March 1, 1960 E. J. ELLIS 2,926,973

SIDE BEARING

Filed June 15, 1959 3 Sheets-Sheet 1

Fig. 1

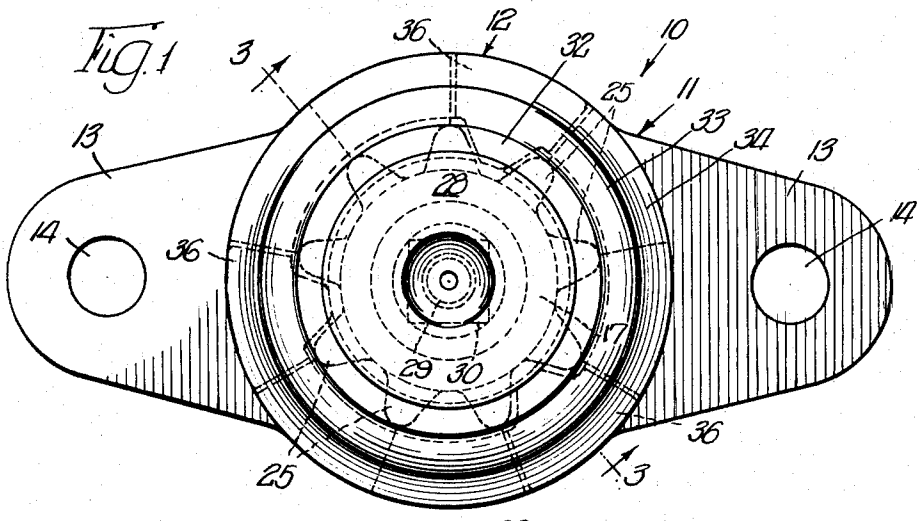
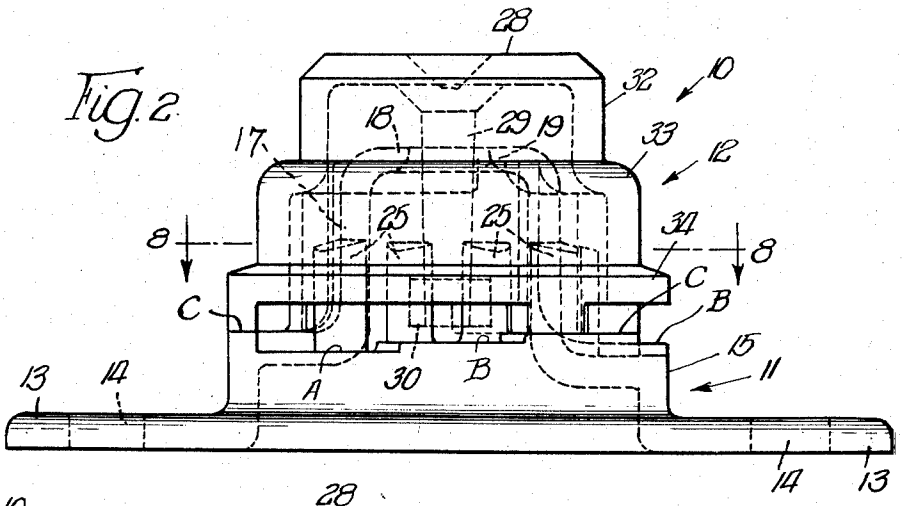


