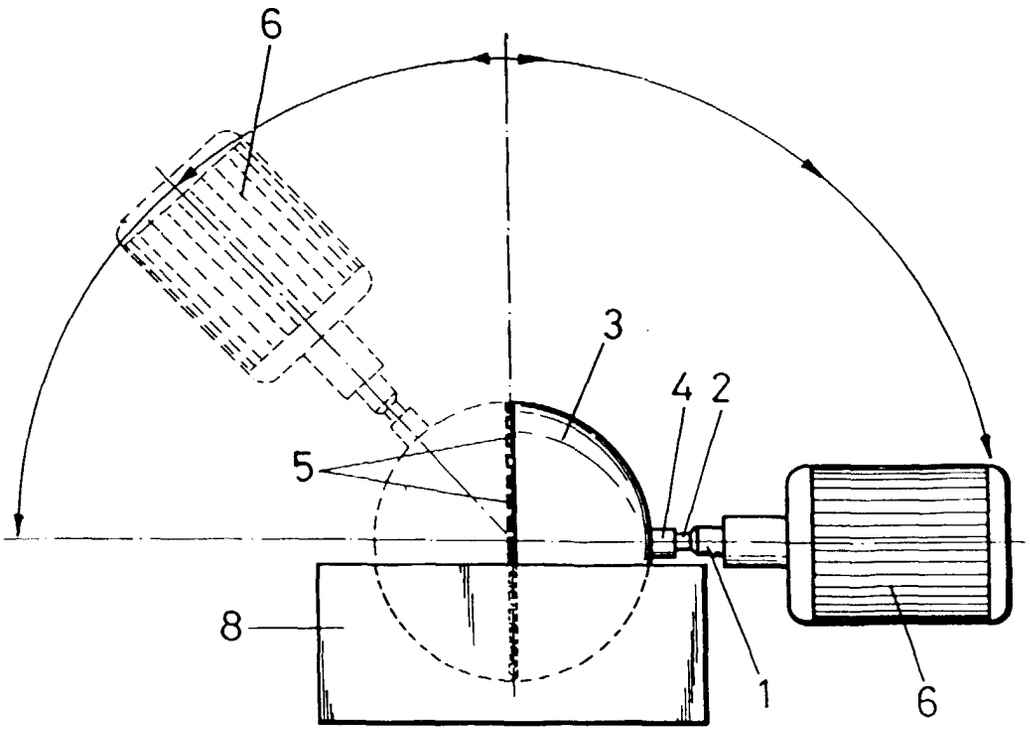

FIG.-4

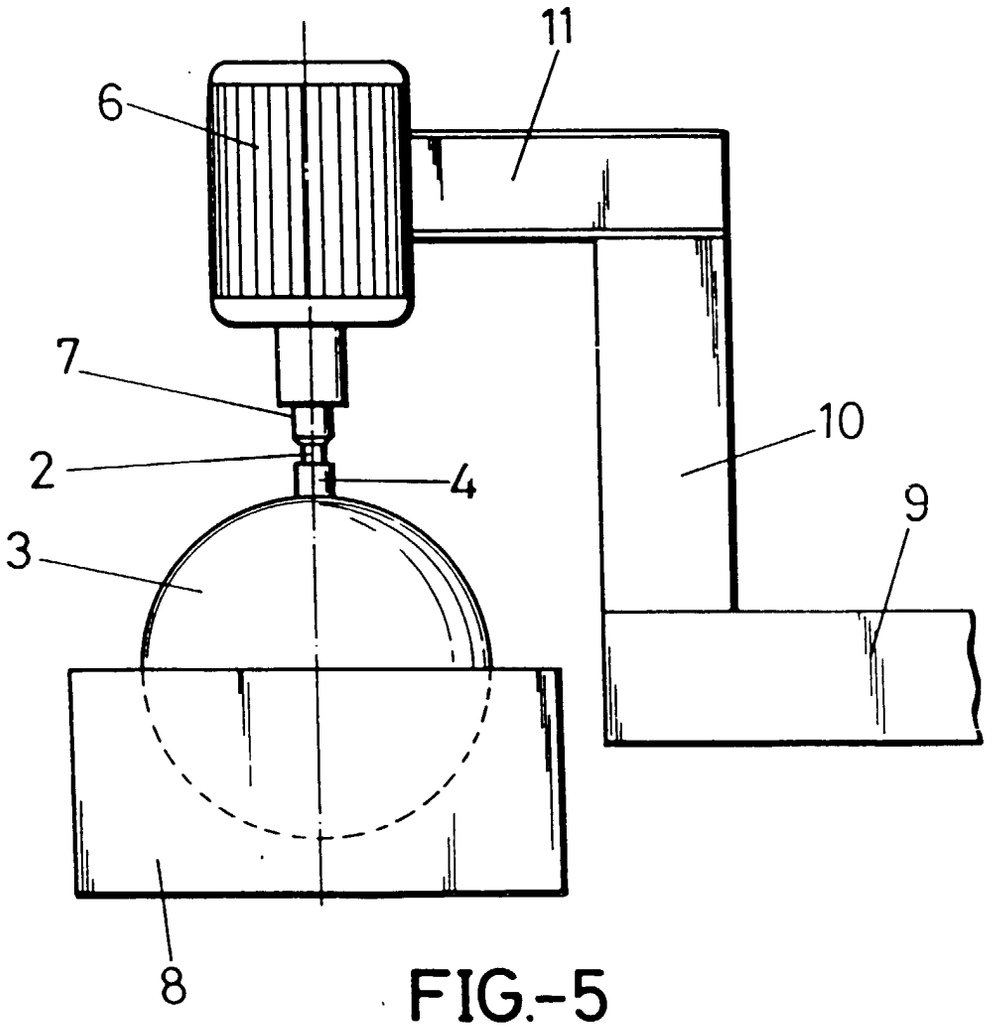

