

Feb. 28, 1956

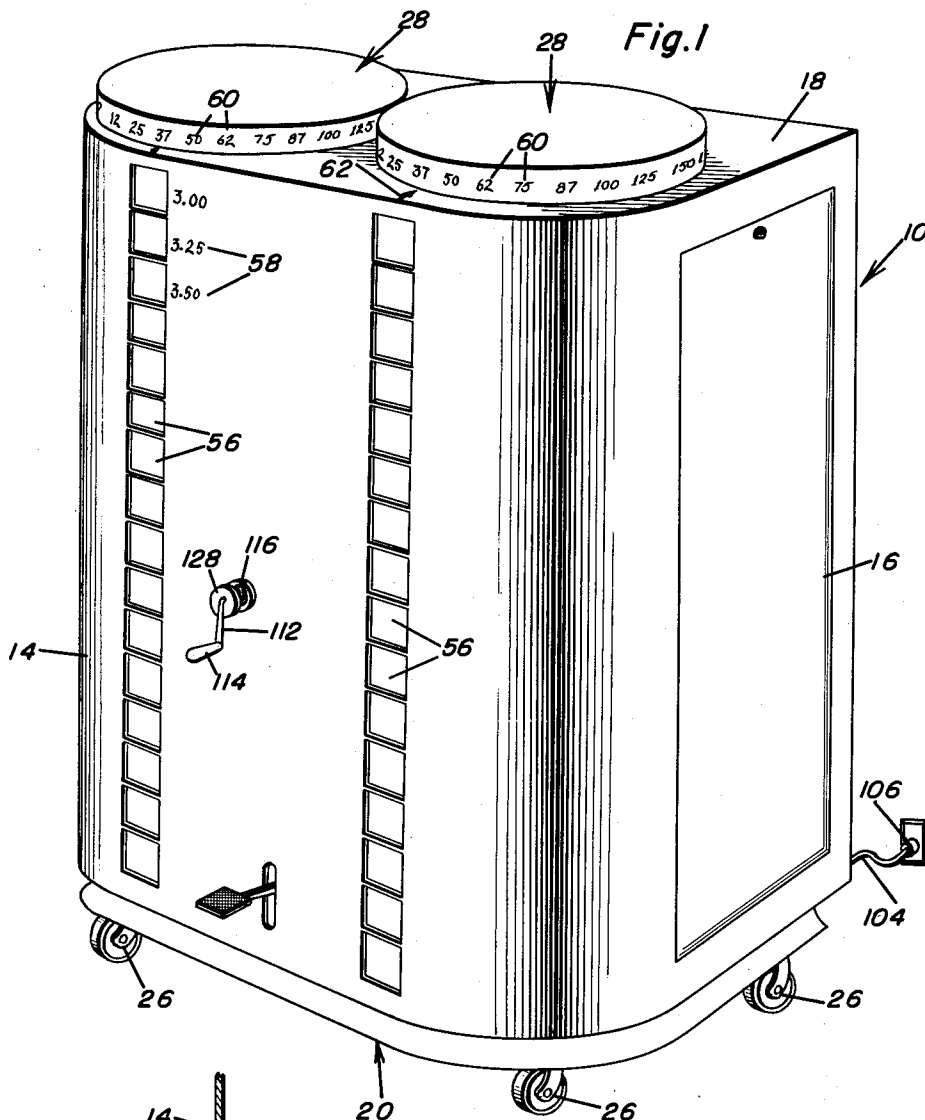
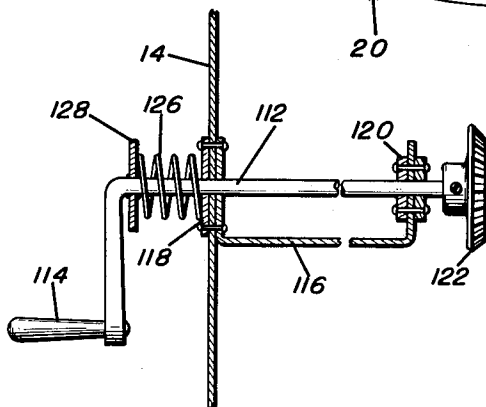
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2,736,628

