United States Patent

[11] 3,613,702

[72] Inventor **Heinz Weber**
Hilden, Rhineland, Germany

[21] Appl. No. **45,338**
[22] Filed **June 11, 1970**
[45] Patented **Oct. 19, 1971**

[73] Assignee **Bremskey & Co.**
Solingen-Ohligs, Germany

[32] Priority **Aug. 2, 1967**
[33] **Germany**
[31] **B 93 761**
Continuation-in-part of application Ser. No. 748,661, July 30, 1968, now abandoned.

[54] **UMBRELLA HAVING A FLAT CROSS-SECTIONAL SHAPE IN CLOSED CONDITION THEREOF**
15 Claims, 10 Drawing Figs.

[52] U.S. Cl. 135/20, 135/36
[51] Int. Cl. A45b 25/10
[50] Field of Search ..... 135/20, 25, 34, 34 C, 36 F, 36 TP, 36 T; 24/108, 81 D, 81 DM, 81 CC, 81 T, 81 TC, 81 CH, 208.3, 216, 217

[56] **References Cited**

UNITED STATES PATENTS

2,533,799	12/1950	Haydu	135/36 F

FOREIGN PATENTS

685,187	3/1930	France	135/36 F
1,236,740	3/1967	Germany	135/20

Primary Examiner—Kenneth Downey
Attorneys—Curt M. Avery, Arthur E. Wilfond, Herbert L. Lerner and Daniel J. Tick

ABSTRACT: Umbrella having a flat cross-sectional shape in closed condition thereof includes an umbrella stick, a relatively flat crown mounted at one end of the stick, roof-supporting ribs articulatingly connected to the crown, a relatively flat cap carried by the crown, a portion of an umbrella roof covering disposed between the crown and the cap, and means for clamping the crown and the cap together with the roof covering therebetween so as to form lock the crown and cap against rotation with respect to the axis of the stick and force lock the crown and cap against displacement along the axis of the stick.

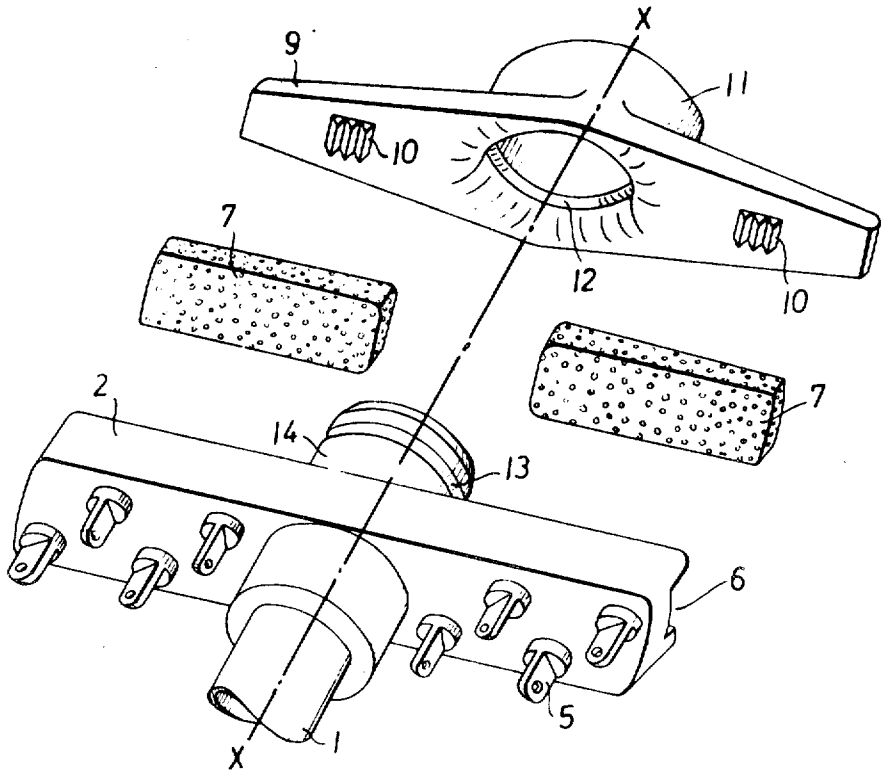
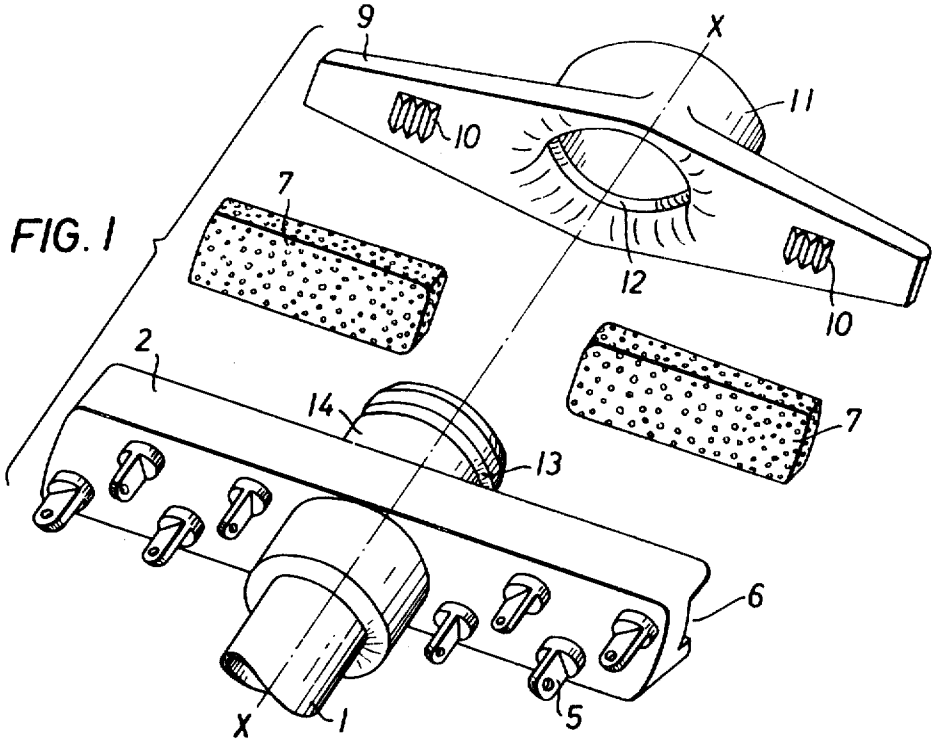


