

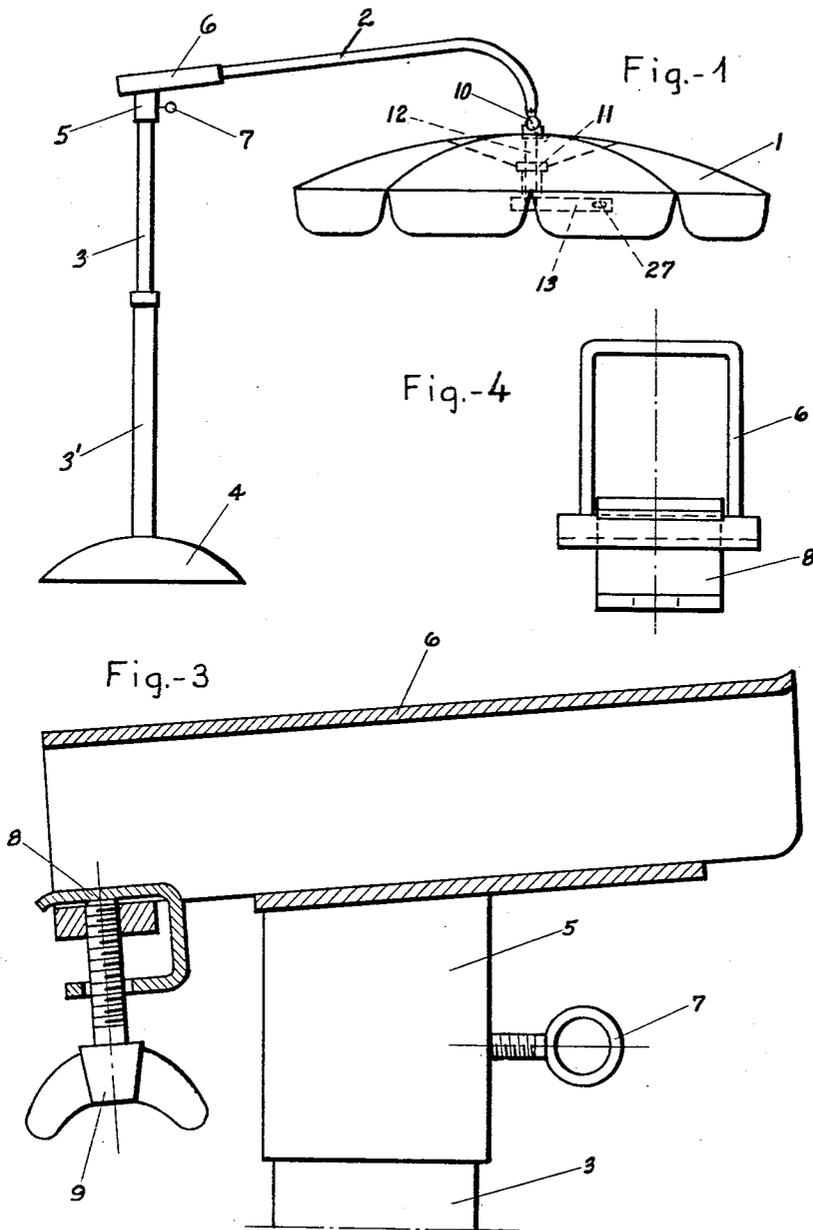
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A. GLATZ
UMBRELLA