TOOL RACK

Filed Nov. 30, 1953

3 Sheets-Sheet 1



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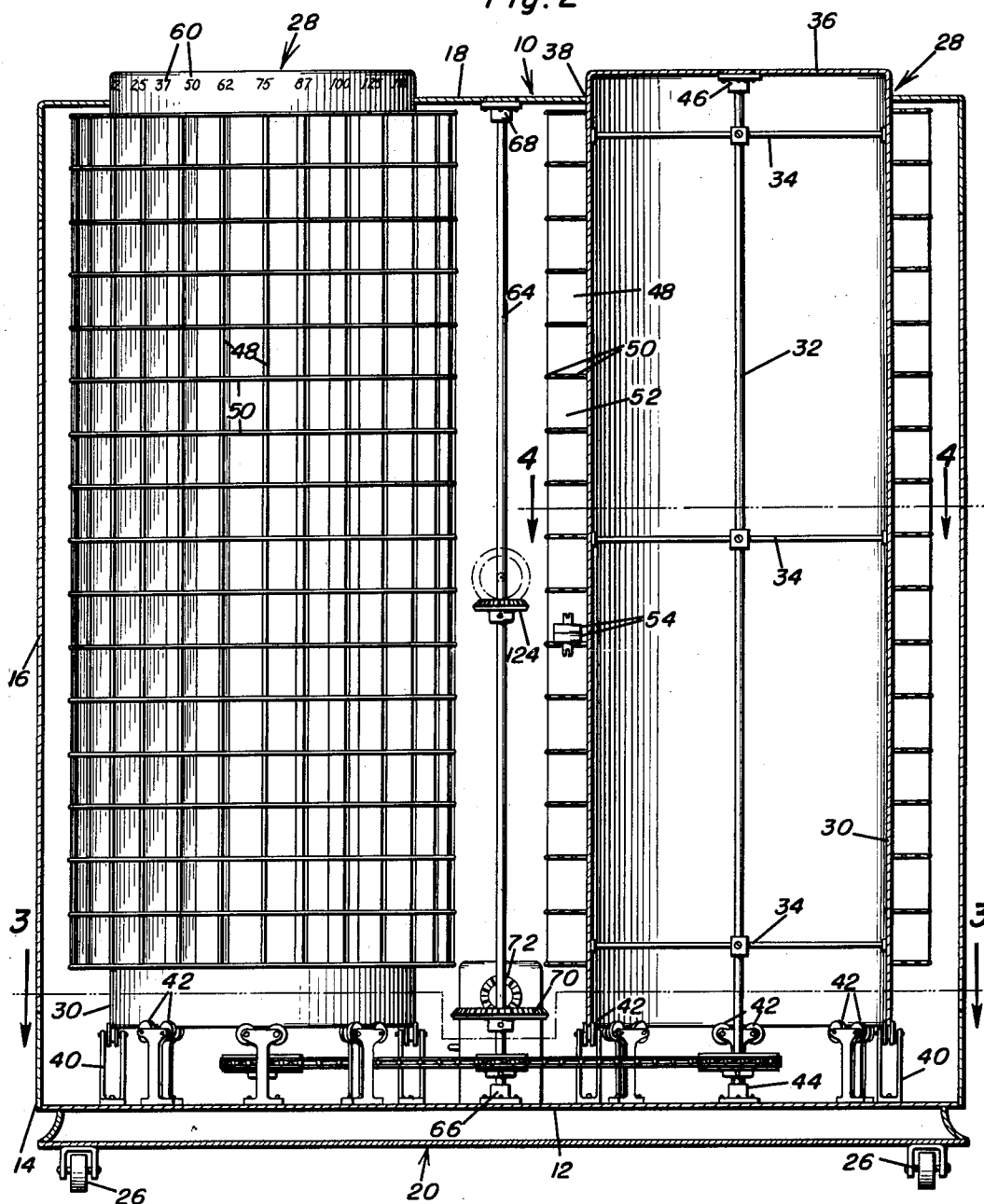
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Filed Nov. 30, 1953