FIG. 1



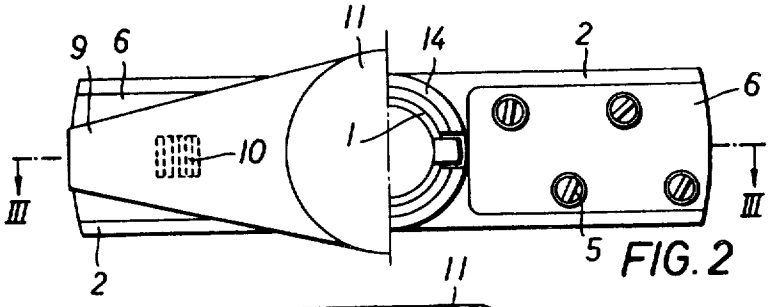


FIG. 2

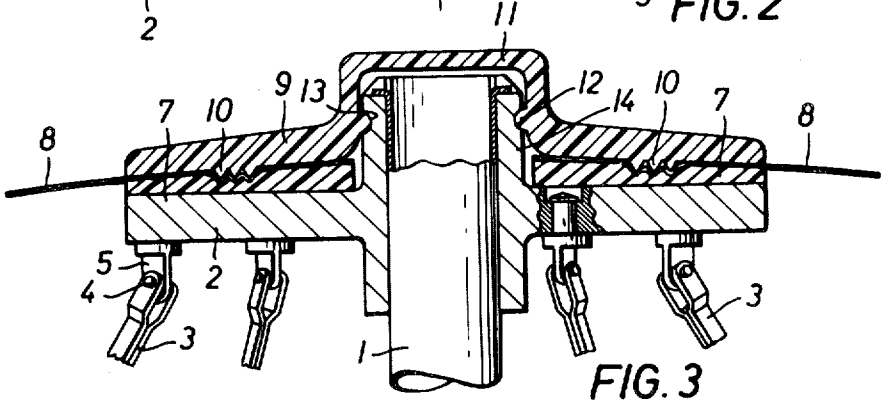
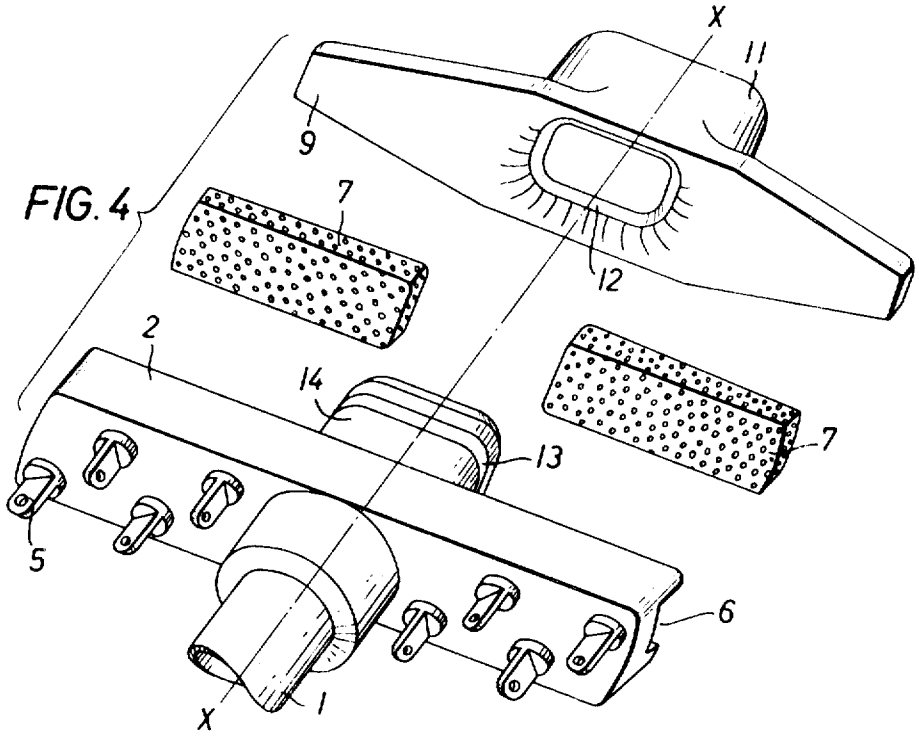


FIG. 3

INVENTOR

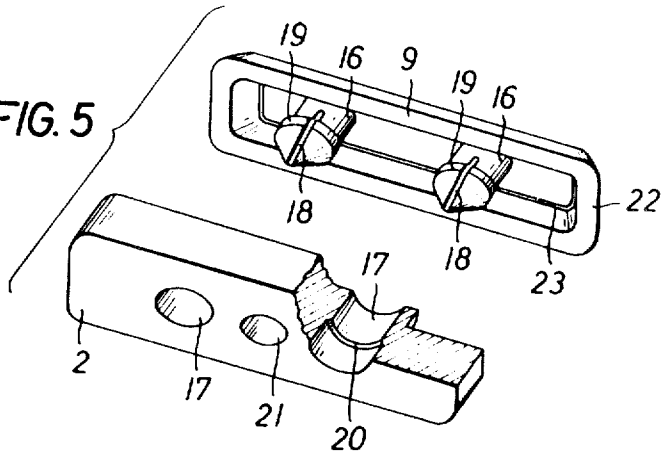