3,120,238

Filed March 8, 1960

2 Sheets-Sheet 1



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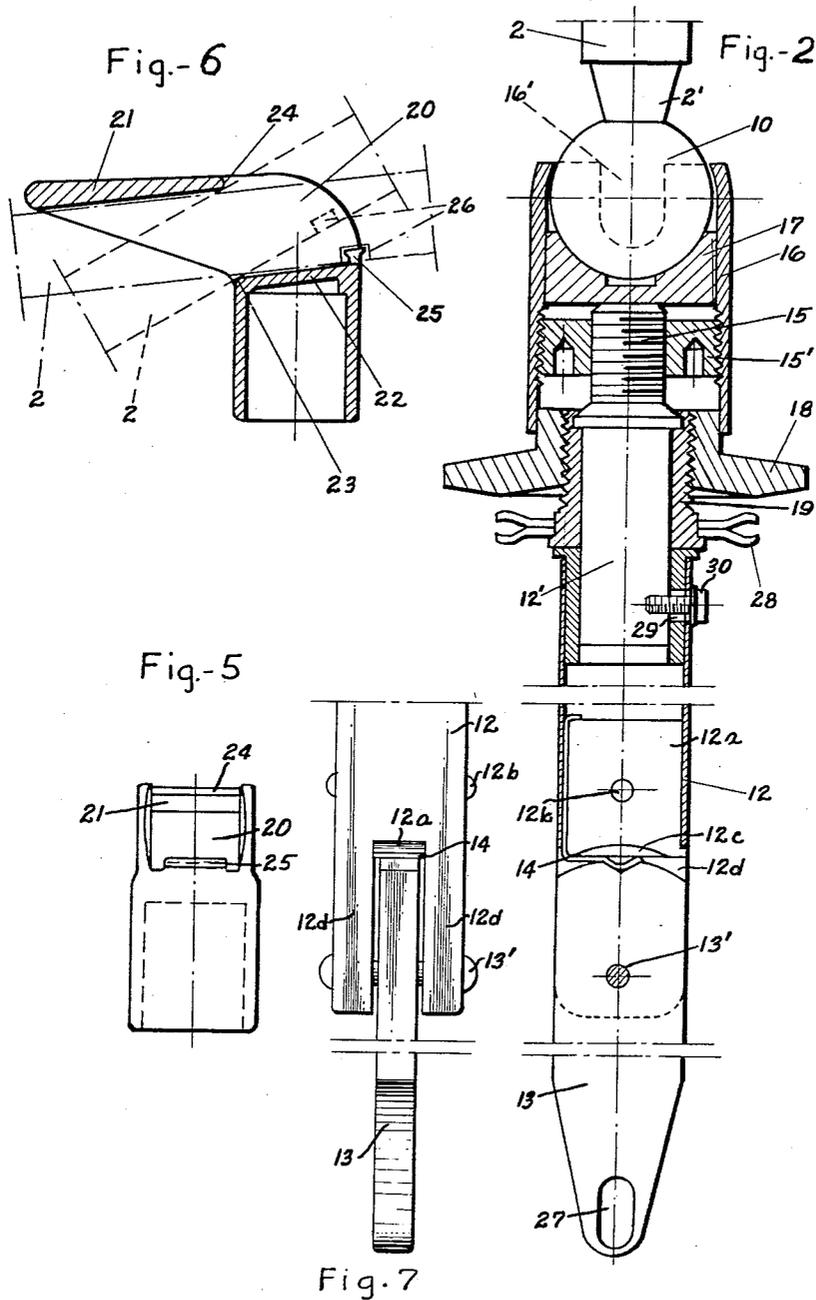
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UMBRELLA

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The present invention relates to umbrellas.

More particularly, the present invention relates to that type of umbrella which is capable of being used out of doors in the garden or at the beach for the purpose of protecting against rain and sun.

Umbrellas of this type fall into two general categories. There is the one category where the umbrella is carried by a single post which may be pointed, for example, at its bottom end so that it can be inserted directly into the ground, and the second category is the type where the umbrella includes a stand which carries a lateral arm from which the collapsible and expandable covering of the umbrella is supported. The first category which includes a simple post insertable directly into the ground has the advantage of being relatively inexpensive. However, there is the disadvantage of having the post beneath the umbrella and preventing unobstructed use of the space beneath the umbrella. The type of umbrella which includes a stand and a lateral arm of course has the advantage of providing unobstructed free space beneath the umbrella, but of course such umbrellas are far more expensive and occupy much more space.

It is one of the objects of the present invention to provide an umbrella of the type which is supported by an arm extending laterally from a stand which is far less expensive than conventional umbrellas of this type so that it can compete with the other category of umbrellas while having all of the advantages of a free unobstructed space beneath the covering of the umbrella.

Another object of the present invention is to provide an umbrella of this type which can easily be adjusted to any desired angle and which can also be adjusted with respect to its distance from the stand.

A further object of the present invention is to provide an umbrella of this type which enables all of the adjustments to be made from beneath the umbrella itself so that it is unnecessary for the operator to leave the area beneath the umbrella in order to effect adjustments.

It is furthermore an object of the present invention to provide an umbrella of this type which is not only inexpensive but which also is made of simple rugged parts which will have a long life of useful service and which will provide full safety and ease of operability.

