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PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(54) IMPROVEMENTS IN OR RELATING TO UMBRELLAS

(71) We, BREMSHEY & Co., a German Kommanditgesellschaft of 5—7 Ahrstrasse Solingen-Ohligs, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a frame for a shortenable umbrella, and particularly but not necessarily for a shortenable umbrella of the so called "flat" type having a substantially rectangular cross-sectional shape when closed or collapsed.

According to the present invention, a frame for a shortenable umbrella, has an elongate handle which is pivoted to the end of an umbrella stick by means of a pin carried by the stick and cooperating with a slot in the handle extending from the centre of the handle length towards one end of the handle, the handle being located so that it makes a T-shape with the stick when the pin is at the end of the slot adjacent to the centre of the handle length but being capable of pivoting into alignment with the longitudinal axis of the stick after being moved relatively to the stick until the pin is at the other end of the slot.

The invention is particularly suited to a frame for a shortenable flat umbrella having a substantially rectangular cross-sectional shape when closed or collapsed, the handle extending with its length parallel to the longer dimension of the closed frame cross section when making a T-shape with the stick.

Advantageously the handle end of the stick has an axially projecting leaf of lesser thickness than the adjacent part of the stick, the leaf extending into a longitudinal groove in the handle and carrying the pin.

Shoulders formed by the transitional stages between the part of the umbrella stick adjacent to the leaf and the leaf itself may cooperate with surfaces of the handle adjacent to the longitudinal groove to locate the handle in the position in which it makes a T-shape with the stick.

Preferably, a side flank of the leaf abuts a bottom surface of the longitudinal groove in the handle when the handle is in the axially aligned position, to prevent the handle from pivoting past this position.

Conveniently, the handle has a socket at one end in which parts of the umbrella stick adjacent to the leaf can be received when the handle is in the axially aligned position, by pushing the handle axially onto the stick, to locate the handle against pivoting away from this position.

An umbrella incorporating a frame in accordance with the invention is very convenient to use. The handle can be used, optionally, as a handle extending transversely of the umbrella stick, or as a so-called "knob-handle". Extremely simple technical means, which require neither maintenance nor much skil for assembly, are used to produce the umbrellas. The construction is also convenient to manufacture. The pin, which enters the slot, can very simply couple the umbrella stick and the handle together. A stick-carried leaf extending into the longitudinal groove can prevent the handle from rotating on the stick. The shoulders produced by the provision of the carrying leaf, bear on the corresponding longitudinal wall surfaces of the handle, and prevent the handle being moved out of the position in which it forms a T-shape with the umbrella stick. This movement can be made only after the handle has been displaced into a position in which the shoulders are adjacent to a rounded end of the handle. If moreover, the handle has a socket for receiving part of the stick adjacent to the leaf, because the socket surrounds the end parts of the stick, the handle and the umbrella stick are then connected in a manner which will stand up to heavy loading. A varying in the extent of telescoping of the end of the stick into the socket and a slight tolerance between the stick and socket allow a stable construction even with umbrellas of different sizes. When the umbrella is closed and shortened, the handle can assume the transverse position which reduces the umbrella length and also facilitates

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its removal from a case since the handle is ready to be grasped for the removal of the umbrella.

One example of a "flat" umbrella incorporating a frame constructed in accordance with the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a partial perspective view of the umbrella in a case;

Figure 2 is a cross-section taken on the line II—II in Figure 1, showing a slider of the umbrella more clearly;

Figure 3 is a front elevation of the handle of the umbrella showing part of the umbrella stick;

Figure 4 is a plan corresponding to Figure 3;

Figure 5 is a side elevation corresponding to Figure 3;

Figure 6 shows the handle of the umbrella of Figure 1 in a different position in relation to the umbrella stick to that shown in Figures 3, 4 and 5; and,

Figure 7 is a perspective view of the umbrella of Figure 1 open.

The illustrated umbrella has a stick 1 comprising three telescopic tubular members 2, 3 and 4 of circular cross-section. The extended positions are secured by catches 5. The tubular member 2 has the largest diameter and extending in the tubular member 2 is the tubular member 3 which has a smaller diameter. The tubular member 4, which is preferably a short retractable tube and which extends in the tubular member 3, has the smallest diameter and merges adjacent the handle into a solid portion 4'.

At its top end the umbrella stick 1 bears a crown 6 which has a rectangular cross-section, which corresponds to the basic cross sectional shape of the collapsed umbrella. Umbrella ribs 9, having tips 9', and of identical length, are pivotally connected to the diametrically opposite narrow edges 7, 8 of the crown 6.

When the umbrella is open, the ribs 9 are borne by struts 10 which are pivotally connected to the ribs 9 at 11. The ends of the struts 10 adjacent to the umbrella stick are disposed on diametrically opposite wings 12, 13 of a slider 14, which also corresponds in cross-section to the flat rectangular cross sectional shape of the umbrella and which has a guide bush 14' bearing a locking catch 15 mounted in a channel formed in a side projection. This forms the subject of our co-pending application No. 54305/69 (Serial No. 1199834).

Above the slider 14 is an auxiliary slider 16 on which auxiliary struts 17 are pivoted. The auxiliary slider 16 has diametrically opposite wings 18, 19. The auxiliary struts 17 extend to the supporting struts 10, to which they are pivotally connected.