Heinz Gipfer

FIG. 4



INVENTOR

FIG. 5



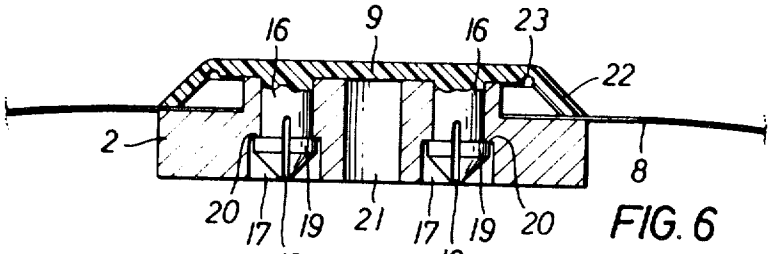


FIG. 6

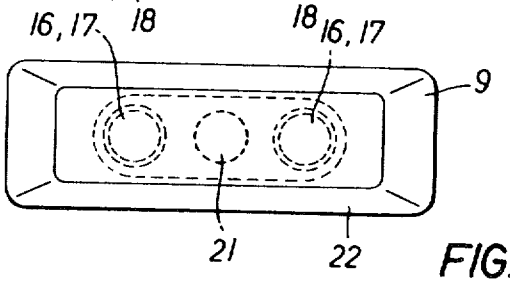


FIG. 7

INVENTOR

Henry [illegible]