With the above objects in view the invention includes an umbrella made up of a stand and an arm connected to and extending laterally from the stand, this arm terminating distant from the stand in a free end. The umbrella includes a collapsible and expandable covering located at the free end of this arm, and in accordance with the present invention there is a means which connects the covering to the free end of the arm for angular tilting movement to any desired inclination and which is also capable of being easily manipulated for releasably fixing the umbrella in the desired inclination.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

FIG. 1 is a schematic side elevation of an umbrella according to the present invention;

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FIG. 2 is a fragmentary sectional view on an enlarged scale illustrating the structure for adjustably supporting the covering of the umbrella as well as the manually operable structure for manipulating the adjusting structure;

FIG. 3 is a sectional elevation on an enlarged scale of one type of support for the arm which carries the covering of the umbrella;

FIG. 4 shows the structure of FIG. 3 as seen from the left of FIG. 3;

FIG. 5 is an end view of the structure of FIG. 6 as seen from the right of FIG. 6;

FIG. 6 is a sectional elevation of the structure of FIG. 5; and

FIG. 7 is a side view of the manually operable structure for manipulating the adjusting structure of FIG. 2.

Referring now to the drawings and to FIG. 1 in particular, there is shown in FIG. 1 collapsible and expandable covering 1 of the umbrella, this covering 1 being circular or of any desired configuration in its expanded condition illustrated in FIG. 1. This collapsible and expandable covering 1 which may be made of any suitable flexible sheet material, is carried by an arm 2 which is connected to and extends laterally from a stand 3, 3'. Thus, this stand includes a lower part 3' and an upper part 3 whose elevation may be adjusted with respect to the lower part 3' as, for example, by a telescopic connection between the parts 3 and 3'.

The elongated arm 2 is preferably of a non-circular cross section and as can be seen from FIG. 1 this arm 2 is inclined upwardly toward the right as it proceeds away from the stand 3, 3' up to the covering 1. Also, at its free end portion the arm 2 is formed so that the free end of the arm is at an elevation different from the rest of the arm, and in the example illustrated in FIG. 1 this free end portion of the arm is curved downwardly along a predetermined arc. The telescopically connected stand members 3 and 3' are carried by a heavy, massive member 4, or the base member 4 may be replaced by a base having a plurality of feet. Also, if desired the base of the stand may have any desired clamping device for clamping the stand to any part of the terrain or to a wall, or the like.

A suitable joint means is provided for connecting the collapsible and expandable covering 1 to the arm 2, and according to the invention this joint means takes the form of a ball-and-socket joint which includes a ball member 10 located at the free end of the arm 2 (FIGS. 1 and 2). The covering 1 is carried by this ball 10. As is indicated in FIG. 1, the expansion of the covering 1 as well as its collapse is brought about in a purely conventional manner by a mechanism which includes a sleeve 11 pivotally connected to a plurality of rods which radiate out from the sleeve and are connected at their outer ends to additional rods which directly engage the flexible covering material. This sleeve 11 is movable along a bar 12 and when the operator moves the sleeve 11 upwardly to the position shown in FIG. 1 the collapsible covering will be expanded to the condition illustrated in FIG. 1, and the umbrella is ready for use. According to the invention the sleeve 11 is guided by a relatively short bar 12 which extends downwardly from the center of the covering 1 when the latter is expanded as indicated in FIG. 1. It will be noted from FIG. 1 that the length of the bar 12 is such that none of the mechanism associated with the umbrella extends below the covering 1 of the umbrella so that all of the space beneath this covering 1 is freely accessible.

The bar 12 is a tubular at its lower end portion and has fixed in its interior (FIG. 2) a plug 12a which is fixed to the interior of the tubular bar 12 by a pin 12b, and this plug 12a serves to connect to the bar 12 an