The umbrella stick 1 has an elongate handle 20 which, apart from possible intermediate positions, can be brought into the positions shown in Figures 3 and 6. A pin 21 acts as the connecting element between the umbrella stick 1 and the handle 20. The pin 21 extends through a carrying leaf 4'' which forms an extension of the portion 4', the leaf 4'' extending into a longitudinal groove 22 in the handle 20. The ends of the pin 21 enter slot guides 23 extending over substantially half the length of the handle 20.

The slot guides 23 enables the handle to be displaced in the direction indicated by the arrow x from the position shown in Figure 3, in which it forms a T-shape with the umbrella stick. In each intermediate position, the handle 20 maintains its perpendicular position in relation to the umbrella stick axis y—y, since the shoulders 24 between the umbrella stick and the carrying leaf 4'' cooperate with the immediately opposed narrow longitudinal wall of the handle 20 thus preventing pivoting of the handle about the pin 21. Moreover, one side flank 25 of the leaf bears against an edge 22', of the longitudinal groove 22, in the transverse position.

If the person using the umbrella prefers a position of the handle in which the handle and umbrella stick are axially aligned with one another, all that is needed is to displace the handle as far as possible in the direction indicated by the arrow x (Figure 3), until the pin 21 abuts the slot ends 23'. Only in this position can the handle be pivoted downwards as a result of a rounded portion 20'' of the handle end being adjacent to the shoulders 24 (cf. Figure 6). In this position, the side flank 26 of the leaf abuts the bottom 27 of the longitudinal groove in the handle.

The friction between the contact surfaces of the handle 20 and the umbrella stick end may be adequate to maintain the axially aligned position. However, if the coefficient of friction between the materials used is not high enough, the handle can be formed with socket 28, into which part of the portion 4' of the umbrella stick may pass since the handle 20 can be displaced in the direction indicated by the arrow z (Figure 6). This displacement is possible since when the umbrella is raised, the slider 14 is not in the way. The resulting inserted connection produces a reaction between the stick end and handle on all sides of the stick end.

The umbrella is shown having a case 29 which, due to the length of its narrow longitudinal walls 29' being shorter than the length of its wider walls 29'', has finger apertures 30 which enable the handle 20 to be readily grasped and removed. A retaining strap 31 engaging over an end face aperture in the case secures the umbrella therein. The free end of the retaining strap has a press-button top portion 32 which co-operates with a press-button bottom portion dis-

posed on one wide longitudinal wall 29'' of the casing.

To remove the umbrella from the case, the handle can be brought into the position shown in Figure 6, whereafter the umbrella can more readily be pulled out.

When the umbrella is introduced into the case 29, the latter acts as an ordering element for the ribs 9, which lay themselves in two groups of four in front of the possibly slightly concave end face edges 12', 13' of the slider wings 12, 13 (Figure 2).

Our copending applications (Serial Nos. 1219375 and 1219377) Nos. 9841/69 and 9843/69 are relevant to the case 29.

The umbrella is collapsed from the Figure 7 configuration in the usual way, that is by releasing the main slider catch 15 and drawing the main slider 14 along the stick towards the handle. As a result the ribs 9 and struts 10 and 17 fold down parallel to the stick 2. The umbrella is then shortened by pressing the handle 20 and rib tips 9' towards the crown 6 whereupon the stick 2 and ribs 9 shorten telescopically. The canopy is wrapped around the ribs and stick and the umbrella is ready for insertion into its case 29.

WHAT WE CLAIM IS:—

1. A frame for a shortenable umbrella, the frame having an elongate handle which is pivoted to the end of an umbrella stick by means of a pin carried by the stick and co-operating with a slot in the handle extending from the centre of the handle length towards one end of the handle, the handle being located so that it makes a T-shape with the stick when the pin is at the end of the slot adjacent to the centre of the handle length but being capable of pivoting into alignment with the longitudinal axis of the stick after being moved relatively to the stick until the pin is at the other end of the slot.

2. A frame according to claim 1, for a shortenable flat umbrella having a substantially rectangular cross-sectional shape when closed, the handle extending with its length parallel to the longer dimension of the closed frame cross-section when making a T-shape with the stick.

3. A frame according to Claim 1 or Claim 2, wherein the handle end of the stick has an axially projecting leaf of lesser thickness than the adjacent part of the stick, the leaf extending into a longitudinal groove in the handle and carrying the pin.

4. A frame according to Claim 3, wherein shoulders formed by transitional stages between the part of the stick adjacent to the leaf and the leaf itself cooperate with surfaces of the handle adjacent to the longitudinal groove to locate the handle in the position in which it makes a T-shape with the stick.

5. A frame according to Claim 3 or Claim 4, wherein a side flank of the leaf abuts a bottom surface of the longitudinal groove in the handle when the handle is in the axially aligned position, to prevent the handle from pivoting past this position.

6. A frame according to any one of the preceding claims, wherein the handle has a socket at one end in which part of the umbrella stick adjacent to the handle end can be received, when the handle is in the axially aligned position, by pushing the handle axially onto the stick, to locate the handle against pivoting away from this position.

7. A frame according to Claim 1, substantially as described with reference to the accompanying drawings.

8. An umbrella incorporating a frame in accordance with any one of the preceding claims.

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