Fig. 2



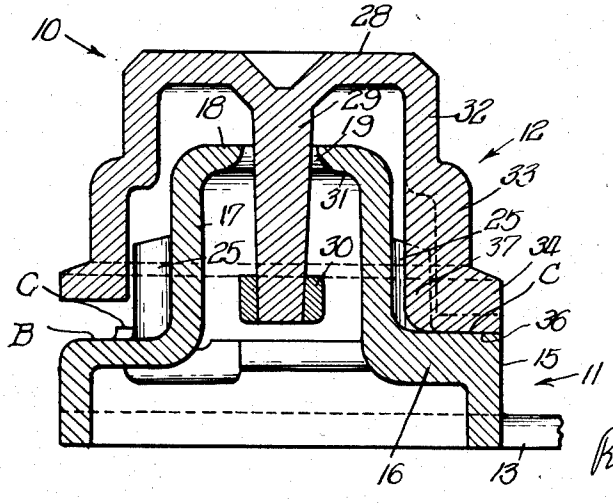


Fig. 3

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Fig. 4

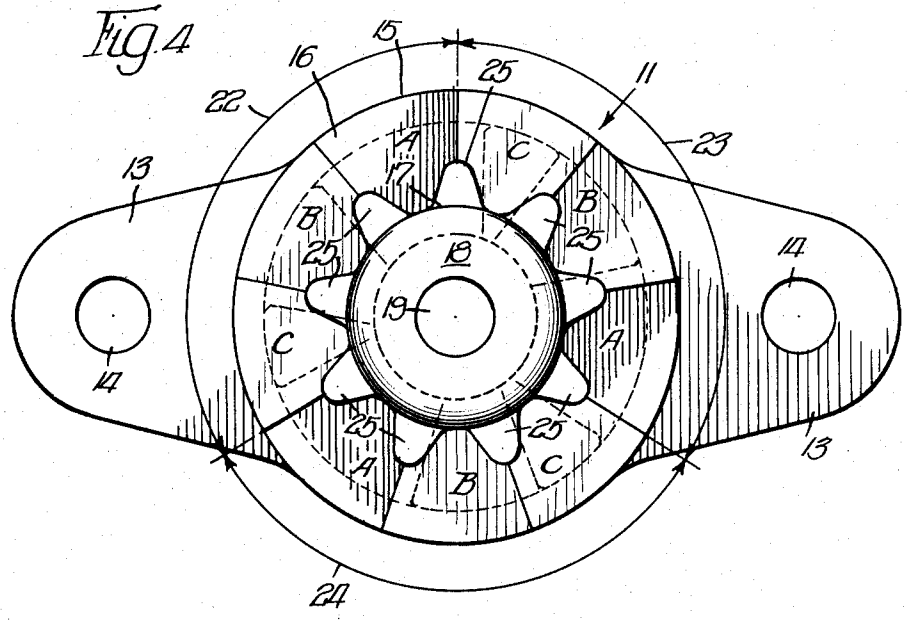
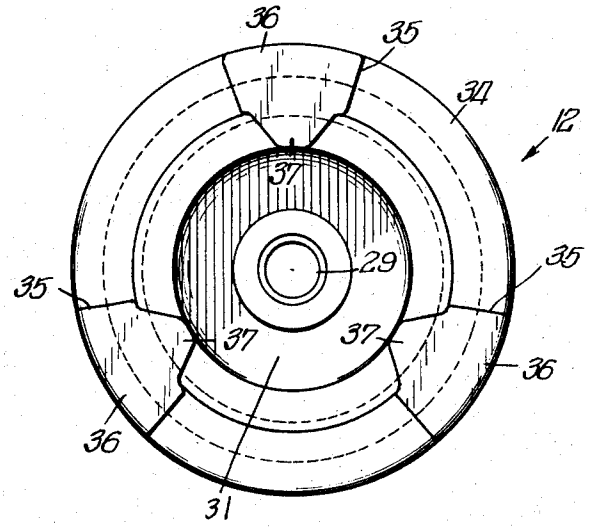


Fig. 5



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Fig. 6.