FIG.-5

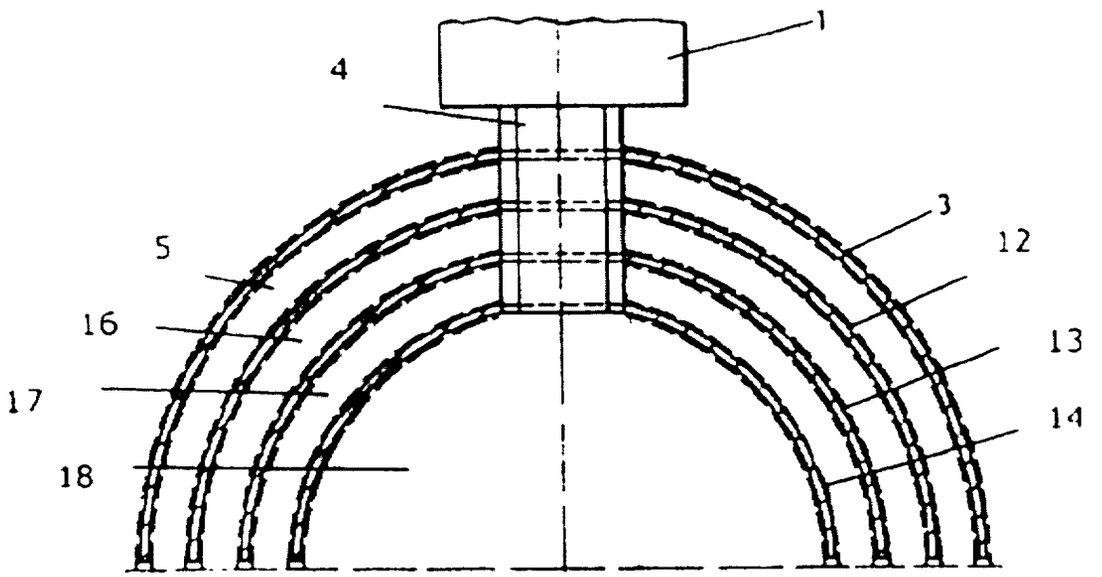

FIG- 6