

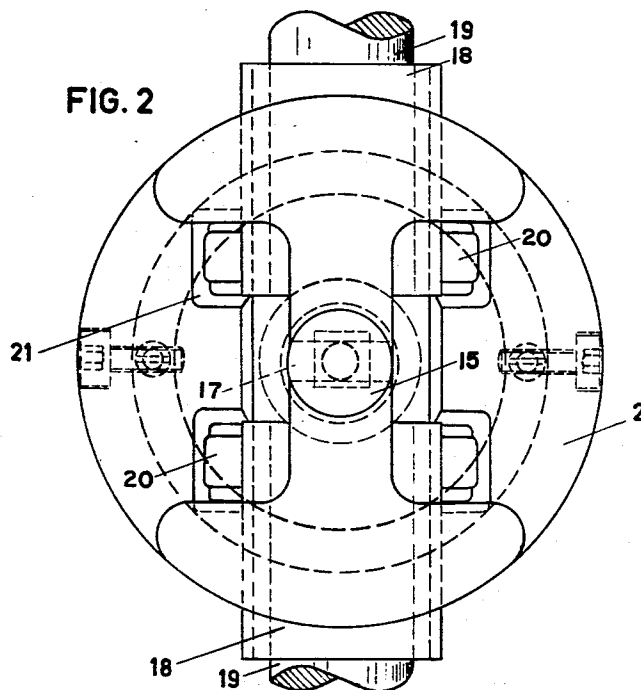
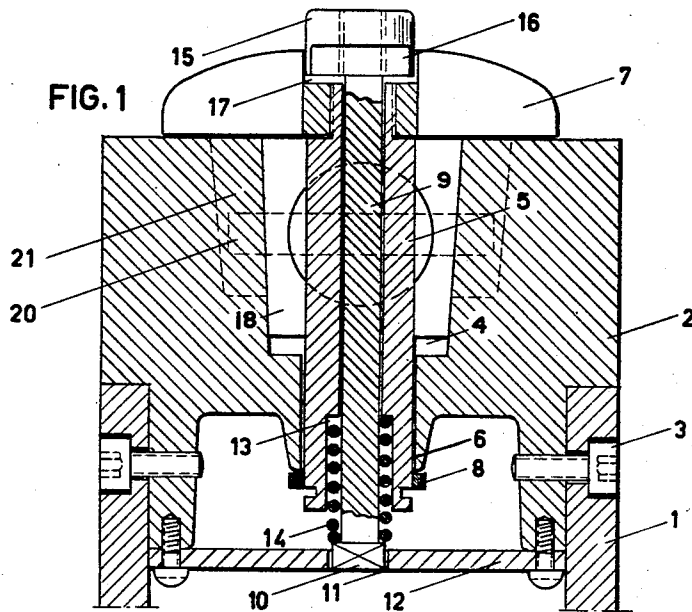
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DEVICE FOR SUPPORTING ONE END OF AT LEAST ONE ROD

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DEVICE FOR SUPPORTING ONE END OF AT LEAST ONE ROD

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The invention relates to a device for supporting one end of at least one rod, said device being provided with a receiving element having a recess in which the end of the rod fits and further being provided with means fixing the rod supported in the device both against displacement perpendicular to its longitudinal direction and against displacement in its longitudinal direction. A device of this type is generally known (e.g., from British Patent No. 137,989).

In the known device, the means for fixing the rod against displacement perpendicular to its longitudinal direction consists of a bracket secured to the receiving element with bolts which bracket embraces the end of the rod, while the means for fixing the rod against displacement in its longitudinal direction consists of cams arranged at the receiving element and at the bracket, the cams engaging a peripheral groove which is provided in sectional nuts embracing the periphery of the end of the rod.

The drawback inherent in this known device is particularly that the removal of a rod from the device requires a partial dismantling of the device. This results in loss of time and does not exclude the losing of a dismounted part.

It is an object of the invention to provide an improved supporting device for a rod, the device being constructed such that both when arranging a rod in and when removing a rod from the device a dismantling action is superfluous and no part can get lost.

In order that the invention may be clearly understood reference is made to the accompanying drawing in which the rod is a horizontal bar and in which:

Figure 1 is a cross section of a device provided in accordance with the invention; and

Figure 2 is a plan view of the device.

In the illustrated embodiment, one receiving element supports two adjacent ends of two coaxial horizontal bars. The receiving element is supported on the upper end of a vertical tube.