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Fig. 2



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Filed Nov. 30, 1953

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Fig. 3

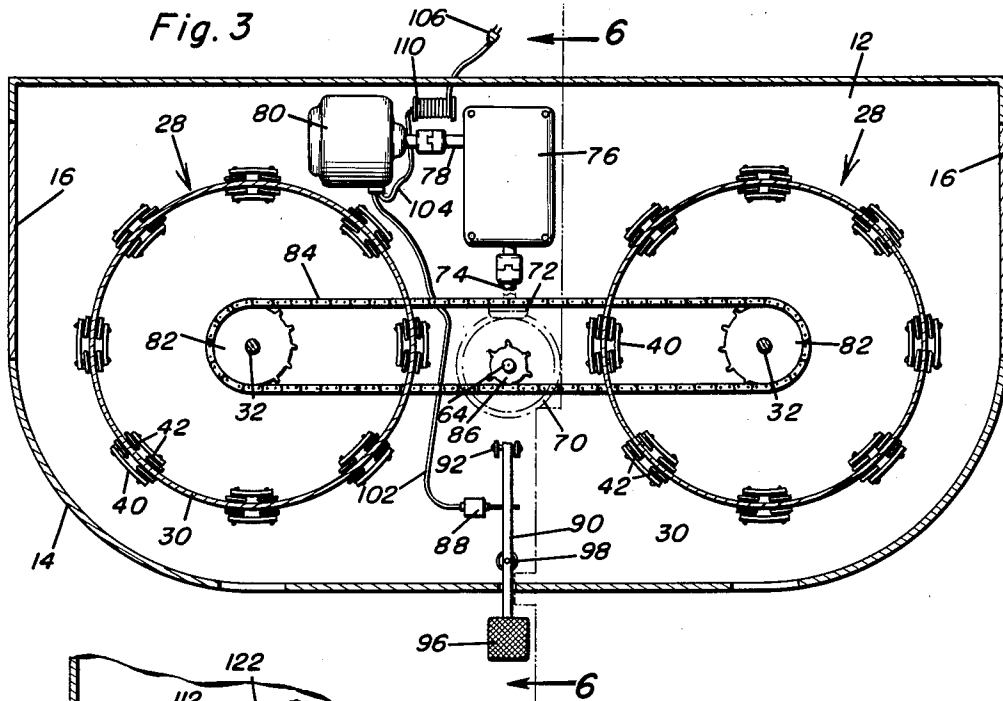


Fig. 4

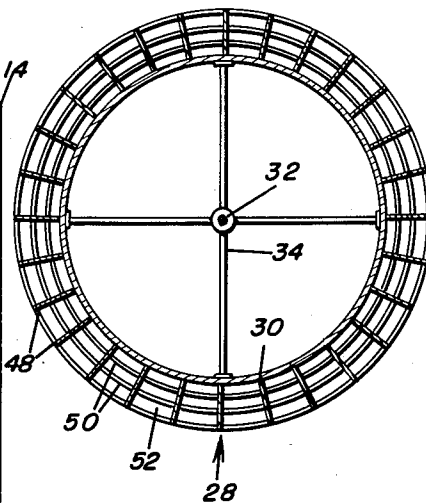
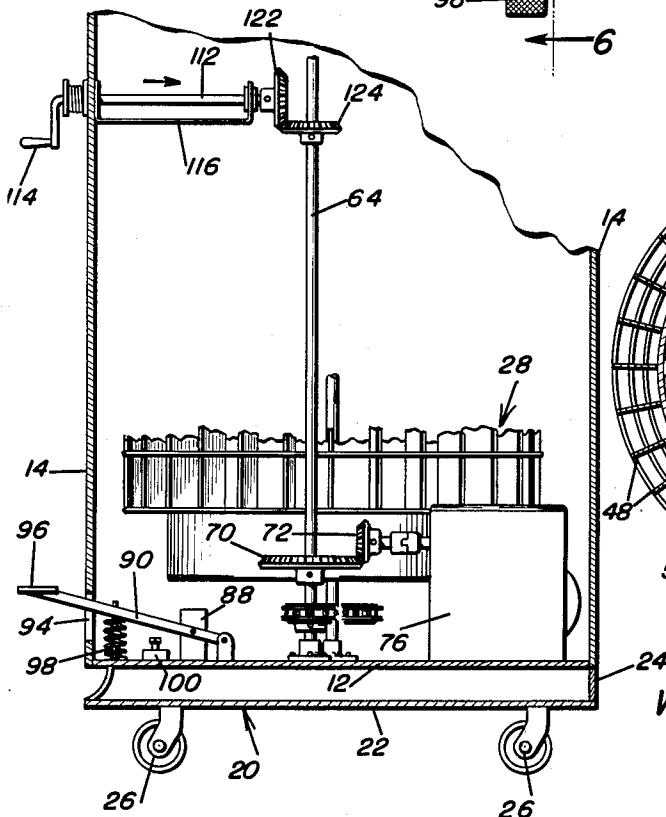