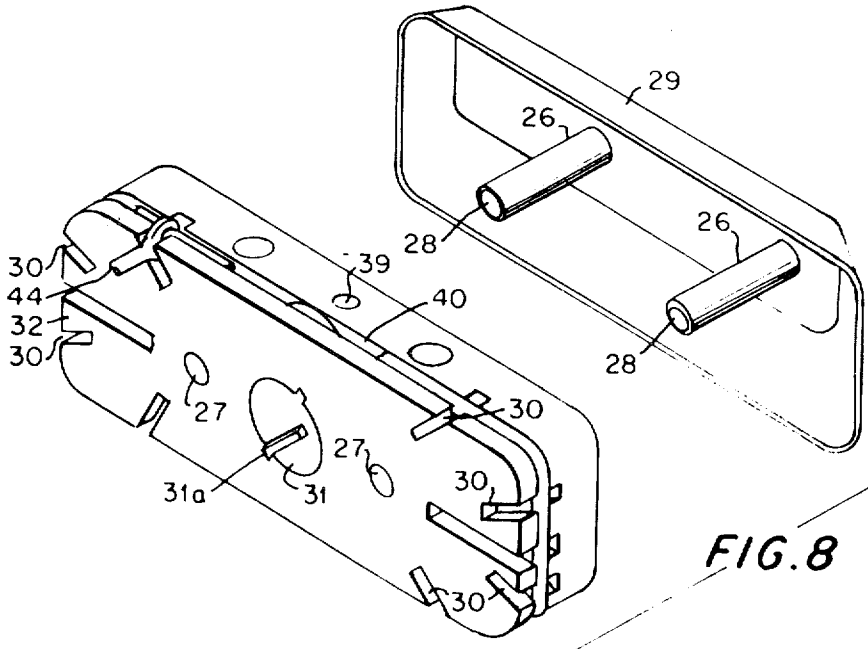
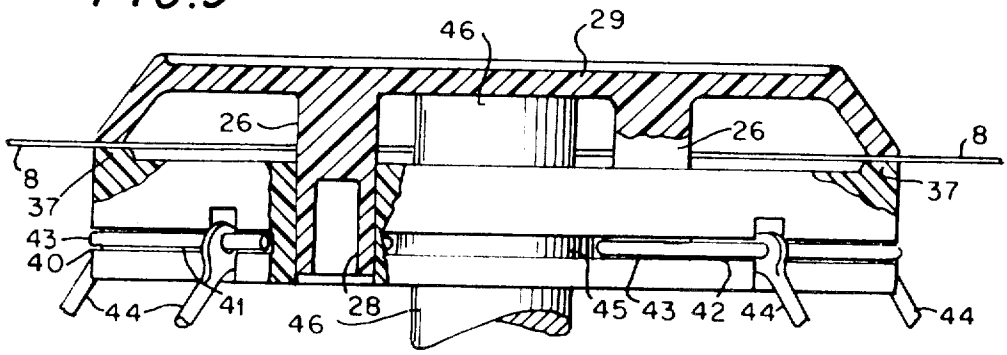


FIG. 8

FIG. 9



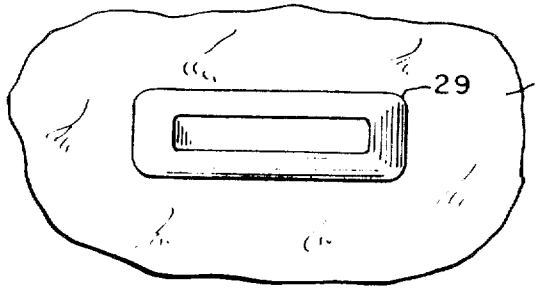


FIG. 10

UMBRELLA HAVING A FLAT CROSS-SECTIONAL SHAPE IN CLOSED CONDITION THEREOF

This is continuation-in-part of an application Ser. No. 748,661, filed July 30, 1968, now abandoned.