In the upper end of the vertical supporting tube or column 1, the receiving element 2 is fixed by means of bolts 3. The receiving element 2 is partially inserted into the tube or column in order to insure a strong fastening. Further, the upper part of the receiving element has the same cylindrical outer diameter as the tube 1. The receiving element is provided with a recess 4 tapering downwards in cross section which recess extends downward from the upper face of the receiving element. The cross section of the recess 4 has the shape of an isosceles trapezium, the larger parallel side of which lies in the upper face of the receiving element 2. The recess 4 diametrically extends from the one to the other side of the receiving element. A cylindrical sleeve 5 bears rotatably in the center of the receiving element in an opening 6 in the bottom of the recess 4. At the top, the sleeve is fixed to a locking plate 7 by means of a thread. The plate 7 rests as a lid on the upper face of the receiving element 2 and consists of a narrow center

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part with enlarged arcuately shaped ends (Fig. 2), the curved outer edge of which is flush with the cylindrical outer wall of the receiving element. Near the lower end of the sleeve 5, a clamping ring 8 is arranged around the sleeve 5 such that the sleeve 5 and the plate 7 cannot be displaced vertically.

The plate 7 can be rotated with respect to the receiving element 2 in such a way that the arcuately shaped plate ends either cover the recess at the top near its ends and extend at both sides beyond the longitudinal sides of the recess (as in Fig. 2) or do not cover the recess and lie on the other part of the upper face of the receiving element 2. This position is obtained by rotating the plate through an angle of 90° out of the position shown in Figure 2.

A cylindrical pin 9 bears in the cylindrical bore of the sleeve 5. This pin 9 has a square head 10 at its lower end which head exactly fits in a square opening 11 of a plate 12 which is bolted to the lower side of the receiving element 2. Between the top of the head 10 and the bottom of a recess 13 in the sleeve 5 a pressure spring 14 is arranged. This spring normally presses the head of the pin 9 downwards into the opening 11.

On the upper end of the pin 9 an operating knob (nut) 15 is threaded. This knob at its lower side is provided with a rib 16 extending diametrically across the knob 15 and fits in a correspondingly shaped slot 17 in the plate 7. Owing thereto it is not possible to rotate plate 7 with respect to the pin 9 which below is held against rotation by the plate 12. If one wants to rotate the plate 7, first the pin 9 is to be drawn up by means of the knob 15 against the action of the spring 14 until the head 10 is removed from the opening 11 and until the rib 16 is as well removed from the slot 17. In the position in which the plate 7 covers the recess 4, the rib 16 lies in the slot 17.

The end 18 of the horizontal bar 19 fits in the tapered recess 4, said end being shaped in accordance with the recess. It appears from Fig. 1 that the upper side of this end 18 of the horizontal bar 19 is flush with the upper face of the receiving element 2 and that further said end 18 is free from the bottom of the recess 4. When the horizontal bar 19 is loaded from above the end 18 of the horizontal bar is fixed in the recess 4.

In the embodiment as shown two ends of two coaxial horizontal bars 19 are supported in the receiving element 2 (Figure 2). The adjacent ends 18 of these horizontal bars are separated from each other by means of the sleeve 5.

To be able to place the horizontal bars in the recess 4, the plate 7 is to be rotated so that the recess 4 is open at the top and the ends 18 of the horizontal bars can be placed into the recess 4 from above. When this has been done the plate 7 is turned through 90° until it covers the recess 4 as shown in Fig. 2 and prevents the rod from pulling up out of the recess 4.

The horizontal bars are fixed against an axial shifting movement by pins 20 laterally extending from the side faces of the ends 18, the pins 20 being engaged in vertical slots 21 in the side walls of the recess 4. The width of the slots 21 is somewhat greater than the thickness of the pins 20. Thus, the quick insertion and removal of the ends 18 of the horizontal bars into and from the receiving element 2 are facilitated.

What is claimed is:

1. A device for supporting one end of at least one rod, said device comprising a receiving element having a recess in which the end of the rod fits, means for fixing the rod against displacement perpendicular to its longitudinal direction and against displacement in its longitudinal direction, said means comprising an axially fixed sleeve supported at the bottom of the recess and

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rotatable about its longitudinal axis, a locking plate fixed atop said sleeve, said plate resting on the receiving element and having a shape whereby, in dependence on the position of the sleeve, it covers and opens up the recess selectively, a pin axially displaceable in the sleeve, an operating knob on the top of the pin above the locking plate to fix the locking plate against rotation, said pin being shifted axially with respect to the sleeve to unlock the plate from said knob and to enable the locking plate to be rotated on the receiving element, and a spring resisting axial displacement of said pin.

2. A device according to claim 1 in which the recess extends through the receiving element and serves for receiving two adjacent ends of two rods and in which the sleeve is arranged in the middle of the recess perpendicularly to the bottom thereof.

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3. A device according to claim 1 in which the operating knob for the cooperation with the locking plate, includes a rib fitting in a correspondingly shaped slot provided in the locking plate.

4. A device according to claim 1 comprising a column and in which the receiving element is supported on said column and is partially positioned within said column.

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