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elongated leaf spring 14 as shown in FIG. 2. Below the plug 12a the bar 12 is formed with a pair of diametrically opposed axially extending notches so as to provide the bar 12 with a pair of opposed wall portions 12d as shown in FIG. 7. An elongated lever 13 has in the position of the parts shown in FIGS. 2 and 7 an upper end portion extending into the space between the opposed walls 12d at the bottom end of the bar 12 and a pivot pin 13' serves to pivotally connect the lever 13 to the lower end of the bar 12. The upper end of the lever 13, as viewed in FIG. 2, is provided with a notch which receives the free end of the leaf spring 14 so that in this way the lever 13 is releasably maintained in the position shown in FIG. 2 where it forms a coaxial extension of the bar 12 and in this position of the parts the sleeve 11 can freely slide downwardly beyond the bar 12 along the lever 13 in order to permit the covering 1 to collapse. The bottom end of the plug 12a is formed with a recess 12c into which the lower arm of the spring 14 can move when the lever 13 is turned to a horizontal position from the vertical position thereof shown in FIG. 2, and the lever 13 is shown in this horizontal position in FIG. 1. At its bottom end, in the position shown in FIG. 2, the lever 13 is provided with a cutout 27 into which the user can place one or more fingers so that the user can securely grip the lower end of the lever 13 with one hand while moving the sleeve 11 upwardly along the lever 13 and then the bar 12 with the other hand in order to expand the covering 1 to the position thereof shown in FIG. 1. As soon as the sleeve 11 is moved up beyond the lever 13 the latter can be turned to its horizontal position and it will be noted from FIG. 1 that in this position the lever 13 extends in both directions beyond the bar 12, so that when the sleeve 11 now is moved downwardly by the spring of the umbrella the bottom end of the sleeve 11 will bear against the lever 13 which at this time serves to maintain the sleeve 11 in the position thereof indicated in FIG. 1 so as to maintain the covering 1 in its expanded condition. The lever 13 also serves in the position thereof shown in FIG. 1 to make it very easy for the operator to turn the bar 12 around its axis for a purpose described below.

The bar 12 includes an upper solid portion 12' which is fixed to the lower tubular portion thereof by any suitable means such as the spacer sleeve 29 and screw 30 shown in FIG. 2. Thus, this sleeve coaxially surrounds the solid portion 12' and is slidable in the tubular portion of the bar 12, and the screw shown in FIG. 2 extends radially through openings in the sleeve and the outer tubular part of the bar 12 into a threaded bore of the solid part 12' thereof for forming a single unit of the bar 12. The upper end of the bar 12 terminates in a threaded portion 15 of reduced diameter, and this threaded portion 15 extends into a nut 15' which is in turn threadedly carried in the interior of an elongated tubular member 16 which is inwardly curved at its upper end so as to form a socket of a ball-and-socket joint, this socket receiving the ball 10 of this joint, so that in this way a joint means is provided for connecting the collapsible and expandable covering 1 to the arm 2.

A seat 17 for the ball 10 is axially shiftable within the tubular member 16 and upon turning of the lever 13 and the bar 12 around the axis of the latter the screw portion 15 will advance with respect to the nut 15' so as to press the seat 17 against the ball 10 and thus fix the bar 12 and the covering 1 carried thereby to the arm 2 in a preselected angular position. The bar 12 and lever 13 can be turned in another direction retracting the screw portion 15 away from the ball 10 so as to loosen the engagement of the seat 17 with the ball 10 and thus it is possible to reset the inclination of the covering 1 and again tighten the joint so as to maintain the covering 1 in the new position thereof. In this way a means is provided capable of being actuated by turning of the bar 12 for the purpose of releasably fixing

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the covering 1 in an adjusted angle of inclination, and thus the covering 1 can be easily and quickly oriented with respect to the sun. It will be noted that all of these manipulations can take place from a point directly beneath the covering 1 so that it is unnecessary for the operator to move away from the space beneath the covering 1 for the purpose of resetting the umbrella. In order to provide a large degree of angular adjustment the socket member 16 may be provided with an axial notch 16' capable of moving over the upper portion of the ball member 10 and of receiving therewithin the reduced diameter portion 2' of rod 2 to which the ball 10 is fixed, so as to provide a relatively large angle of turning for the covering 1, and if desired more than one notch 16' may be provided. Thus, the lever 13 serves not only to maintain the sleeve 11 in its elevated position which will maintain the covering 1 in its expanded condition, but also the lever 13 serves to facilitate manipulation of the bar 12 so that the latter can be easily turned for the purpose of fixing releasably the covering 1 at a desired angle of inclination. It will be noted that this adjustment of the position of the covering 1 can be carried out without collapsing of the covering 1.