My invention relates to an umbrella, particularly of the collapsible type, which has a flat cross-sectional shape in closed condition thereof and a correspondingly flat-shaped crown provided with means for articulatingly connecting umbrella roof-supporting ribs thereto, and a roof covering the umbrella clamped between the umbrella crown and a flat-shaped cap.

In umbrellas having, in closed condition thereof, a substantially circular cross-sectional shape, referred to hereinafter as circular umbrella, the cap at the end of the umbrella is generally in the shape of a threaded cap member which is screwed onto a threaded connecting portion of the umbrella crown. It has also been known in the case of circular umbrellas to connect the cap by form-locking means to the crown in regard to rotation about the axis of the umbrella stick, and by force-locking means in regard to displacement in the direction of the stick axis. Use is made of such form-locking and force-locking means also in flat umbrellas constructed in accordance with the invention of the instant application.

The connections between crown and cap employed in circular umbrellas do not give fully satisfying results in the case of flat umbrellas because, in the latter case, there is an additional requirement that the crown and the cap, which are both flat shaped, must lie parallel to one another in the assembled condition thereof. This requirement cannot be met by a screw-type connection. The same is true for a known circular umbrella (German Petty Pat. No. 1,862,901), wherein the cap is connected to the crown by the engagement of an annular bead in an annular groove. This known type of construction also offers the possibility of forming several short groves at individual locations about the periphery of the crown instead of having a continuous groove extending around the entire periphery of the crown. This latter type of construction, however, does not afford assurance that the cap and the crown, when of flat construction, will lie parallel to one another when assembled.

It is accordingly an object of my invention to provide an umbrella of the aforementioned flat type of construction wherein the cap and the crown lie reliably parallel to one another after they have been assembled together.

With the foregoing and other objects in view, I accordingly provide an umbrella of the aforementioned type having two possible constructions for avoiding the aforementioned disadvantages of the heretofore-known umbrellas of this type.

In one of the types of construction according to my invention, I provide either the cap member or the crown member with a bead formed thereon which engages in a corresponding groove formed in that one of the members which is not provided with the bead, whereby the cap and the crown members are connected to one another. The bead and the groove are of such construction that the cap assumes with respect to the crown only one or two rotary positions set 180° from one another so that the cap and the crown lie parallel to one another. In the other type of construction of the umbrella according to my invention, I provide on either the cap member or the crown member at least one projection extending eccentrically with respect to the axis of the umbrella stick and which engages in a corresponding recess formed in that one of the members which is not provided with the projection. In both of these types of construction, the connection between crown and cap can have a structure similar to that of a snap fastener as disclosed in the aforementioned German Petty Patent.

Other features which are considered as characteristic for the invention are set forth in the appended claims.

Although the invention is illustrated and described herein as embodied in an umbrella having a flat cross-sectional shape in closed condition thereof, it is nevertheless not intended to be limited to the details shown, since various modifications and structural changes may be made therein without departing from the spirit of the invention and within the scope and range of equivalents of the claims.

The construction and method of operation of the invention, however, 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, wherein:

FIG. 1 is an exploded perspective view of the crown end of an umbrella constructed in accordance with the invention, with the umbrella covering and the roof-supporting ribs removed;

FIG. 2 is a top plan view of the assembled components shown in FIG. 1 removed therefrom;

FIG. 3 is a longitudinal sectional view taken along the line III—III in FIG. 2 in the direction of the arrows and furthermore showing the umbrella roof or covering material in assembly therewith;

FIG. 4 is a view corresponding to that of FIG. 1 of another embodiment of my invention;

FIG. 5 is another view corresponding to that of FIGS. 1 and 4 showing a third embodiment of my invention;

FIG. 6 is a longitudinal cross-sectional view of the components of FIG. 5 in assembled condition together with the roof-covering material for the umbrella;

FIG. 7 is a top plan view of FIG. 6 with the roof-covering material removed. FIG. 8 is another view corresponding to that of FIGS. 1, 4 and 5, showing a fourth embodiment of my invention;

FIG. 9 is a longitudinal cross-sectional view of the embodiments of FIG. 8 in assembled condition, together with the roof-covering material for the umbrella; and

FIG. 10 is a top plan view of FIG. 9.

