Aug. 19, 1952 E. E. FREY 2,607,363

TILTABLE UMBRELLA SUPPORT

Filed Nov. 2, 1950

FIG. 1.

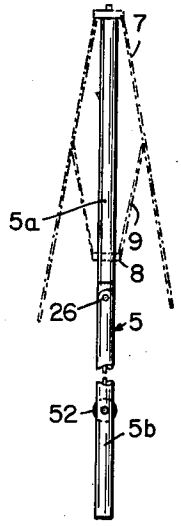


FIG. 2.

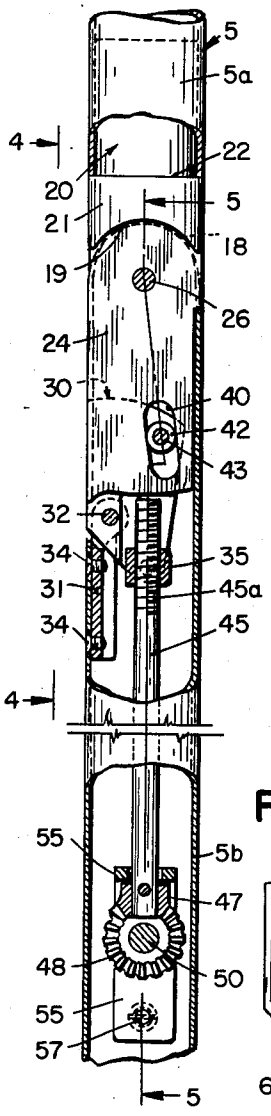


FIG. 3.

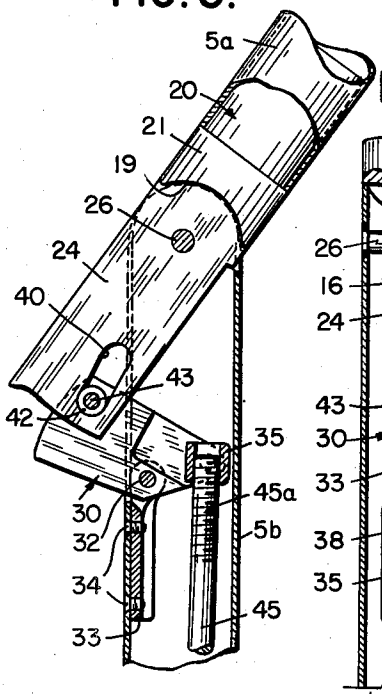


FIG. 5.

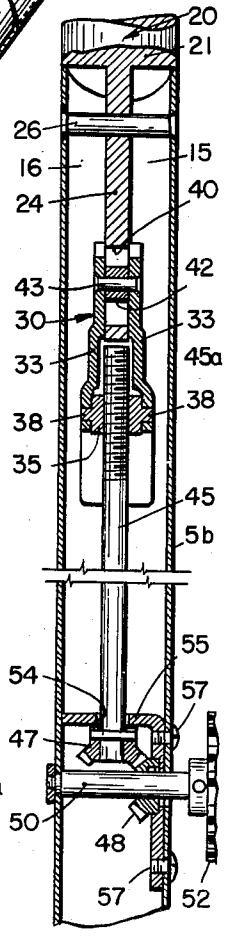


FIG. 4.

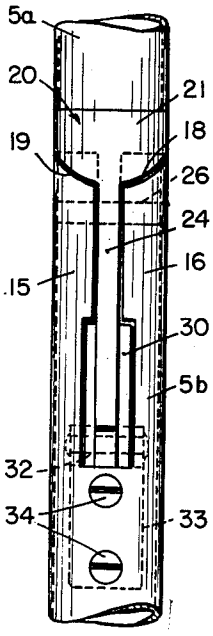


FIG. 6.

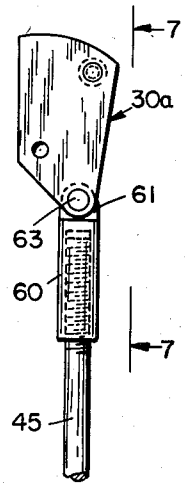
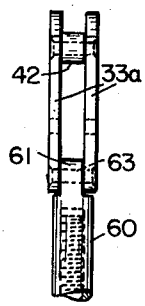


FIG. 7.



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TILTABLE UMBRELLA SUPPORT

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6 Claims. (Cl. 135—46)

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This invention has to do with umbrella supports and relates more particularly to an umbrella support joint which may be operated from a remote point to tilt the umbrella and return it to upright position.

