May 27, 1941. L. A. CAPALDO 2,243,190

UMBRELLA

Original Filed April 20, 1937

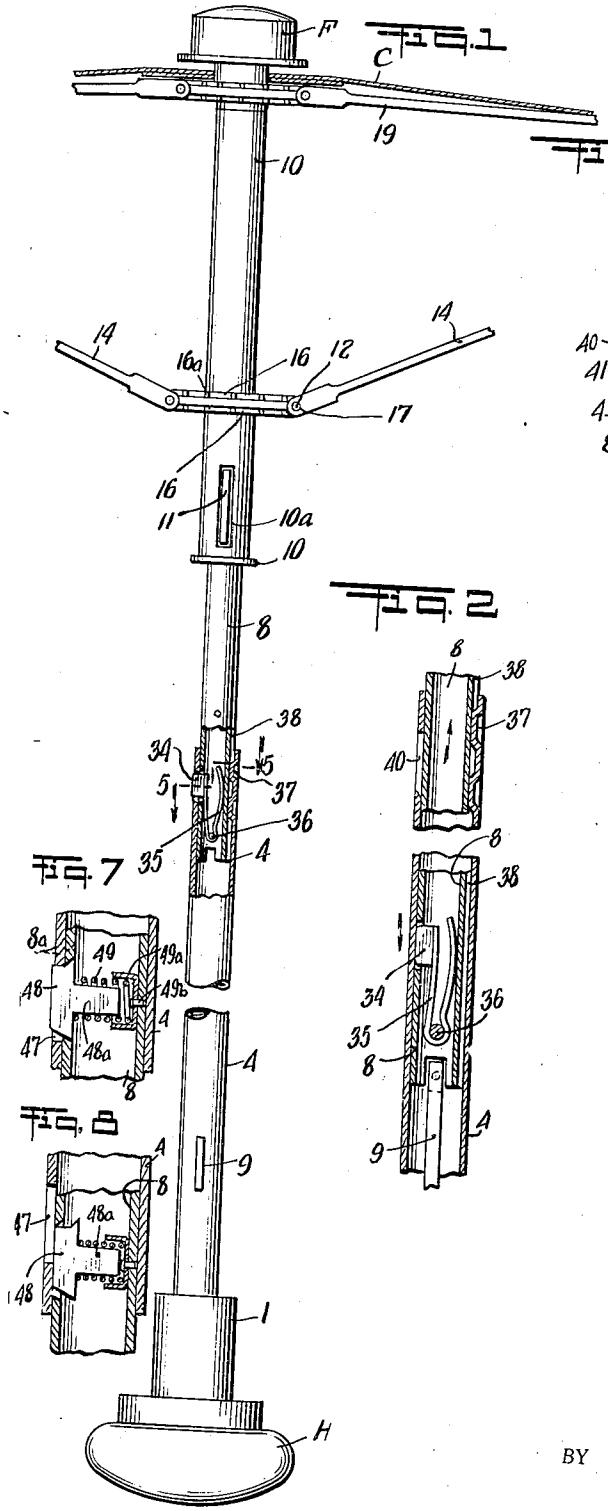


FIG. 1

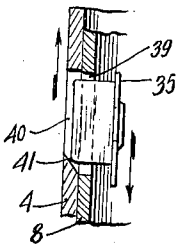


FIG. 3

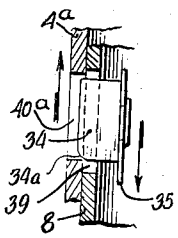


FIG. 4

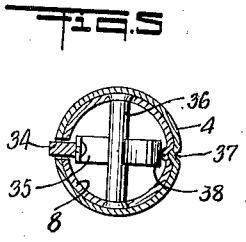


FIG. 5

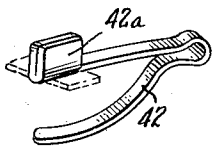


FIG. 6

FIG. 2

FIG. 7

FIG. 8

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UMBRELLA

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Original application April 20, 1937, Serial No. 137,906. Divided and this application June 28, 1939, Serial No. 281,569

6 Claims. (Cl. 135—46)

My invention relates to a new and improved collapsible and telescopic umbrella.

This application is a division of my application Serial No. 137,906, filed April 20, 1937, now Patent No. 2,187,372, Jan. 16, 1940.

One of the objects of the invention is to provide a collapsible stick of novel construction for an umbrella or the like.

Another object of my invention is to provide improved latch means for extending, locking and collapsing the telescopic sections of the stick of the umbrella.

Other objects of the invention will be set forth in the following description and drawing, which illustrates preferred embodiments thereof, it being understood that the above statement of the objects of my invention is intended generally to explain the same without limiting it in any manner.

Fig. 1 is a detail elevation partially in section, showing the umbrella in its fully extended and fully open position, and showing the latch in its operative position, so as to releasably hold the sections of the stick in their fully extended position.

Fig. 2 is a sectional view showing the latch which holds the sections of the stick in extended position, in the inoperative position of said latch.