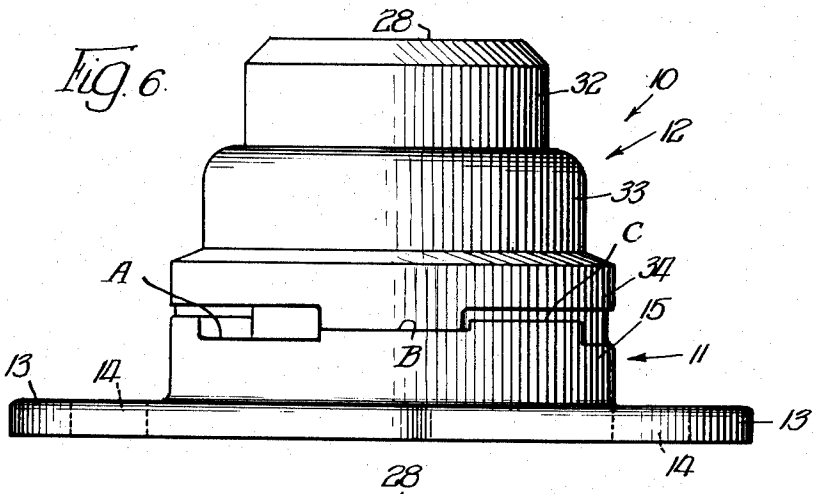


Fig. 7

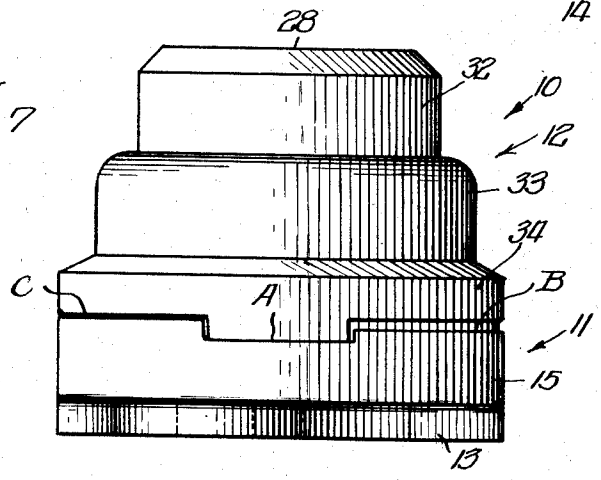
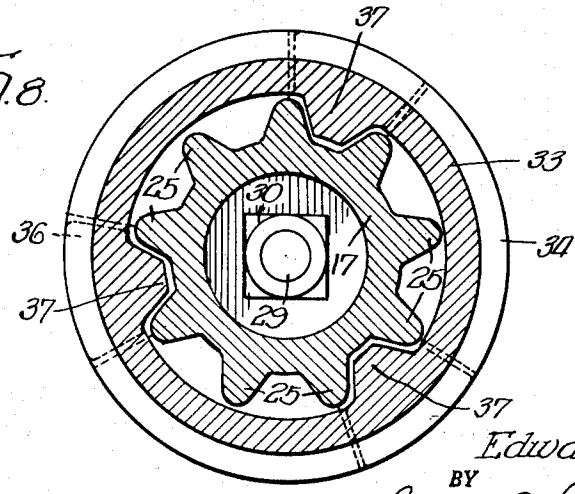


Fig. 8.



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2,926,973

SIDE BEARING

Edward J. Ellis, Chicago, Ill.

Application June 15, 1959, Serial No. 820,227
4 Claims. (Cl. 308—138)

This invention relates, generally, to side bearings for railway cars and it has particular relation to such bearings adapted to be mounted on the upper side of the truck bolsters to space properly therefrom the underside of the corresponding car body bolster. It constitutes an improvement over the construction shown in U.S. Patent No. 2,394,158, issued February 5, 1946.