Fig. 5

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TOOL RACK

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Application November 30, 1953, Serial No. 395,186

1 Claim. (Cl. 312—305)

This invention relates in general to improvements in tool racks, and more specifically to a tool rack especially designed for holding optical lapping tools.

In the average optical grinding shop, it is necessary to have on hand a large number of different sets of lapping tools in order that the various optic surfaces may be ground. Further, inasmuch as these lapping tools are intended for certain optical surfaces, it is necessary that they be readily identified and found. Therefore, it is the primary object of this invention to provide an improved tool rack which may be utilized for the supporting of optical lapping tools which will support such optical lapping tools in such a manner so that the desired set of lapping tools may be readily picked out from the rack with a minimum of loss of time and at a minimum of effort.

Another object of this invention is to provide an improved tool rack of the rotary type which includes a cylindrical main frame member supported primarily at its base, the main frame member being in the form of a circular track which is rotatably mounted on wheels to facilitate rotation thereof.

Another object of this invention is to provide an improved tool rack which is of a relatively simple construction and which is so designed so as to carry a maximum number of tools in a confined space so as to be both space saving and economical in initial cost.

A further object of this invention is to provide an improved tool rack which includes racks rotatably mounted within a housing, the housing being provided with means for selectively rotating the racks whereby certain of the tool receptacles thereof may be aligned with openings in the housing to permit removal of the tools from the tool rack.

A still further object of this invention is to provide an improved tool rack in the form of a rotatable drum mounted in a housing, both the drum and the housing being provided with identifying indicia whereby each of the tool receptacles of the drum may be readily identified.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a front perspective of the tool rack which is the subject of this invention and shows the general outline thereof;

Figure 2 is a longitudinal vertical sectional view taken through the tool rack of Figure 1 and shows the general construction of the interior thereof, one of the revolving racks being shown in elevation;

Figure 3 is a transverse horizontal sectional view taken substantially upon the plane indicated by the section line 3—3 of Figure 2 and shows the manner in which the revolving racks are supported with respect to the bottom wall of the housing and the guide means for selectively rotating the same;

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Figure 4 is a transverse horizontal sectional view taken through one of the revolving racks and shows the general arrangement of the tool receptacles thereof;

Figure 5 is a fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 6—6 of Figure 3 and shows the relationship of drive means for the revolving racks; and

Figure 6 is an enlarged fragmentary vertical sectional view taken through the forward portion of the housing and shows the manner in which an auxiliary crank is mounted.

Referring now to the drawings in detail, it will be seen that there is illustrated the improved tool rack which is the subject of this invention. The tool rack includes a housing which is referred to in general by the reference numeral 10. The housing 10 includes a generally rectangular bottom wall 12 which has extending upwardly therefrom a generally rectangular shell 14. The shell 14 is provided at the sides thereof with removable panels 16. Also, if so desired, the shell 14 may be provided with a rear panel (not shown). It will be understood that the shell 14 is removably secured to the bottom wall 12. The housing 10 also includes a top wall 18 which is carried by the shell 14.