Fig. 3 is a detail sectional view, showing the latch which co-operates with the sections of the stick, in order to hold them extended. In this view the upper section of the stick has been pushed a little downwardly from its fully extended position shown in Fig. 1.

Fig. 4 is a sectional view showing a modified form of latch.

Fig. 5 is a sectional view on the line 5—5 of Fig. 1.

Fig. 6 is a perspective view showing a modified form of the latch which is illustrated in Figs. 1, 3 and 4.

Fig. 7 shows another modified form of latch.

Fig. 8 is the same as Fig. 7, save that Fig. 7 shows the latch in its locking position, and Fig. 8 shows the latch in its non-locking position.

Referring to Fig. 1, this shows the handle H of the umbrella having shank 1. Said handle H can be made of metal or any suitable material and may be of any type of construction.

The stick of the umbrella comprises an outer and bottom section or tube 4, and an inner and upper section or tube 8, which is telescopic within the outer tube 4. The outer tube 4 is secured to shank 1.

As shown in Fig. 5, the stick-sections 4 and 8 may be of general circular cross-section. In order to prevent the inner top stick-section 8 from turning relative to the outer bottom stick-section 4, such stick-section 8 may be provided with longitudinal grooves 38, and stick-section 4 with longitudinal beads 37 which fit snugly in said grooves 38, while permitting a vertical sliding movement between said sections 4 and 8. The grooves 38 terminate in lateral end-walls of their bottoms. The bottoms of beads 37 abut the bottom-end walls of grooves 38, when stick-section 8 has been slid upwardly in order to limit the sliding movement of stick-section 8 relative to stick-section 4.

A suitable latch 34 is provided for holding the stick-section 8 in its extended position relative to the stick-section 4. As shown in Figs. 1 and 2, said latch 34 is suitably connected, as by rivets or the like, to a blade spring 35. Said blade spring 35 passes around a pin 36, which is connected to the inner stick-section 8. Said blade spring 35 grips said pin 36 with sufficient force to hold it to stick-section 8 and in the position illustrated in Fig. 1 and in Fig. 3.

Referring particularly to Fig. 3 and Fig. 4, the inner stick-section 8 is provided with a slot 39 and the outer stick-section 4 is provided with a slot 40 in Fig. 3 and with a slot 40*a* in Fig. 4. When the slots 39 and 40 register, as shown in Fig. 1, the blade spring 35 moves the latch 34 into its operative position.

In order to release the latch 34 automatically from its operative position, the stick-sections 4 and 8 are pushed toward each other. This can be done by holding the umbrella at the ferrule F and at the handle H, and pushing said ferrule F and said head H toward each other. The section 4 has a chamfered or inwardly inclined edge 41 at the bottom wall of slot 40, so that when suitable pressure is thus applied, the latch 34 is pushed inwardly by said inclined wall 41 against the force of spring 35, so that the stick-section 8 is free to slide downwardly relative to stick-section 4.

In the embodiment shown in Fig. 4, the latch has rounded corners 34*a*, so that it is not necessary to provide the slot 40*a* with the inclined wall 41.

In the embodiment shown in Fig. 3, the latch 34 can have sharp corners because inclined wall 41 acts as a cam.

The top stick-section 8 is also provided with the usual resilient latch 11, one end of which can pass through a slot in said stick-section 8 and enters the slot 10*a* of the runner 10, when

said runner 10 is in the top position illustrated in Fig. 1.

Spreaders 14 are turnably connected to the runner 10 in any suitable manner. For example, the runner 10 may be provided with two superposed flanges 16, which have notches 16a, as shown in Fig. 1. The spreaders 14 are provided with holes at their inner ends, and the inner end of each spreader is turnably located in a pair of superposed notches 16a. A wire 17 passes through the holes in the inner or bottom ends of the spreaders 14, so as to serve as a common pivot member for said spreaders 14. The ends of said wire 17 are twisted or connected to each other in any suitable manner. Said wire is held between said flanges 16.

The umbrella is provided with ribs 19, which are turnably connected to stick section 8 in any suitable manner. The umbrella is provided with a cover C.

Fig. 6 shows a latch 42a, which can be used in place of the latch 34. Said latch 42a is integral with a shank of the blade spring 42, which can replace spring 35. As shown in Fig. 6, the latch 42a can be made by bending upwardly the lugs of the T-head of a shank of the spring 42.

Fig. 7 shows a latch 48 of the same general contour as the latch 43. The stick-section 8 has a slot whose top and bottom walls are inclined to each other. Said latch 48 has a shank 48a, which fits snugly or loosely within a helical compression spring 49, whose inner end is located in cup 49a, which is held by rivet 49b to stick-section 8.

The shank 48a also acts as a stop to limit the inward movement of the latch 48, as illustrated in Fig. 8.

The method of extending and collapsing the stick sections is as follows:

When the umbrella is in the completely collapsed position illustrated in Fig. 2, the handle H can be grasped in one hand and the ferrule F can be pulled away from the handle H after the runner has been released, which was held until then in position by means of the latch 9 thereby securing the maintenance of the collapsed position.