Among the objects of this invention are: To provide an improved side bearing that is simple and efficient in operation and which can be readily and economically manufactured and installed; to mount the top member on the base member of a side bearing in a new and improved manner; to provide the base member with a central hub surrounded by a horizontal annular flange the upper surface of which is divided into a plurality of groups of upwardly facing bearing surfaces with the bearing surfaces in each group being formed in a plurality of steps of equal arcuate lengths and corresponding steps in the several groups being located at the same elevation; to telescope the top member over the hub and provide it with depending sector shaped bosses equal in number to the number of groups and provided with downwardly facing bearing surfaces arranged to engage one step in each group at the same elevation; to provide the base member with a number of vertical radially extending teeth equal in number to the number of steps for cooperation with the teeth extending radially inwardly from the top member adjacent the bosses thereon; and to permit limited upward movement of the top member relative to the base member sufficient to disengage the teeth and allow relative rotation of the members whereby different steps can be engaged and the top member adjusted to different elevations.

Other objects of this invention will, in part, be obvious and in part appear hereinafter.

This invention is disclosed in the embodiment thereof shown in the accompanying drawings and it comprises the features of construction, combination of elements and arrangement of parts that will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

For a more complete understanding of the nature and scope of this invention reference can be had to the following detailed description, taken together with the accompanying drawings, in which:

Figure 1 is a top plan view of a side bearing assembly in which the present invention is embodied;

Figure 2 is a view, in side elevation, of the side bearing assembly shown in Figure 1;

Figure 3 is a vertical sectional view taken generally along the line 3—3 of Figure 1;

Figure 4 is a top plan view of the base member which forms a part of the side bearing assembly shown in Figure 1;

Figure 5 is a bottom plan view of the top member which also forms a part of the side bearing assembly shown in Figure 1;

Figure 6 is a view in side elevation of the side bearing assembly with the top in an intermediate position between the position of highest elevation shown in Figure 2 and the lowest position;

Figure 7 is a view in side elevation showing the top member in the lowest position; and

Figure 8 is a horizontal sectional view taken generally along the line 8—8 of Figure 2.

Referring now particularly to Figures 1 and 2 of the drawings, it will be observed that the reference character 10 designates, generally, a side bearing assembly which is intended to be mounted on the upper side of a railway truck bolster. The assembly 10 is made up of a base member, shown generally at 11, and a top member, shown generally at 12, both formed preferably as malleable iron castings.

The details of construction of the top member are shown more clearly in Figure 4 of the drawings where it will be observed that it includes a pair of oppositely extending arms 13—13 that are apertured as indicated at 14—14 for receiving bolts or rivets to secure the top member 12 to the upper side of a railway truck bolster in a manner that will be readily understood by those skilled in the art. The intermediate portion of the base member 11 is provided with a cylindrical bottom portion 15 from which a horizontal annular flange 16 extends radially inwardly to a central cylindrical hub portion 17. The external diameter of the central cylindrical hub portion 17 is substantially less than the external diameter of the cylindrical bottom portion 15. For example, the hub portion 17 may have an external diameter equal to one half the external diameter of the cylindrical bottom portion 15. At the upper end the hub portion 17 is provided with an integral flat top wall 18 having a central aperture 19 the purpose of which will be apparent presently.

The surface of the annular horizontal flange 16 is divided into a plurality of groups, for example three, as indicated at 22, 23 and 24. Each of these groups is subdivided into a plurality of upwardly facing bearing surfaces, for example three, as indicated at A, B and C. It will be understood that these bearing surfaces are formed on steps and that the lowest step is indicated at A, the intermediate step is indicated at B and the highest step is indicated at C. Steps having bearing surfaces of equal elevation are indicated by the same letter in each of the groups 22, 23 and 24. It will be noted that each of the steps A, B and C is sector shaped and that they are of uniform arcuate length.

In order to properly locate the top member 12 with respect to the base member 11 the central cylindrical hub portion 17 is provided with a plurality of integral vertical teeth 25 that extend radially outwardly. It will be noted that there is a tooth 25 for each of the several steps in the three groups 22, 23 and 24. Further, it will be observed that the radial center of each tooth 25 is aligned with the junction between adjacent steps, for example between steps A and B, between steps B and C, and between steps C and A. Further, it will be observed that the step A which is the lowest step of each of the groups 22, 23 and 24 is adjacent a step C of the next group which is at the highest elevation. It will be understood that the cylindrical bottom portion 15 and hub portion 17 are hollow and provide a wall thickness which can be properly cast to provide the desired construction having the requisite strength and with a minimum of residual casting strains.