Referring now to the drawings and first particularly to the embodiment shown in FIGS. 1 to 3, there is shown at the normally upper or crown end of a tubular umbrella stick 1, a crown 2 in the form of an elongated flat member secured thereto in a manner conventional for flat member secured thereto in a manner conventional for flat umbrellas of the aforementioned type. As shown in FIG. 3, hinges 4 are employed for articulatingly connecting the roof-supporting ribs 3 of the umbrella to the crown 2. The hinges 4 are pivotally connected to pins 5 mounted in the crown 2 and which are turnable about respective axes that are parallel to the axis of the stick 1. The exact type of articulating connection of the roof-supporting ribs 3 to the crown 2 is not important for the invention of the instant application and can be effected in any other suitable manner, for example by conventionally binding them in a wire ring.

On the upper side of the crown 2 as viewed, for example, in FIG. 1, two radially extending groves 6 are formed, of which only the right-hand grove is visible in FIGS. 1 and 2. The grooves 6 serve for receiving cushions 7 of elastic synthetic material or foam rubber or the like for the purpose of providing trouble-free clamping of the umbrella roof material for the reasons given hereinbefore.

The roof material 8, as aforementioned, is clamped between the crown 2 and a cap 9 of similar elongated flat construction. Teethlike projections 10 are formed on the flanks of the cap 9 which, in the assembled condition of the components shown in FIG. 1, grip the cushions 7. Since the cushions 7 are disposed in the grooves 6, the gripping of the cushions 7 by the projections 10 ensure the required form-locking connection in regard to the mutual rotation of the crown 2 and the cap 9 about the longitudinal axis X—X of the stick. The cap 9 is formed of a relatively elastic or resilient synthetic material of suitable composition and is provided in the center thereof with a hub 11 formed with an annular bead 12 on the cylindrical interior wall thereof. The bead 12 on the cylindrical interior wall thereof. The bead 12 engages in a corresponding annular groove 13 formed in the outer surface of a cylindrical projection 14 extending from the crown 2, when the parts shown in FIG. 1 are in assembled condition. After the cushions 7 have been inserted in the grooves 6 and umbrella roof material 8 has been applied thereon, the cap 9 is simply pressed onto he cylindrical projection 14 until the bead 12 snaps into the

groove 13. The connection thus produced can be released relatively easily with the aid of a suitable tool due to the elastic flexibility of the material of which the cap 9 formed, if for example the umbrella cover material is to be exchanged.

The embodiment of FIG. 4 differs from that of FIGS. 1 to 3 solely in that the hub 11' of the cap 9' and the projection 14' of the crown 2' are not cylindrical but rather have a substantially rectangular form with rounded edges. Thus, from the very beginning, a form-locking connection between the crown 2' and the cap 9' is produced by the noncircular form of the bead 12' and the groove 13' in the embodiment of FIG. 4 so that the teethlike projections 10 of the embodiment of FIG. 4.

A particularly simple solution for producing the connection between the crown and cap of an umbrella with trouble-free clamping of the roof-covering material is provided by the embodiment shown in FIGS. 5 to 7. Two pins 16 extend from he inner surface of the cap 9'' in registry with corresponding holes 17 formed in the crown 2''. The pins 16 have two longitudinal slots 18 formed therein respectively and extending at right angles to one another. Of the two longitudinal slots 18 formed in each of the pins 16, only one of the slots is visible in FIGS. 5 and 6. The slots 18 afford the pins 16 a specific elastic flexibility in the radial direction. The pins 16 have conical, downwardly tapering ends which are provided with respective collars 19. Shoulders 20 formed in the holes 17 correspond to the collars 19. The crown 2'' and cap 9'' of the embodiment of FIGS. 5 to 7 can simply be stuck together firmly in the same manner as for the embodiment shown in FIG. 4. Axial pressure exerted by a tool on the cap 9'' of the embodiment of FIGS. 5 to 7 through a hole 21 serving for securing the crown 2'' to a handle of the umbrella, is sufficient for loosening or releasing the connection between the crown 2'' and the cap 9''. Such a tool can also be inserted through the umbrella stick, if it is hollow, without loosening or disconnecting the crown from the stick if the latter is already inserted in the hole 21.