The housing 10 is seated on a base which is referred to in general by the reference numeral 20. The base 20 includes a bottom wall 22 and upstanding peripheral walls 24. Carried by the bottom wall 22 of the base 20 are removable casters 26. It will be understood that the casters 26 are optional, depending on whether it is desired to permanently position the housing 10 or whether it is necessary to move the housing 10 from one place to another.

Referring now to Figures 2 and 3 in particular, it will be seen that there is carried by the housing 10 within the interior thereof a pair of revolving racks, each rack being referred to in general by the reference numeral 28. Inasmuch as the two racks 28 are identical, only one of the racks will be described in detail.

Each rack 28 includes a cylindrical main frame member 30 which extends vertically. The cylindrical main frame member 30 has mounted concentric therewith a driven shaft 32. The driven shaft 32 is drivingly connected to its associated main frame member 30 by a plurality of vertically spaced spiders 34. Closing the upper end of the main frame member 30 is a cover portion 36 which extends through and overlies the housing 10, the upper portion of the main frame member 30 projecting through a circular opening 38 in the top wall 18 of the housing 10.

It will be noted that carried by the bottom wall 12 of the housing is a set of circumferentially arranged, U-shaped supports 40 for each of the revolving racks 28. Each of the supports 40 has carried at the upper end thereof a pair of wheels 42. It will be understood that the wheels 42 for each set of supports 40 are circumferentially arranged. The wheels 42 are of the type intended to engage a track. However, instead of the wheels 42 running along a track, the lower edge of the cylindrical main frame member 30 is carried by the wheels 42 for rotation within the housing 10.

Carried by the bottom wall 12 centrally of the associated set of supports 40 is a bearing member 44. Journalled in the bearing member 44 is the lower end of the driven shaft 32. The upper end of the driven shaft 32 is connected to the underside of the cover portion 36 by a suitable collar 46.

Each of the revolving racks 28 includes a plurality of vertically extending, circumferentially spaced partitions 48, the partitions 48 extending radially from the outer surface of the main frame member 30. Extending between and interconnecting the partitions 48 are concentric, arcu-

ate rods 50 which are horizontally disposed and circumferentially spaced so as to provide on the other surface of the main frame member 36 a plurality of vertically and circumferentially spaced tool receptacles 52. It will be understood that each of the tool receptacles 52 is of a size to receive a pair of optical lapping tools, such as the optical lapping tools 54 illustrated in Figure 2. It will also be noted that the rods 50 are so spaced so as to receive the optical lapping tools 54 and support them within their respective tool receptacles 52.

Referring now to Figure 1 in particular, it will be seen that the front wall of the shell 14 is provided with a vertically extending row of openings 56 for each of the revolving racks 28. By selectively positioning each of the revolving racks 28 with respect to the openings 56, it will be seen that the desired optical lapping tools 54 may be removed from their respective tool receptacles 52. In order that the desired optical lapping tools 54 may be quickly found, the openings 56 are identified by first indicia 58. The indicia 58 identifies the horizontal rows of tool receptacles 52.

The upper part of the rack 28 which extends through and above the housing 10 is provided with circumferentially spaced second indicia 60. The indicia 60 identifies the vertical rows of tool receptacles 52. Thus, it will be seen that the individual tool receptacles 52 may be quickly identified by revolving the racks 28 until the desired vertical rows of tool receptacles 52 are aligned with the openings 56 through the use of the arrow 62 and the second indicia 60. Then, by selecting the desired one of the vertical openings 56 through the use of the first indicia 58, the desired tool receptacle 52 is found.