The details of construction of the top member 12 are shown more clearly in Figures 1, 2, 3 and 5 of the drawings. It will be noted that the top member 12 is provided with a flat top surface 28 from which an integrally formed stem 29 depends. As shown in Figure 3 the stem 29 extends downwardly through the central aperture 19 in

the flat top wall 18 and is provided at its lower end with head means 30 which may be in the form of a washer or nut that is pressed onto the lower end. The purpose of the head means 30 is to limit the upward movement of the top member 12 relative to the bottom or base member 11 so as to prevent complete separation while permitting relative movement for adjusting the elevation of the flat top surface 28 in a manner to be described presently. After the top member 12 has been assembled on the base member 11, as shown in Figure 3, the head means 30 is applied and secured in position. Then it limits the upward movement of the top member 12 by engagement with the underside 31 of the flat top wall 18 on the base member 11.

The top member 12 also is provided with an integral depending annular skirt 32 having an outflared lower portion 33 which terminates in a horizontal flange 34 the external diameter of which preferably is the same as the external diameter of the cylindrical bottom portion 15 or of the external diameter of the annular horizontal flange 16. Depending from the horizontal flange 34, as shown more clearly in Figure 5, are a plurality of sector shaped bearing bosses 35 the number of which corresponds to the number of groups referred to above. For example, since three groups 22, 23 and 24 of upwardly facing surfaces are provided, there are three depending sector shaped bearing bosses 35. They have coplanar bearing surfaces 36 and the arcuate length of each of the bearing bosses 35 is slightly less than the arcuate length of any of the steps A, B or C of the groups of bearing surfaces 22, 23 and 24. It will be understood that the three bearing surfaces 36 are arranged to engage the bearing surfaces of the groups 22, 23 and 24 on the base member 11 that are at the same elevation. For example, as shown in Figures 1, 2 and 3 of the drawings, the bearing surfaces 36 are in engagement with the bearing surfaces C which are at the highest elevation and this means that the flat top surface 28 of the top member 12 is at the highest elevation with respect to the base member 11. When the top member 12 is shifted to the position shown in Figure 6 of the drawings, the bearing surfaces B of the group 22, 23 and 24 are engaged by the coplanar bearing surfaces 36 and the flat top surface 28 is at an intermediate elevation. Finally, when the top member 12 is rotated to the position shown in Figure 7 the coplanar bearing surfaces 36 engage the bearing surfaces A of the steps which are at the lowest elevation and thus the flat top surface 28 is at its lowest elevation with respect to the base member 11.

In order to hold the top member 12 against rotation in any of its three operative positions with respect to the base member 11, teeth 37, as shown more clearly in Figures 5 and 8 of the drawings, are provided which extend radially inwardly from the inner surface of the outflared lower portion 33 of the top member 12. The teeth 37 are symmetrically arranged with respect to the sector shaped bearing bosses 35 and are arranged to interfit between adjacent pairs of the teeth 25 which extend radially outwardly from the cylindrical hub portion 17. It will be noted that the vertical length of the teeth 37 is less than the vertical length of the teeth 25 and that the head means 30 is spaced sufficiently far below the under surface 31 of the flat top wall 18 to permit the top member 12 to be raised sufficiently far to disengage the teeth 37 from the teeth 25 and permit the relative rotation of the top member 12 with respect to the base member 11.

Initially the side bearing assembly 10 is positioned as shown in Figures 1, 2 and 3 of the drawings. As the railway car remains in service and wear takes place between the body center plate and the truck center plate, the distance between the bolsters on the body and on the truck decreases. Then it is necessary to jack up the car body sufficiently far to permit the top member 12 to be raised an extent necessary to disengage the teeth 37 from the teeth 25 and permit rotation of the top member 12 to the next position where the flat top surface 28 is at a lower elevation than it was previously.