The cap 9'' is provided with an elastically flexible edge or marginal portion 22 which extends downwardly at an inclined angle as shown FIG. 6; for example, the flexibility being increased by providing a constriction or undercut 23 which reduces the thickness of the cap 9'' at the location thereof. The flexibility of the marginal portion 22 of the cap 9'' provides assurance that the roof-covering material 8 between the marginal portion 22 of the cap 9'' and the body of the crown 2'' will be clamped without any trouble. Consequently, the elastic cushions 7 provided in the embodiments of FIGS. 1 to 4 can be dispensed with in the embodiment of FIGS. 5 to 7.

In the embodiment of FIGS. 8 to 10, the connection between the crown 32 and the cap 29 of an umbrella is effected in manner similar to but not quite the same as that of the embodiment shown in FIGS. 5 to 7. Two pins 26 extend from the inner surface of the cap 29 in registry with corresponding holes 27 formed in the crown 32. The pins 26 are provided with a longitudinal borehole 28 and have an outer diameter slightly greater than the diameter of the recesses 27 so that they form an interference or press fit when inserted into the recesses. The cap 29 and the crown 32 can be loosened or released from one another by applying axial pressure in similar manner for releasing the cap 9'' and crown 2'' of the embodiment of FIGS. 5 to 7. Both the cap 29 and crown 32 are formed of suitable plastic material having an inherent resilience to permit the aforementioned interference fit of the pins 26 in the respective boreholes 28. Moreover, the flexible edge or marginal portion of the cap 29, corresponding to the marginal portion 22 of the cap 9'' in the embodiment of FIGS. 5 to 7, extends downwardly at an inclined angle and clamps the roof-covering material 8 against a raised marginal portion 37 of the body of the crown 32.

The embodiment of FIGS. 8 to 9 offers a distinctive means for hinging the roof-supporting ribs 44 to the crown 32. Thus, the crown is formed with a peripheral undercut or groove 40 which divides the crown into upper and lower flat slabs that are joined by connecting portions 41 and 42 at the longitudinal ends of the crown and by an intermediate connecting portion 45 through which a bore 31 extends for receiving therein an umbrella stick 46.

Four slots or notches 30 are provided at each longitudinal end of the crown 32 and are spaced apart from one another and disposed at an inclination to one another, as shown in FIG. 8. Instead of screwing hinges such as the hinges 5 of the embodiments of FIGS. 1 to 3 and 4 to the underside of the crown, in the embodiment of FIGS. 8 to 10, a wire 43 or other suitable strand is wound about each of the connecting portions 41 within the peripheral slot or grove 43. The wires 43 pass through an eye formed at the flattened ends of respective roof-supporting ribs 44 which extend into each of the slots 30 which extend transversely across the peripheral groove 43 into both flat slot portions of the crown 32. The transverse slots 30 are of suitable dimensions to provide adequate clearance for the flattened ends of the ribs 44 to pivot therein about the respective wires 43. By providing the slots 30 near the longitudinal ends of the crown 32, the locking or anchoring means of the cap 29 and the crown 32, i.e. the pins 26 and the recesses 27 are thus located between the regions respectively wherein the slots 30 are located and the region wherein the stick 46 is anchored to the crown 32. This results in a compactness of the crown 32 and the cap 29 since the anchoring means 26 and 27 do not then interfere with the slots 30 and with the pivoting of the roof-supporting ribs 44 therein.

The wall of the bore 31 is provided with flutes 31*a* in which corresponding projections of the umbrella stick 46 are receivable so as to prevent relative rotation of the crown 32 and the stick 46. A lateral bore 39 passes through the wall of the bore 31 to permit the insertion therethrough and through a corresponding diametral bore formed in the stick 46 and alignable with the bore 31 so as to prevent axial movement of the stick 46 with respect to the crown 32.

