Jan. 26, 1954 J. J. KEAL 2,667,391

VERTICALLY ADJUSTABLE TABLE STRUCTURE

Filed Dec. 22, 1952

Fig. 1.

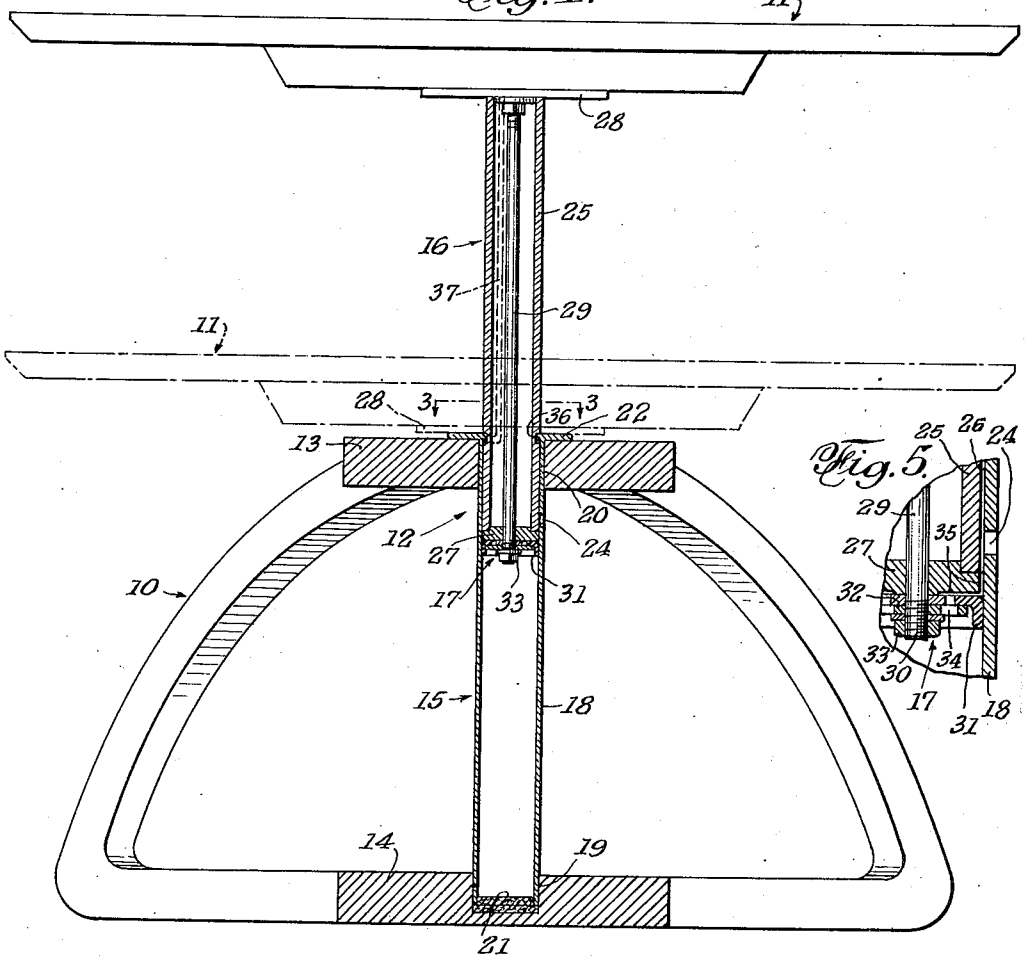


Fig. 5.

Fig. 2.

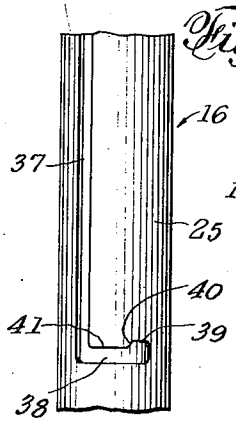


Fig. 3.

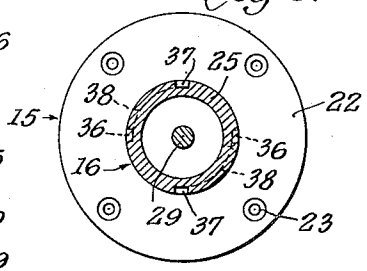
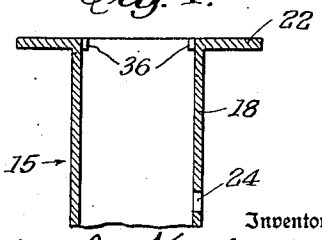


Fig. 4.



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VERTICALLY ADJUSTABLE TABLE STRUCTURE

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2 Claims. (Cl. 311—39)

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This invention relates to a table construction and deals more particularly with a table adapted to have its top raised or lowered relative to the base as desired.

An object of the present invention is to provide a table of the character indicated in which the base and top are telescopically engaged and the means effecting such engagement embodying simple and inexpensive dash-pot means that effect a slow and air-cushioned lowering of the top in a safe manner.

Another object of the invention is to provide such a table in which the top is rotational relative to the base to effect release of the former when lowering thereof is desired.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is a partial side elevational and partial sectional view of a height-adjustable table according to the present invention.

Fig. 2 is an enlarged fragmentary elevational view of the plunger portion of a dash-pot employed in the construction.

Fig. 3 is a plan sectional view as taken on line 3—3 of Fig. 1 to the scale of Fig. 2.

Fig. 4 is a fragmentary detail sectional view of the cylinder portion of the dash-pot.

Fig. 5 is a further enlarged and fragmentary sectional view showing the details of the dash-pot.

The table that is illustrated comprises, generally, a base 10, a top 11, and a dash-pot construction 12 interconnecting said base and top.

