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SUPPORT FOR HOSPITAL TABLES

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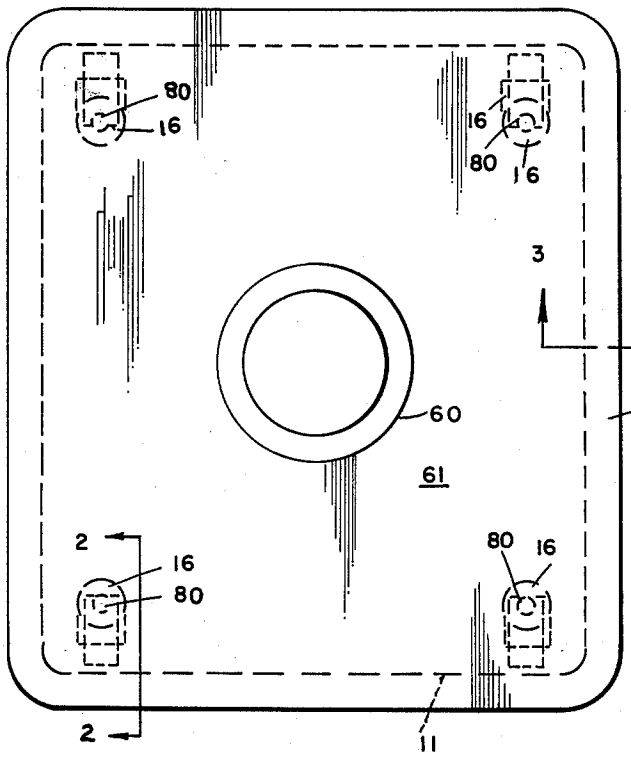


FIG. 1

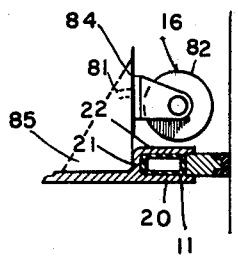


FIG. 2

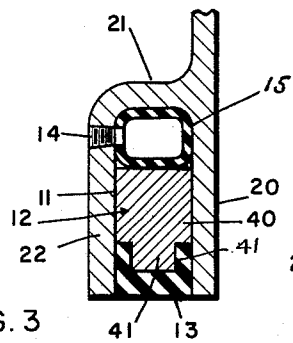


FIG. 3

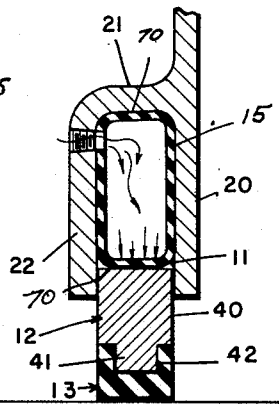


FIG. 4

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SUPPORT FOR HOSPITAL TABLES

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This invention relates to hospital tables and, more particularly, to examining tables and operating tables.

In physicians' examining and operating tables used in the medical field, it is often desirable that the table be capable of rolling on casters or similar devices, but, once in position, to be stabilized firmly so that the table is as rigid as possible. Previous designs have incorporated casters which carried the table for transportation which could be raised to allow the base to rest firmly on the floor. This has involved complicated lever and hydraulic actuating mechanisms.

Another problem encountered with tables of this type is cleanliness. It is common practice to occasionally "hose down" the table and its base. If the table remains in the same position for any length of time, the seepage of fluids underneath the table gives rise to problems in cleanliness.

The present disclosure illustrates a means by which both of the problems cited above may be met. In the disclosure herein, the table base has a peripheral groove which contains a metal ring, shown in cross section, which acts as a piston. A rubber or neoprene pad is cemented to the bottom of the piston. Above the piston is a tube, not unlike a bicycle tire inner tube, capable of being expanded by the introduction of oil or air through the connection shown. The table has casters permanently mounted in such a position as to hold the base casting at a suitable distance above the floor so that it can be readily moved about. With the piston in the position shown in FIG. 3, the table is free to be moved about. Once the position of the table is determined, the introduction of fluid under pressure to the tube will cause the tube to expand, forcing the piston downward until the rubber pad engages the floor.

By establishing an appropriate pressure inside the tube, the pad is caused to adjust to ordinary uneveness which may exist in the floor, effectively sealing the area under the base to prevent the entrance of fluids from the outside. The tube itself forms a seal with the upper surface of the piston and the inner walls of the base casting groove. At the same time, the pressure of the ring on the floor effectively stabilizes the table at its maximum peripheral dimensions, thereby preventing rolling of the casters and resistance tipping of the base to the maximum degree. The braking effect of the rubber pad on the floor and the stabilizing influence will, of course, be a function of the pressure used in the tube and the frictional characteristics thereof.

When it is desired to move the table again, simple release of the hydraulic pressure in the tube will cause it to collapse, thereby raising the piston and pad to the retracted position shown.

Since the U-shaped chamber may be an integral part of the base casting and since neoprene tubing and the U-shaped foot pad are commercial items and, further, since the piston itself may be merely a simple metal shape formed to fit the configuration of the groove in the base, this assembly is low in cost and simple to build.

It is, accordingly, an object of the present invention to provide an improved seal and locking device for operating tables.

Another object of the invention is to provide an improved combination table and locking device.