It is a principal object of the invention to provide in an umbrella support, a novel joint construction and actuating means which are highly efficient, economical of manufacture, and which are capable of functioning satisfactorily without the necessity of counterbalancing means.

Another object is to provide a joint of this character which may be operated from a remote point on the umbrella staff.

A further object is to provide an umbrella support in which the tilting of the upper portion of the staff is accomplished by rotative movement of an operating shaft operated at a point remote to the joint, the rotative movement of the shaft causing swinging movement of an actuating lever.

Other objects and advantages will appear hereinafter.

Without intending thereby to limit the broader scope of the invention as defined by the appended claims, I shall now describe presently-preferred embodiments, for which purpose I shall refer to the accompanying drawings, wherein:

Fig. 1 is a side elevation showing an umbrella support embodying my invention;

Fig. 2 is an enlarged fragmentary side elevation, with parts broken away for illustrative purposes, and with some parts shown in section.

Fig. 3 is an enlarged fragmentary view with some parts shown in elevation and some parts shown in section;

Fig. 4 is a side elevation taken from the lines 4—4 of Fig. 2.

Fig. 5 is a longitudinal section taken on line 5—5 of Fig. 2;

Fig. 6 is a side elevation showing a variational form; and

Fig. 7 is an elevation taken on line 7—7 of Fig. 6.

Referring now to the drawings, I show at 5 an umbrella staff or post composed of upper post section 5*a* and lower post section 5*b*. I prefer to make the post of tube stock, the post pivotally supporting at its top end umbrella ribs 7. A slide ring 8 is slidably mounted on the post and braces 9 are pivotally secured at their ends to the ring and to the ribs, as is conventional in umbrella construction.

The lower post section 5*b* is bifurcated at its top end to present bifurcations 15, 16, the top bifurcations being curved about a radius as shown at 18 so as to present a bearing surface for the correspondingly curved portions 19 of the plug to be described.

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Upper post section 5*a* has a plug 20 fitted therein, the plug having an enlarged diameter portion 21 presenting an upwardly facing shoulder 22 to engage the lower end of the post section 5*a*, and having a lower, flat-sided extension 24 which depends between the bifurcations 15, 16, the extension being pivoted between its ends to the bifurcations by pintle 26 for swinging movement relative thereto between the positions of Figs. 2 and 3.

A lever 30 is pivoted, by a pintle 32, to brackets 31 fixed to the lower post section, as by screws 34.

Referring now more particularly to the lever 30, as will be observed from Fig. 5, it is composed of opposite spaced sides 33 between which the lower end portion of the extension 24 extends. The inner end portions of the sides 33 are spaced apart a relatively greater distance and have mounted therebetween a nut 35 pivoted thereto as by trunnions 38.

Adjacent its lower end, the extension 24 has a somewhat diagonal slot 40 in which a roller 42 rotatably fits, the roller being mounted upon a shaft 43 carried by the sides of the lever, so that the roller rolls along the slot as the lever is swung.

Thus, it will be seen that as the lever is swung to the left (Fig. 3) it serves to swing the extension 24 to the left about pivot 26, and as the lever is swung in the opposite direction it swings the extension, and with it the upper post section 5*a*, into alinement with the lower post section.

To actuate the lever I provide a rotatable shaft 45 which extends longitudinally in the lower post section and is threaded at its top end portion 45*a* to threadedly engage the nut 35. The lower end of the shaft has fixed thereon a bevelled gear 47, which meshes with another bevelled gear 48 fixed on a shaft 50 journalled in the lower post section 5*b*, the shaft carrying on its outer end a hand wheel 52 for manual operation.

The lower end portion of the shaft extends through an opening 54 in a bracket 55 with a somewhat loose fit, which will enable it to tilt slightly relative to its normal coaxial position in the post, as shown in Fig. 3. The bracket 55 is secured in the lower post section as by screws 57.

From the foregoing description it will be apparent that the upper post section, with its carried umbrella mechanism, may be tilted relative to the lower post section by simply rotating

the hand wheel **52** in one direction, and is held in this position by the meshing of the gears **47, 48**, and it may be returned to and held in alinement with the lower post section by rotating the hand wheel in the opposite direction. Thus, when the post sections are alined the slide ring **8** may be moved over the joint structure during lowering and raising of the umbrella. It is my preference to position the hand wheel, and thus the lower end of the shaft, about three feet above the lower end of the lower post section, so that when the lower post section is placed in an outdoor table, for instance, the hand wheel will be about table level so that it is in convenient position for one sitting around the table to operate to tilt the umbrella.