As is shown in FIG. 2 the bar 12 at its upper portion 12' turnably carries a sleeve 19 which is externally threaded and which fixedly carries a ring 28. An annular member 18 is threaded onto the sleeve 19 at the exterior thereof and serves to clamp the covering 1 at its inner central portion to the ring 28. In the embodiment shown in FIG. 2 the sleeve 19 together with the annular member 18 and the ring 28 and the entire covering 1 as well as all of the parts connected thereto are freely turnable on the bar 12, the lower end of member 16 serving also to guide the annular member 18, as indicated in FIG. 2, so that with this arrangement the covering 1 can simply be turned to any desired angular position with respect to the axis of the bar 12. If desired, however, the arrangement can be such that the annular member 18 together with the covering 1 is released for turning movement whenever the seat 17 is released and is again clamped in the desired angular position whenever the bar 12 is turned to press the seat 17 against the ball 10. Thus, the element 16 may carry in its interior a stop member or the nut 15' may have an extension which acts as such a stop member and engages the top surface of the member 18 whenever the bar 12 together with the screw portion 15 thereof is advanced upwardly, as viewed in FIG. 2, for the purpose of pressing the element 17 against the ball 10, while when the bar 12 together with the screw portion 15 thereof is retracted so as to loosen the engagement of the seat 17 with the ball 10 the element 18 also moves away from such a stationary stop so as to release the member 18 together with the covering 1 for angular turning movement.

Referring now to FIGS. 1 and 3, it will be seen that the top end of the stand 3, 3' is received in a socket member 5 and a set screw 7 is available for fixing the socket 5 to the stand in a given angular position with respect thereto. Of course, the upper stand member 3 may be telescopically moved into or out of the lower tubular member 3' and a suitable set screw carried by the latter may be turned against the inner member 3 so as to releasably hold the covering 1 at a desired elevation.

The socket 5 serves to fix to the stand 3, 3' an elongated guide sleeve 6 which is of a non-circular cross section mating with that of the arm 2. This arm 2 extends slidably into the elongated guide sleeve 6 whose axis is inclined upwardly in the manner shown in FIGS. 1 and 3 so that the bar 2 rises away from the stand 3, 3' in the manner shown in FIG. 1. Because of the weight of the covering 1 and the part connected to the ball 10 at the free end of the arm 2, there will be a tendency for this arm 2 to turn in a clockwise direction, as viewed in FIG. 1, so that the arm 2 will not be able to shift longitudinally in the guide sleeve 6, and simply the weight of the parts

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carried by the free end of the arm 2 will serve to releasably hold the arm 2 in a preselected longitudinal position in the guide sleeve 6. However, it will be still possible for the operator to very easily engage the arm 2 and slide latter longitudinally with respect to the sleeve 6 so as to locate the covering 1 at a selected distance from the stand 3, 3'. In order to guarantee, however, that arm 2 will remain in its adjusted longitudinal position with respect to the sleeve 6, the latter may be provided adjacent its left end, as viewed in FIG. 3, in its bottom wall with a cutout through which extends a substantially C-shaped clamp member 8, and the upper wall of this clamp member 8, as viewed in FIG. 3, engages the lower surface of the arm 2 which is not shown in FIG. 3 for the sake of clarity. The bottom wall of the sleeve 6 which may be of rectangular cross section, for example, threadedly carries a wing screw 9 which can be turned by the operator for the purpose of urging the clamp member 8 upwardly to press against the bottom of the arm 2 so as to guarantee no movement of the latter with respect to the guide sleeve 6. Of course, if the guide sleeve 6 is of a rectangular cross section then the arm 2 is also of a mating rectangular cross section. It may be desirable in some cases to maintain the arm 2 of a relatively short length, in which case the guide sleeve 6 can be made correspondingly longer so that it is the length of the guide sleeve 6 and the length of the arm 2 at the portion thereof extending beyond the guide sleeve 6 which will determine the distance of the covering 1 from the stand 3, 3'. Thus, such a telescopic sliding of the arm 2 within the tubular guide sleeve 6 will still provide a relatively large distance of the covering 1 from the stand 3, 3' while providing a relatively short arm 2.