Instead of employing a rectangular nut for the head means 30, it is possible to employ a washer or the lower end of the depending stem 29 can be headed over sufficiently to prevent its escape through the central aperture 19 in the flat top wall 18 in the base member 11. If desired, a coil spring can be interposed between the under side 31 of the flat wall 18 and the upper side of the head means 30 to prevent rattling of the top member 12 and yet permit its upward movement sufficiently far to disengage the teeth 37 from the teeth 25 in the manner described.

Since certain further changes can be made in the foregoing construction and different embodiments of the invention can be made without departing from the spirit and scope thereof, it is intended that all matter shown in the accompanying drawings and described hereinbefore shall be interpreted as illustrative and not in a limiting sense.

What is claimed as new is:

1. A side bearing assembly for mounting on a railway truck bolster comprising, in combination, a base member having a cylindrical bottom portion and an upstanding hollow central cylindrical hub portion, said hub portion being substantially of less diameter than that of said bottom portion and connected thereto by a horizontal flange, the upper surface of said horizontal flange having a plurality of groups of upwardly facing bearing surfaces, each group of bearing surfaces being formed in a plurality of steps of equal arcuate length and at the same elevation as the corresponding step of each group and with the step of the highest elevation of one group being adjacent the step of lowest elevation of the next group, a plurality of teeth extending vertically and radially outwardly of said hub at the base thereof with the radial center of each tooth being aligned with a junction between adjacent steps, a top member having a flat top surface and a depending annular skirt telescoped over and spaced radially outwardly from said hollow hub portion, said annular skirt having a plurality of uniformly spaced depending sector shaped bearing bosses with downwardly facing coplanar bearing surfaces the arcuate length of each of which is slightly less than the arcuate length of any of said steps and the number of said sector shaped bearing bosses being the same as the number of said groups, said downwardly facing bearing surfaces being arranged and adapted to engage said upwardly facing bearing surfaces of the steps at the same elevation in said groups to selectively space said top surface of said top member at any of a plurality of different elevations above said base member depending upon the number of steps in each group, and a vertical tooth extending radially inwardly from the lower portion of said skirt adjacent each bearing boss and interfitting between corresponding pairs of said teeth on said hub.

2. A side bearing assembly for mounting on a railway truck bolster comprising, in combination, a base member having a cylindrical bottom portion and an upstanding hollow central cylindrical hub portion with a flat centrally apertured top wall, said hub portion being substantially of less diameter than that of said bottom portion and connected thereto by a horizontal flange, the upper surface of said horizontal flange having a plurality of groups of upwardly facing bearing surfaces, each group of bearing surfaces being formed in a plurality of steps of equal arcuate length and at the same elevation as the corresponding step of each group being adjacent the step of lowest elevation of the next group, a plurality of teeth extending vertically and radially outwardly of said hub at the base thereof with the radial center of each tooth being aligned with a junction between adjacent steps; a top member having a flat top surface, a depending central stem extending through the aperture in said top wall of said hub portion, and a de-

pending annular skirt telescoped over and spaced radially outwardly from said hollow hub portion; said annular skirt having a plurality of uniformly spaced depending sector shaped bearing bosses with downwardly facing coplanar bearing surfaces the arcuate length of each of which is slightly less than the arcuate length of any of said steps and the number of said sector shaped bearing bosses being the same as the number of said groups, said downwardly facing bearing surfaces being arranged and adapted to engage said upwardly facing bearing surfaces of the steps at the same elevation in said groups to selectively space said top surface of said top member at any of a plurality of different elevations above said base member depending upon the number of steps in each group, a vertical tooth extending radially inwardly from the lower portion of said skirt adjacent said bearing boss and interfitting between corresponding pairs of said teeth on said hub, and radially outwardly extending head means on the lower end of said depending central stem cooperating with the under side of said top wall on said hub portion for limiting the upward movement of said top member with respect to said base member, said teeth on said hub portion being vertically shorter than said teeth on said skirt whereby said top member can be moved upwardly sufficiently far within the limit of movement permitted by said head means on said stem to move said teeth out of engagement and permit rotation of said top member relative to said bottom member.