In order to facilitate the selective positioning and rotation of the revolving racks 28, the housing 10 is provided with a vertically extending drive shaft 64 which is positioned centrally of the housing between the two revolving racks 28. The drive shaft 64 is rotatably carried by a bearing 65 secured to the bottom wall 12 and a vertically aligned bearing 68 carried by the underside of the top wall 18. The drive shaft 64 is provided adjacent its lower end with a ring gear 70 which is meshed with a pinion gear 72. As is best illustrated in Figure 3, the pinion gear 72 is carried by an output shaft 74 of a reduction gear unit 76. The reduction gear unit 76 includes an input shaft 78 which is coupled to an electric motor 80 whereby the electric motor 80 may be utilized to rotate the drive shaft 64 at a relatively slow speed. Carried by each of the driven shafts 32 adjacent their lower ends are sprockets 82. The sprockets 82 are horizontally aligned and are connected together by a drive chain 84. Carried by the drive shaft 64 is a sprocket 86 which also engages the drive chain 84. Thus, it will be seen that when the electric motor 80 is energized, the revolving rack 28 will be revolved within the housing.

In order to control the revolving of the racks 28, there is provided a switch 88 for the electric motor 80. The switch 88 is controlled by a lever 90 which is terminally pivoted to a mounting bracket 92 carried by the bottom wall 12. The arm 90 passes through a centrally located opening 94 in the front wall of the shell 14 and has mounted on the outer end thereof a suitable foot engageable pedal 96. The arm 90 is retained in an uppermost position by a coil spring 98 which rests upon the bottom wall 12. The bottom wall 12 is also provided with a stop 100 which is adjustable and which is engageable with the arm 90 to limit downward pivoting thereof. It will be seen that the switch 88 is connected to the electric motor 80 by a suitable electric wire 102.

The electric motor 80 is provided with a lead-in wire 104 whose free end is provided with an electric plug 106 which may be plugged into any conventional electrical receptacle. Inasmuch as the distance of the housing 10 from an electrical receptacle may vary, the lead-in wire

104 is mounted on a reel 110 which automatically rewinds the unnecessary portion of the lead-in wire 104.

In order that the revolving racks 28 may be selectively positioned in the case of a power failure, there is provided a crank 112. The crank 112 is provided with a handle 114 which is positioned forwardly of the shell 14, as is best illustrated in Figures 1 and 5. The handle is carried by a U-shaped mounting bracket 116 secured to the rear of the front wall of the shell 14. The connection between the mounting bracket 116 and the front wall of the shell 14 is reinforced by a plate 118. The plate 118 together with one flange of the mounting bracket 116 and the portion of the shell 14 disposed therebetween forms a first bearing for the crank 112. A second bearing for the crank 112, which is in spaced relation with respect to the first bearing, is formed by a pair of plates 120 secured to a second flange of the mounting bracket 116 in combination therewith.

The innermost end of the crank 112 is provided with a pinion gear 122 which is engageable with a ring gear 124 secured to the drive shaft 64 intermediate its ends. The pinion gear 122 is normally retained out of engagement with the ring gear 124 by a coil spring 126. The coil spring 126 engages the plate 118 and a stop member 128 on the crank 112 to urge the crank 112 forwardly to move the pinion gear 122 out of engagement with the ring gear 124. If desired, the crank 112 may be mounted in such a manner so as to be entirely removable.

In view of the foregoing it will be seen that there has been illustrated and described a novel rack construction which may be utilized to mount a multiplicity of optical lapping tools or other tools which must be readily identified in such a manner so that the tools can be readily identified. Also, it will be seen that the structure of the rack is such that the desired tool receptacles may be quickly and easily positioned in the proper places for the removal or the insertion of tools carried thereby.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

A tool rack comprising a housing, a plurality of circumferentially arranged supports in said housing, circumferentially arranged wheels carried by said supports, a rack in said housing, said rack having a cylindrical main frame member, said main frame member having a lower edge thereof seated on said wheels for rotation, said main frame member having a plurality of vertically extending spaced partitions secured thereto, a plurality of concentric annularly spaced arcuate horizontally extending rods secured to said partitions and forming with said partitions a plurality of circumferentially and vertically spaced tool receptacles, a plurality of vertically aligned openings in said housing, means for rotating said rack to selectively align said receptacles with said openings, first indicia on said housing identifying said openings, said rack having a cover portion extending through and above said housing holding said rack in a vertical position in said housing, and second indicia on said cover portion identifying vertical rows of tool receptacles, said first and second indicia facilitating the identification of each individual tool receptacle.

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