According to the embodiment which is illustrated in FIGS. 5 and 6, the socket 5 and the guide sleeve 6 fixed thereto are replaced by a socket which can be identical with the socket 5 and which is integral with an elongated guide sleeve 20 having the construction shown in FIGS. 5 and 6. The arm 2 is shown in dot-dash lines in FIG. 6 extending through the guide sleeve 20, and in the dotted lines the arm 2 is shown fragmentarily in a position it takes during adjustment of the arm 2 with respect to the guide sleeve 20. This guide sleeve 20 includes an upper wall 21 and a lower wall 22 which are longitudinally displaced one with respect to the other, as is evident from FIG. 6, along the axis of the arm 2, and it will be noted that this guide sleeve 20 is open at its upper portion at the end of the guide sleeve which is directed toward the covering 1, while the guide sleeve 20 is open at its lower portion at the end of the guide sleeve 20 which is directed away from the covering 1, this covering 1 being located to the right of the guide sleeve 20, as viewed in FIG. 6. Thus, with this arrangement the weight of the parts carried by the free end of the arm 2 will cause the upper surface thereof to press against the wall 21 and the lower surface thereof to press against the wall 22 so that the arm 2 will be reliably held in this way in whatever longitudinal position it is given by the operator who need only tilt the arm 2 upwardly to the dotted line position thereof shown in FIG. 6 so that the arm 2 can easily slide along the edges 23 and 24 shown in FIG. 6 for the purpose of resetting the longitudinal position of the arm 2, and thus reset the distance of the covering 1 from the stand 3, 3'.

It will be noted that the edge 24 at the front end of the wall 21 limits the extent to which the arm 2 may be raised from the dot-dash line position as indicated in FIG. 6.

Although the arm 2, due to the weight suspended from the free end thereof distant from the stand 3, 3', will be reliably maintained in the sleeve 20, in order to provide absolute security against shifting of the arm 2 the latter may be provided with a plurality of grooves 26 distributed along its bottom face and extending transversely across this bottom face, and the front end of the wall 22 of the sleeve 20 is provided with a transverse projection 25 capa-

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ble of being selectively received in any desired one of the grooves 26 so that in this way the members 20 and 2 are respectively provided with a projection and a recess capable of cooperating for providing absolute security against any shifting of the arm 2 with respect to the sleeve 20. Of course, the rib 25 may be replaced by a simple pin which extends into a simple opening of the arm 2, and in this case a plurality of such openings would be provided distributed along the arm 2 so that the operator could select which of the openings to receive the pin for the purpose of locating the arm 2 at a desired position.

It will be noted that with the embodiment of FIGS. 3 and 4 as well as that of FIGS. 5 and 6 it is possible for the operator to shift the arm 2 longitudinally from a location beneath the covering 1, so that for the purpose of adjusting the distance of the covering 1 from the stand 3, 3' it is also unnecessary for the operator to leave the space beneath the covering 1. Of course, in the case of FIGS. 3 and 4 it is assumed that the clamp 8 is not used in order to enable the operator to shift the arm 2 from a position beneath the covering 1.

It will be seen from the above that with the structure of the invention the covering 1 is extremely flexible with respect to the possible adjustments which can be carried out, these adjustments including angular adjustment with respect to the axis of the stand 3, 3' as well as radial adjustment with respect to this latter axis so as to locate the covering 1 at a desired distance from the stand, and in addition the joint means 10, 16, 17 enables the inclination of the covering 1 to be adjusted within very wide limits so that the structure of the invention can be adapted to any desired type of use and at the same time the structure is simple and inexpensive as well as very reliable.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of umbrellas differing from the types described above.

While the invention has been illustrated and described as embodied in laterally supported umbrellas, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the genetic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. In an umbrella, in combination, a stand; an arm connected to and extending laterally from said stand and having a free end distant therefrom; a collapsible and expandable covering located at said free end of said arm; joint means connecting said covering to said arm for tilting movement with respect thereto to any desired inclination; a relatively short bar extending downwardly from said covering when the latter is horizontal and expanded, said covering being expanded and contracted upon manipulation of a structure which includes a sleeve slidable along said bar, said bar being turnable about its axis; means actuated by rotary movement of said bar for releasably fixing said joint means in a selected position of adjustment to maintain the covering at a desired inclination; and an elongated handle member pivotally connected to said bar at a bottom end portion thereof for movement with respect to said bar between an inoperative position where said handle forms an extension of said bar coaxially therewith and an operative position where said handle extends transversely with respect to said bar, said handle in its operative position maintaining the sleeve of

said mechanism in a raised position which maintains the covering expanded and said handle in its operative position also serving as a lever to facilitate the turning of said bar for actuating the means for releasably fixing the joint means in a selected position of adjustment.