3. A side bearing assembly for mounting on a railway truck bolster comprising, in combination, a base member having a cylindrical bottom portion and an upstanding hollow central cylindrical hub portion, said hub portion being substantially of less diameter than that of said bottom portion and connected thereto by a horizontal flange, the upper surface of said horizontal flange having three groups of upwardly facing bearing surfaces, each group of bearing surfaces being formed in three steps of equal arcuate length and at the same elevation as the corresponding step of each group and with the step of the highest elevation of one group being adjacent the step of lowest elevation of the next group, nine teeth extending vertically and radially outwardly of said hub at the base thereof with the radial center of each tooth being aligned with a junction between adjacent steps, a top member having a flat top surface and a depending annular skirt telescoped over and spaced radially outwardly from said hollow hub portion, said annular skirt terminating at its lower end in a horizontal flange of the same diameter as that of said horizontal flange on said base member and having three uniformly spaced depending sector shaped bearing bosses with downwardly facing coplanar bearing surfaces the arcuate length of each of which is slightly less than the arcuate length of any of said steps, said downwardly facing bearing surfaces being arranged and adapted to engage any three of said upwardly facing bearing surfaces of the three steps at the same elevation in said three groups to selectively space said top surfaces of said top member at any of three different elevations above said base member, and three vertical uniformly arcuately spaced teeth radially inwardly extending from the lower portion of said skirt and from said bearing bosses and interfitting between corresponding pairs of said teeth on said hub.

4. A side bearing assembly for mounting on a railway truck bolster comprising, in combination, a base member having a cylindrical bottom portion and an upstanding hollow central cylindrical hub portion with a flat centrally apertured top wall, said hub portion being substantially of less diameter than that of said bottom portion and connected thereto by a horizontal flange, the upper surface of said horizontal flange having three groups of upwardly facing bearing surfaces, each group of bearing surfaces being formed in three steps of equal arcuate length and at the same elevation as the corresponding step of each group and with the step of the highest elevation of one group being adjacent the step of lowest elevation of the next group, nine teeth extending vertically and radially outwardly of said hub at the base thereof with the radial center of each tooth being aligned with a junction between adjacent steps; a top member having a flat top surface, a depending central stem extending through the aperture in said top wall of said hub portion, and a depending annular skirt telescoped over and spaced radially outwardly from said hollow hub portion; said annular skirt terminating at its lower end in a horizontal flange of the same diameter as that of said horizontal flange on said base member and having three uniformly spaced depending sector shaped bearing bosses with downwardly facing coplanar bearing surfaces the arcuate length of each of which is slightly less than the arcuate length of any of said steps, said downwardly facing bearing surfaces being arranged and adapted to engage any three of said upwardly facing bearing surfaces of the three steps at the same elevation in said three groups to selectively space said top surface of said top member at any of three different elevations above said base member, three vertical uniformly arcuately spaced teeth radially inwardly extending from the lower portion of said skirt and from said bearing bosses and interfitting between corresponding pairs of said teeth on said hub, and radially outwardly extending head means on the lower end of said depending central stem cooperating with the under side of said top wall on said hub portion for limiting the upward movement of said top member with respect to said base member, said nine teeth on said hub portion being vertically shorter than said three teeth on said skirt whereby said top member can be moved upwardly sufficiently far within the limit of movement permitted by said head means on said stem to move said three teeth out of engagement with said nine teeth and permit rotation of said top member relative to said bottom member.

No references cited.