The base and top may be formed in different ways, the latter being generally conventional and the former being characterized particularly by suitable vertically spaced bearing elements 13 and 14 for the dash-pot. These bearings are positioned centrally of the base structure so that the dash-pot is centrally located and the table is in balance. The lower bearing element 14 is recessed in its upper face to provide a socket 19 in which the lower end of the cylinder is seated.

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The dash-pot 12 comprises, generally, a cylinder 15 fixedly secured to base 10 and vertically supported by the bearing elements 13 and 14, a plunger 16 telescopically fitted in said cylinder and affixed to the under side of table top 11, and air-passing piston means 17 provided on the lower end of plunger 16 to effect restricted flow of air into and out of the cylinder according to whether the top 11 is being raised or lowered.

Cylinder 15 comprises a thin-walled tube 18 that has its lower end held in a bearing socket 19 in base element 14 and its upper end held in a bearing bore 20 in base element 13 and in vertical alignment with said socket. The lower end of said cylinder is either closed or, as shown, felt washers 21 seal the same to prevent ingress or egress of air. At its upper end, tube 18 is provided with a flange 22 and suitable screws fixedly connect said flange to bearing element 13, said screws passing through holes 23 in the flange. Near its upper end, but preferably below bearing element 13, said tube 18 is provided with an air-passing hole 24 of suitable size.

Plunger 16 comprises a tube 25 that is freely slidable within the cylinder, the fit being quite loose to minimize friction and also enable passage of air between the inner face of the cylinder and the outer face of tube 25. Although somewhat exaggerated, the annular space 26 thus provided is shown in Fig. 5. The lower end of tube 25 is provided with a closure or end wall 27. The upper end of tube 25 is provided with a flange 28 that is affixed to the under side of table top 11. A central rod 29 extends from flange 28 longitudinally through tube 25 and has a threaded end 30 extending downwardly beyond the lower end of said tube.

In order that the plunger 16 be effectively guided in cylinder 15, the diametral size of end wall 27 is such as to slidingly fit said cylinder, said wall, therefore, being slightly larger in diameter than the outer diameter of tube 25.

The piston means 17 is more clearly detailed in Fig. 5 wherein it is shown that the same comprises a packing cup 31, sealing against the inner face of tube 18, and held in place against the bottom face of wall 27 by a washer plate 32 and a nut 33 on the threads of end 30 of rod 29.

Restricted passage means is provided to pass air between the under side of the piston means 17 and annular space 26. In this instance, plate 32 is provided with one or more apertures 34 and wall 27 with suitable grooves 35 that serve to pass air in either direction past the packing cup 31. It will be clear that, upon downward

movement of plunger 16, the air in cylinder 15 will slowly bleed out through hole 24 so that said movement is cushioned to obviate jarring of any glassware or dishes on table top 11. Reversely, air flows into said cylinder when the plunger is extended upwardly.

According to the invention, the means 12 includes guide and stop means for the cylinder 15 and plunger 16. Said means is shown as diametrally opposed lugs 36 at the upper end of the cylinder and directed inwardly from the inner face of said cylinder, and diametrally opposed longitudinal grooves 37 in the outer face of plunger tube 25 that extend from the upper end of said tube to a point spaced above the lower end and each terminating at said point in a circumferential groove portion 38 which, in this case, extends through 90°. At its end, each said circumferential groove portion 38 has a downwardly-facing recess 39 that defines a shoulder 40. Groove 37 and groove portion 38 may be termed bayonet groove means.

The lugs 36 slidingly fit grooves 37 and serve as keys holding the base and top non-rotational during telescopic movement of the plunger in the cylinder. However, when the top is raised to bring the groove portions 38 into register with lugs 36, said top can be rotated through an arc according to the circumferential extent of said groove portions 38 to bring recesses 39 in alignment with the lugs and the latter will engage in said recesses and be held by shoulders 40 against inadvertent release.

In the full-line position of the top, shown in Fig. 1, the lugs 36 are disposed in recesses 39 and said top is firmly and non-rotationally held elevated. By providing a slope to shoulders 40, as shown in Fig. 2, it is only necessary to impart a rotational movement to the table top to cause said shoulders to cam themselves up over lugs 36 and out of recesses 39 so that said lugs ride horizontal edges 41 of groove portions 38 until they register with longitudinal grooves 37. Then, the top 11 is free to lower gravitationally as cushioned by the dash-pot means. The low position of the table top is shown by the dot-dash lines of Fig. 1. The reverse occurs when raising the table top.

While I have illustrated and described that I now contemplate to be the best mode of carrying out my invention, the construction is, of course, subject to modification without departing from the spirit and scope of the invention. It is, therefore, not desired to restrict the invention to the particular form of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

Having thus described the invention, what I claim and desire to be secured by Letters Patent is:

1. A table including a base plate, said base plate being formed with a central socket in its upper face, an open ended cylinder having its closed end seated in the socket, a bearing enclosing the upper end of the cylinder, said bearing being supported by said base plate, a table top, a tubular plunger structure depending from the central portion of the table top, a closure for the lower end of said plunger, a rod fixed in the table top and extending axially through said tubular plunger and below said closure plate, said rod having a threaded lower extremity, a packing structure on the lower end of said rod, said packing structure having its upper face abutting said closure plate, a threaded member on the end of the rod for securing said packing structure against said closure plate, and means for locking said tubular plunger in adjusted position within the cylinder, including a pin member fixed on one element and a bayonet slot in the other element, the pin member being adapted to slide into the vertical leg of the bayonet joint during adjustment of the parts and to be moved into the horizontal portion of the bayonet slot for locking the parts against relative vertical movement.

2. The structure of claim 1 characterized in that the upper end of the vertical cylinder is provided with a horizontal annular flange which overlies the bearing.

JOHN J. KEAL.

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