2. In an umbrella, in combination, a stand; an arm connected to and extending laterally from said stand and having a free end distant therefrom; a collapsible and expandable covering located at said free end of said arm; joint means connecting said covering to said arm for tilting movement with respect thereto to any desired inclination; a relatively short bar extending downwardly from said covering when the latter is horizontal and expanded, said covering being expanded and contracted upon manipulation of a structure which includes a sleeve slidable along said bar, said bar being turnable about its axis; means actuated by rotary movement of said bar for releasably fixing said joint means in a selected position of adjustment to maintain the covering at a desired inclination; and an elongated handle member pivotally connected to said bar at a bottom end portion thereof for movement with respect to said bar between an inoperative position where said handle forms an extension of said bar coaxially therewith and an operative position where said handle extends transversely with respect to said bar, said handle in its operative position maintaining the sleeve of said mechanism in a raised position which maintains the covering expanded and said handle in its operative position also serving as a lever to facilitate the turning of said bar for actuating the means for releasably fixing the joint means in a selected position of adjustment, said lever having a free end portion formed with an opening passing therethrough to facilitate gripping of said lever by the operator.

3. In an umbrella, in combination, a stand; an elongated arm extending laterally from said stand and terminating in a free end distant from said stand, a collapsible and expandable covering carried by said arm at said free end thereof; a guide sleeve carried by said stand and through which said arm extends, said guide sleeve having a length which is only a fraction of that of said arm and having upper and lower walls respectively displaced longitudinally one with respect to the other along the axis of said arm and said sleeve having an end directed toward said covering and opening at the upper part of said sleeve and an opposite end directed away from said covering and open at the lower part of said sleeve; and means on said arm and sleeve for positioning the arm within the sleeve.

4. In an umbrella, in combination, a stand; an arm connected to and extending laterally from said stand and terminating in a free end distant therefrom; a collapsible and expandable covering located beneath and at said free end of said arm; ball-and-socket means connecting said covering to said free end of said arm for adjustable movement with respect thereto, said ball-and-socket means comprising an integral ball member fixed to said free end of said arm and socket means supporting said covering and adapted to lock with said ball member when actuated from beneath said covering; and means located beneath said covering for locking said socket means with said ball member.

5. In an umbrella, in combination, a stand; an arm connected to and extending laterally from said stand and terminating in a free end distant therefrom; a collapsible and expandable covering located beneath and at said free end of said arm; ball-and-socket means connecting said covering to said free end of said arm for adjust-

able movement with respect thereto, said ball-and-socket means comprising an integral ball member fixed to said free end of said arm and socket means supporting said covering and adapted to lock with said ball member when actuated from beneath said covering; and means located beneath said covering for locking said socket means with said ball member, said locking means including a short bar extending downwardly from a central portion of said covering and being manually turnable about its axis from beneath said covering.

6. In an umbrella, in combination, a stand; an arm connected to and extending laterally from said stand, said arm having a free end distant from said stand; a collapsible and expandable covering located beneath and at said free end of said arm; joint means connecting said covering to said arm at said free end thereof for universal tilting movement with respect to said arm to provide a desired inclination in said covering; a bar extending downwardly from a central portion of said covering, said bar being relatively short, said bar being manually turnable about its axis from beneath said covering; means actuated by turning of said bar about its axis for releasably holding said joint means in an adjusted position to releasably maintain the covering in a selected angle of inclination; and an elongated handle member pivotally connected to said bar at the bottom end portion thereof with respect to said bar between a first position where said handle member forms an extension of said bar coaxially therewith to permit moving of said covering to the collapsed position thereof, and a second position where said handle member extends transversely with respect to said bar so as to facilitate the turning of the latter for actuating the means for releasably fixing said joint means in a selected position of adjustment.

7. In an umbrella, in combination, a stand; an elongated arm member extending laterally from said stand and terminating in a free end distant from said stand; a collapsible and expandable covering carried by said arm member at said free end thereof; a guide sleeve member carried by said stand through which said arm member extends, said guide sleeve member having a length which is only a fraction of the length of said arm member and having upper and lower walls respectively displaced longitudinally one with respect to the other along the axis of said arm and having each outer ends directed away from each other, said sleeve having an end directed toward said covering and open at the upper part of said sleeve and an opposite end directed away from said covering and open at the lower part of said sleeve; and a rigid projection carried by one of said members and the other of said members being formed with a recess receiving said projection.

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