A further object of the invention is to provide a table seal and locking device which is simple in construction, economical to manufacture, and simple and efficient to use.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

FIG. 1 is a top view of a table base with a locking device according to the invention;

FIG. 2 is an enlarged broken cross sectional view of the locking device and caster, taken on line 2—2 of FIG. 1, shown in extended position;

FIG. 3 is an enlarged cross sectional view taken on line 3—3 of FIG. 1 showing the locking cylinder in retracted position; and

FIG. 4 is a view similar to FIG. 3 with the piston in extended position.

Now with more particular reference to the drawing, a table pedestal **10** is shown having a suitable column **60** at the center thereof. The column may have a table of any well known design attached to the top thereof. The pedestal **10** has a generally flat upper surface **61** which extends downwardly at the edges in a flange **20**. The lower periphery of the flange **20** defines the outer wall of a cylinder **11**. The cylinder **11** is made up of an inwardly extending wall **21** and a downwardly extending flange **22** which extends generally parallel to the flange **20**. The downwardly extending flange **22** and the flange **20** define the cylinder **11** which is in the form of a downwardly facing groove generally U-shaped in cross section as shown in the drawing.

Inside the cylinder **11** is reciprocably supported a piston **12**. The piston **12** is made up of a flexible ring **40** which is generally rectangular in cross section and may be made of metal or other flexible material. The upper surface of the ring **40** is attached to a bottom surface **71** of a bellows **15** by cementing, bonding, or other suitable fastening means. An upper surface **70** of the bellows **15** is attached to the lower surface of the inwardly extending wall **21** of the cylinder **11**.

The lower surface of the piston **12** may have a key **41** thereon which may extend into a channel **42** in a resilient foot pad **13**. The foot pad **13** may be made of neoprene, rubber, or other material which will exert a generally high coefficient friction when engaging an ordinary floor and, therefore, resist sliding thereon.

The elastic tube or bellows **15** may be made of rubber, neoprene, or the like and it generally resembles a bicycle inner tube having an inflating connection **14** for connecting a source of compressed air or hydraulic fluid. The upper surface of the bellows **15** will be attached to the wall **21** as aforesaid and the lower surface will be attached to the upper surface of the piston **12**.

Suitable casters **16** are attached at the four corners of the pedestal **10** as shown and they have a usual stem **80** rotatably attached to a flange **84** which is reinforced by a web **85**. The pedestal has downwardly extending portions **81** which extend downward around the outside of wheels **82** but terminate slightly above the lower parts of the wheels.

In operation, when it is desired to transport the device, fluid will be pumped from the bellows **15** and the bellows will retract in size. This will draw the piston **12** up into the U-shaped cylinder to the position shown in FIG. 3 out of engagement with the floor. The table can then

be transported on the casters **16** in the usual manner. When it is desired to park the table for use, the operator merely pumps fluid or liquid into the bellows **15**. This forces the piston to drive the foot pad **13** into engagement with the floor to hold the table rigidly and positively in place and to form a seal between the foot pad **13** and the floor to prevent any water or extraneous material from passing under the table.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a table, a generally horizontally disposed base, a downwardly disposed channel in said base extending continuously around said base adjacent the edge thereof, a resilient inflatable member in said channel, wheel means on said base for supporting said base above a support surface, and means on said inflatable member to engage said support surface to lift said wheel means out of engagement with said support surface when said inflatable member is inflated.

2. In a table, a base, a caster on said base for supporting said table, an inflatable member attached to said base and extending continuously around said base adjacent the outer edge thereof, and means to inflate said member to bring means thereon into engagement with a floor to lift said caster out of engagement therewith and to stabilize said table.

3. The table recited in claim 2 wherein said inflatable member is annular and forms a seal between said table and said floor.

4. The table recited in claim 3 wherein said table has at least three casters and said inflatable member extends entirely around all said casters.

5. In combination, a table pedestal and a lifting and sealing member, said table pedestal having a base portion disposed in a generally horizontal plane, at least three spaced casters attached to said base for supporting it, said base having a depending flange extending therearound, a flange on said base extending downwardly generally parallel to said depending flange and defining a downwardly open channel, an expandable member in said channel, and means on said expandable member to sealingly engage a floor, said expandable member being adapted to lift said casters out of engagement with said floor.

6. In combination, a table pedestal and a lifting and sealing member, said table pedestal having a base, a downwardly facing channel in the bottom of said base extending therearound, an expandable, resilient, flexible tubular member in said channel, piston means attached to said expandable member, spaced casters on said base for transporting said base over a floor, and means for injecting a fluid into said expandable member, expanding said expandable member to force said piston means into engagement with said floor whereby said casters are lifted from said floor, said piston means having a sealing member on the lower end thereof for engaging said floor to prevent foreign matter from passing under said base.

References Cited in the file of this patent

UNITED STATES PATENTS

872,742	Oesterle et al.	Dec. 8, 1907
896,050	Zwemer	Aug. 11, 1908
2,192,337	Tiffany	Mar. 5, 1940
2,262,288	Klipstein et al.	Nov. 11, 1941
2,532,677	Shampaine	Dec. 5, 1950
2,655,387	Cramer	Oct. 13, 1953
2,671,242	Lewis	Mar. 9, 1954
2,837,387	Gerville	June 3, 1958