In Figs. 6 and 7 I show a variational form of operative connection of the shaft **45** to the lever. Here, instead of using the nut **35** before-described, I utilize an internally threaded sleeve **60** to threadedly receive the upper end of the shaft, and I pivot the flattened upper end **61** of the sleeve between the sides **33***a* of the lever **30***a* by a pintle **63**.

I claim:

1. In an umbrella support, a tubular lower post having bifurcations at its top end, an upper post having a lower end extension disposed between and pivotally connected to said bifurcations to swing relative thereto about an axis normal to the axis of said lower post, means for so swinging said extension, comprising a shaft disposed longitudinally in the lower post for rotation therein, means adjacent the lower end of the post and rotatable relative to the lower post about an axis normal to the axis thereof for rotating said shaft, and an operative connection between the upper end of said shaft and said extension operable to swing said extension in response to rotation of said shaft.

2. In an umbrella support, a tubular lower post having bifurcations at its top end, an upper post having a lower end extension disposed between and pivotally connected to said bifurcations to swing relative thereto about an axis normal to the axis of said lower post, means for so swinging said extension comprising a shaft disposed longitudinally in the lower post for rotation therein, gear means adjacent the lower end of the post for rotating said shaft, a lever pivoted to the lower post adjacent the top end of the latter, one end of said lever having threaded engagement with the top end portion of said shaft whereby to swing in response to rotative movement of the shaft, and the other end of said lever having operative engagement with said extension below the point at which said extension is pivoted to said bifurcation.

3. In an umbrella support, a tubular lower post having bifurcations at its top end, an upper post having a lower end extension disposed between and pivotally connected to said bifurcations to swing relative thereto about an axis normal to the axis of said lower post, means for so swinging said extension comprising a shaft disposed longitudinally in the lower post for rotation therein, means adjacent the lower end of the post for rotating said shaft, a lever pivoted to the lower post adjacent said bifurcations, one end of the lever having threaded engagement with the top end portion of said shaft whereby to swing in response to rotative movement of the shaft, and the other end of said lever having camming engagement with said extension below the point at which said extension is pivoted to said bifurcation.

4. In an umbrella support, a tubular lower post having bifurcations at its top end, an upper post having a lower end extension disposed between and pivotally connected to said bifurcations to swing relative thereto about an axis normal to the axis of said lower post, means for so swinging said extension, comprising a shaft disposed longitudinally in the lower post for rotation therein, means adjacent the lower end of the post for rotating said shaft, a lever pivoted to the lower post adjacent said bifurcations, a nut pivotally carried by one end of the lever and having threaded engagement with the upper end portion of said shaft whereby to cause swinging movement of the lever in response to rotative movement of the shaft, and the other end of said lever having operative engagement with said extension below the point at which said extension is pivoted to said bifurcations.

5. In an umbrella support, a tubular lower post having bifurcations at its top end, an upper post having a lower end extension disposed between and pivotally connected to said bifurcations to swing relative thereto about an axis normal to the axis of said lower post, means for so swinging said extension comprising a shaft disposed longitudinally in the lower post for rotation therein, means adjacent the lower end of the lower post for rotating said shaft, a lever pivoted to the lower post adjacent said bifurcations, an internally threaded sleeve having threaded engagement with the upper end of said shaft, said sleeve having its upper end pivotally connected to one end of the lever, and an operative connection between the other end of the lever and said extension below the point at which said extension is pivoted to said bifurcation.

6. In an umbrella support the combination of a tubular lower post having bifurcations at its top end, an upper post having a flattened lower end extension disposed between and pivotally connected between its ends to said bifurcations adjacent the upper end of the latter to swing relative thereto into and out of axial alinement with the lower post, said extension having a diagonal slot therein below its point of pivotal connection to the bifurcations, a threaded shaft disposed longitudinally in the lower post for rotation therein, means at the lower end of the shaft for imparting rotative movement thereto, and a lever pivoted between its ends to the lower post, said lever carrying a roller at one of its ends for engagement in said slot and pivotally carrying a nut at its other end, which nut has threaded engagement with the upper end portion of said shaft whereby to cause swinging movement of the lever in response to rotative movement of the shaft.

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