When stick-section 8 would therefore be pulled upwardly relative to the stick-section 4 the parts of the device assume the relative positions shown in Fig. 1. The spreaders 14 may be of any suitable type so as to adapt the same to the structure of the umbrella.

The latch 34 or its equivalent will now enter the slots of the stick-sections 4 and 8, so as to hold them in their relative extended positions.

To collapse the umbrella, downward pressure can then be applied upon the ferrule F when the handle H is held stationary. This pressure automatically forces the latch 34, or its equivalent, inwardly, so that the parts assume the relative positions shown in Fig. 2.

I have shown preferred embodiments of my invention, but it is clear that numerous changes and omissions can be made without departing from its spirit.

I claim:

1. In a collapsible stick having telescopic stick sections, said sections having slots which are aligned when the stick is in extended position and having a latch member located within the inner section of the stick, said latch member being in connection with spring means operative to urge said latch member into operative position, cam means formed by the edges in the wall of the slot of the outer section and the edges of said latch member being adapted to force said latch member inwardly when said stick sections are collapsed, and a transverse pin connected to the inner section of said stick, a blade spring having two shanks gripping said pin and a latch member at the end of one shank of said blade spring, the other end thereof being backed by the inner wall portion of the inner section which is opposite to the slot.

2. In an umbrella or the like, in combination, a pair of telescopic stick sections having non-circular cross-sections and slots which are aligned when said stick sections are in the extended position, latch means located within the inner section, spring means connected to said latch means and backed by the inner wall portion opposite to said slot, cam means formed by the edges at the wall of the outer slot and the edges of the latch, a second latch member carried by the lower stick member, a runner disposed above said pair of telescopic stick sections and having a slot in alignment with said second latch member, said runner and slot engaging said second latch member when the stick sections are collapsed and adapted to hold the umbrella in collapsed position, said cam means being adapted to hold said umbrella in extended position while being released by longitudinal pressure to the top and the handle of the umbrella.

3. An umbrella stick comprising, in combination, a top stick section to which the ribs are pivotally fastened, a bottom stick section, the upper end of said bottom stick member being shiftable until it essentially reaches the end of said top section, means to latch said stick sections in the extended position, means to detach said latch means when pressure urges the stick sections to move relative to each other in opposite direction, a second latch member carried by the bottom stick section, and a runner having a slot in alignment with said second latch member, said runner adapted to spread the cover or to hold the umbrella in a completely collapsed position by engagement of the slot over the said second latch member.

4. In an umbrella or the like, in combination, a pair of telescopic stick sections, said stick sections having non-circular cross-sections and slots which are aligned when said stick sections are in the extended position, spring means operative to urge said latch means outwardly to enter said slot in the outer section when said slot is in alignment with the slot in the inner section, cam means formed by the edges of said first latch member and the edges at the wall of the slot in the outer stick section, said cam means being adapted to force said first latch means inwardly when the stick is collapsed, second latch means projecting from the surface of the inner section and third latch means projecting from the surface of the outer section, and a runner embracing the outer section and having a slot therein, said slot adapted to register with said second and third latch means in extended and collapsed position of the umbrella respectively, said runner being adapted to secure the collapsed position of the umbrella when its slot registers with the third latch means.

5. In an umbrella stick or the like comprising, in combination with a pair of telescopic stick sections, the outer section being shiftable along the inner section so as to reach substantially the upper end of the inner section when the umbrella is collapsed, said sections having slots which are aligned when said stick sections are in extended position, first latch means located with-

in the inner section, spring means operative to urge said latch means outwardly to enter said slot in the outer section when said slot is in alignment with the slot in the inner section, cam means formed by the edges of said first latch member and the edges at the wall of said slot in the outer section, said means being adapted to force said latch means inwardly when the stick is collapsed, second latch means projecting from the surface of the inner section, third latch means projecting from the surface of the outer section, and a runner embracing the outer section, said runner having a slot formed therein, said slot being adapted to register with said second latch means in opened position of the umbrella and with said third latch means in collapsed position of the umbrella, said runner being adapted to secure the collapsed position of the umbrella when registering with said third latch member.

6. In an umbrella or the like, in combination, a pair of telescopic stick sections having slots which are aligned respectively when said sections are in the extended position, first latch means located within the inner section and having spring means operative to urge said latch means outwardly to enter said slot in the outer section when in alignment with the slot in the respective inner section, cam means formed by the edges of said first latch means and the edge at the wall of said slot in said outer section, said wall and said edge being adapted to mutually force said first latch means inwardly when the stick is collapsed, second latch means at the top section of the stick, third latch means at the bottom section of the stick, and a runner embracing the external section of said telescopic stick section, a slot in said runner being adapted to register with said second latch means in the opened position and registering with said third latch means in the collapsed position, said runner being adapted to secure its collapsed position when registering with said third latch means.

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