I claim:

1. Umbrella having a relatively flat cross-sectional shape in closed condition thereof includes an umbrella stick, a relatively flat crown member mounted at one end of said stick, roof-supporting ribs articulatingly connected to said crown member, a relatively flat cap member carried by said crown member, and umbrella roof covering having a portion thereof disposed between said crown and said cap members, and means clamping said members together with said roof-covering portion therebetween and comprising first structures provided on said members and cooperatively form locking said members against rotation with respect to the axis of said stick and second structures formed on said members and cooperatively force locking said members against displacement in the direction of the axis of said stick, the second structure on at least one yieldable said members being resilient so as to be yieldable relative to the second structure on the other of said members in response to a force of given minimum strength applied thereto for separating said members from one another in intact condition.

2. Umbrella according to claim 1 wherein said members are clampable in only one rotary position wherein they are disposed parallel to one another.

3. Umbrella according to claim 1 wherein said members are clampable in only two positions rotatably offset from one another through an angle of substantially 180° and wherein they are disposed parallel to one another

4 Umbrella having a relatively flat cross-sectional shape in closed condition thereof includes an umbrella stick, a relatively flat crown member mounted at one end of said stick, roof-supporting ribs articulatingly connected to said crown member, a relatively flat cap member carried by said crown member, an umbrella roof covering having a portion thereof disposed between said crown and said cap members, and means clamping said members together with said roof-covering portion therebetween and comprising first structures provided on said members and cooperatively form locking said members against rotation with respect to the axis of said stick and second structures provided on said members and coopera-

tively force locking said members against displacement in the direction of the axis of said stick, said clamping means comprising a bead formed on one of said members, and a corresponding groove formed in the other of said members for clampingly receiving said bead therein.

5. Umbrella according to claim 4 wherein said cap member is formed of resilient synthetic material whereby said bead yieldably snaps into and out of said groove.

6. Umbrella according to claim 4 wherein said clamping means includes a yieldable cushion disposed between said members, at least one of said members having projections embeddable in said cushion for frictionally locking said members together with said cushion and roof covering therebetween.

7. Umbrella according to claim 4 wherein said bead and said groove are noncircular in shape.

8. Umbrella having a relatively flat cross-sectional shape in closed condition thereof includes an umbrella stick, a relatively flat crown member mounted at one end of said stick, roof-supporting ribs articulatingly connected to said crown member, a relatively flat cap member carried by said crown member, an umbrella roof covering having a portion thereof disposed between said crown and said cap members, and means clamping said members together with said roof-covering portion therebetween and comprising first structures provided on said members and cooperatively form locking said members against rotation with respect to the axis of said stick and second structures provided on said members and cooperatively force locking said members against displacement in the direction of the axis of said stick, said clamping means comprising at least one projection extending from one of said members, eccentrically to said stick, and at least one corresponding recess formed in the other of said members and registrable with said projection for receiving said projection therein.

9. Umbrella according to claim 8 wherein said projection is formed with a radially yieldable collar, and said recess has an enlarged-diameter portion forming a shoulder and adapted to receive said collar therein in abutting engagement with said shoulder.

10. Umbrella according to claim 8, wherein said one member from which said projection extends is formed with a hollow space for receiving therein a marginal portion of said umbrella roof covering.

11. Umbrella according to claim 1 wherein said crown member is elongated and is provided with means at the respective longitudinal ends thereof for hingedly connecting said roof-supporting ribs to said crown member.

12. Umbrella according to claim 11 wherein said clamping means comprises a pair of projections extending from one of said members, eccentrically to said stick, the other of said members being formed with a pair of recesses registrable with said projections, respectively, for receiving said projections therein.

13. Umbrella according to claim 12 wherein said registrable projections and recesses are located between aid stick and said means for hingedly connecting said roof-supporting ribs to said crown member.

14. Umbrella according to claim 11 wherein said crown member is formed with a peripheral groove and a plurality of mutually spaced notches extending across said peripheral groove at said longitudinal ends of said crown member said roof-supporting ribs having an end formed with an eye therein and received in said transverse notches, respectively, and at least one wire secured in said peripheral groove and extending through the eyes of said roof-supporting ribs so as to form a pivot for said roof-supporting ribs.

15. Umbrella according to claim 14 wherein the notches at each longitudinal end of said crown member are disposed at an inclination to one another.

PO-1050
(5/69)

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,613,702 Dated October 19, 1972

Inventor(s) HEINZ WEBER

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading to the printed specification, the name of the assignee should read:

-- Bremshey & Co.--

Signed and sealed this 29th day of August 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents