

No. 612,333.

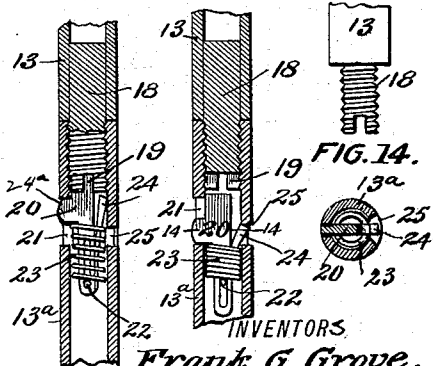
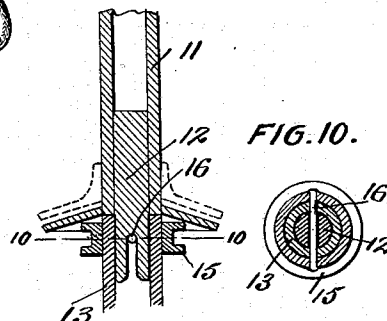
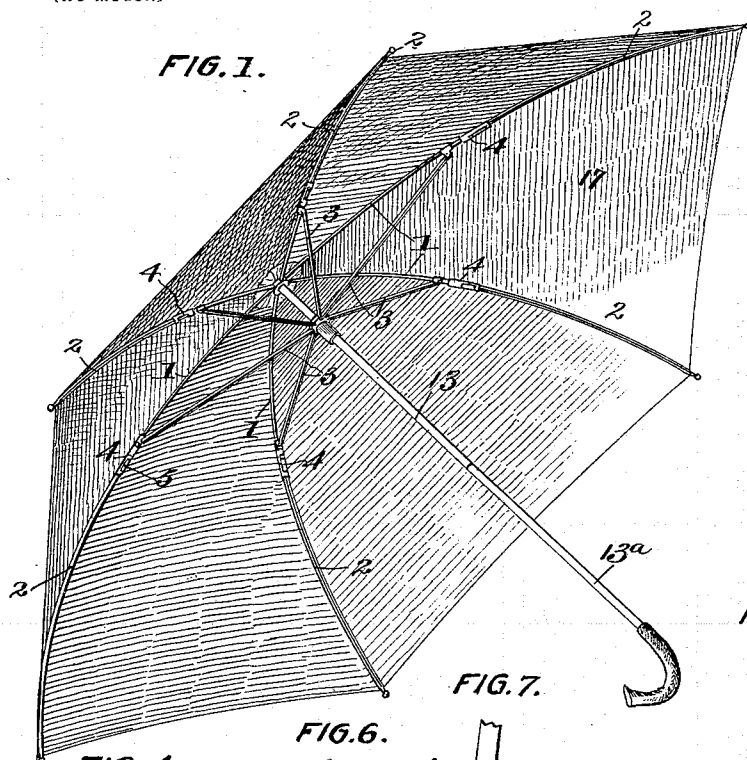
Patented Oct. 11, 1898.

F. G. GROVE & F. E. STOVER.

FOLDING UMBRELLA.

(Application filed Apr. 9, 1897.)

(No Model.)

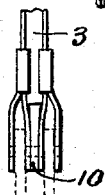


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FIG. 8



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UNITED STATES PATENT OFFICE.

FRANK G. GROVE AND FRANK E. STOVER, OF LURAY, VIRGINIA, ASSIGNORS,
BY DIRECT AND MESNE ASSIGNMENTS, TO THOMAS A. WILKINSON, ANNA
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FOLDING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 612,333, dated October 11, 1898.

Application filed April 9, 1897. Serial No. 631,383. (No model.)

To all whom it may concern:

Be it known that we, FRANK G. GROVE and FRANK E. STOVER, residing at Luray, in the county of Page and State of Virginia, have
5 invented a new and useful Improvement in Folding Umbrellas, of which the following is a specification.

Our invention is an improvement in that class of folding or collapsible umbrellas which
10 are provided with ribs made in sections adapted to slide on each other, so that the umbrellas may be folded in such manner as to occupy but half their normal length.

Our invention is more particularly an im-
15 provement upon the umbrellas for which Letters Patent No. 551,957, dated December 24, 1895, have been granted to F. G. Grove, and No. 540,098, dated May 28, 1895, granted to F. G. Grove and D. P. Lillard.

20 The improvements relate to the improved means for locking the sliding rib-section, for detachable connection of the tip with the handle, and for preventing the handle-sections from rotating on each other and thus becoming
25 accidentally loosened.

In the accompanying drawings, Figure 1 is a perspective view of our improved umbrella extended or open. Fig. 2 is a plan view of the same in folded position. Fig. 3 is a cross-
30 section on the line 3 3 of Fig. 4. Fig. 4 is a perspective view of a portion of a rib and the device for locking the sliding section to the fixed section. Fig. 5 is a perspective view of such device or clamp, the same being shown
35 in the form it possesses before its application to the rib. Fig. 6 is a longitudinal section of a rib, showing the sliding section locked. Fig. 7 is a similar view showing the sliding
40 section unlocked and in position to be withdrawn from the fixed section. Fig. 8 is an inner side view of the outer end of one of the stretchers. Fig. 9 is an enlarged longitudinal section of the upper portion of the umbrella, showing the joint connection between the tip
45 and handle. Fig. 10 is a cross-section on the line 10 10 of Fig. 9. Fig. 11 is a longitudinal section of the handle at the point where the sections of the same are jointed together and

locked. Fig. 12 is a similar view showing the same unlocked. Fig. 13 is a sectional
50 view of the outer or lower end of the fixed handle-section, and Fig. 14 is a cross-section on line 14 14 of Fig. 12.

Each rib is composed of a fixed section 1 and sliding section 2, the former being held
55 in the groove of the latter and sliding therein. A stretcher 3 is jointed to the inner end of the sliding section 2 in the usual way. At a point just below such joint a device 4 is applied for locking the sliding section. As shown
60 in Fig. 5, said device is semitubular in form, being struck up out of sheet metal and provided with a slot 5 on one side and with a catch 6 and shoulder 7 at opposite ends of said slot. The wings or parallel sides 8 of said device are
65 parallel, as shown. The device is applied to the sliding section 2, as shown in Fig. 3, and the said wings 8 are then pressed and curved inward around the section, so as to clamp it tightly, as shown in Fig. 4. For this purpose
70 we employ a suitable swaging apparatus. As shown in Fig. 6, the lower end of the fixed section 1 is slightly curved inward and also provided with a notch or shoulder 9 at a point slightly removed from the end of the section.
75 When the sliding section 2 is drawn out, such shoulder 9 of the sliding section will engage the catch 6 of the device 4, while its free end springs out into engagement with a shoulder 7 of said device, thus locking the two sections,
80 so that they cannot slide upon each other. In order to disengage the lock as required to collapse the umbrella, the curved end of the fixed section is pressed inward or straightened, as shown in Fig. 7, which effects the dis-
85 engagement of such curved end from shoulder 7, so that the sliding section 2 and the device 4, attached to the same, may be slid up on the fixed section 1. It will be noted that the upper tubular portion of the device 4 and also
90 the shoulder 7 of the same bridge or cover the groove of the sliding section 2, so that the fixed section slides beneath them in the movement above described, and that when the sliding section is extended such tubular por-
95 tion of the device 4 holds the fixed section in

the groove of the sliding section. It will be further noted that the catch 6 before referred to is formed by pressing inward the lower edge of the tubular portion of the device 4. This operation is effected when the device is struck up in dies.

The means thus far described prevent longitudinal movement of the sections 1 and 2 on each other; but in order to lock them more firmly together, as well as brace and strengthen the joint between them, we provide the inner end of the stretchers 3 with an eccentric portion 10, as shown in Figs. 6 and 7, so that when the umbrella is extended such eccentric portion will bear upon the fixed section 1 and thus hold it firmly by clamping action. When the stretchers are folded alongside the ribs, as shown in Fig. 7, such eccentric portion 10 is out of contact with the rib. The tip 11, Fig. 9, is provided with a tenon 12, which is in the form of a split spring-pin. Such tenon is adapted to fit snugly in the upper end of the upper handle-section 13, which is formed of a steel tube. The tenon or spring-pin 12 is suitably secured, by brazing or otherwise, in the tubular tip 11. The top notch 15 is secured by cross-pin 16, and the prongs of the spring-pin 12 pass on opposite sides of the cross-pin when the same is introduced into the handle-section 13, as shown. The tenon 12 is thus held from rotation, and consequently the cover 17 of the umbrella is prevented from twisting at the point of attachment to the tip. The tenon being held by friction and tension of cover it may be readily detached when the umbrella is collapsed.

As shown in Figs. 11 to 14, inclusive, the handle-sections 13 and 13^a are connected by screw-joint—that is to say, the upper handle-section 13 is provided with a screw 18, which projects from its lower end, and said screw has nicks in its head, as shown. The lower handle-section 13^a has a screw-socket 19, adapted to fit on such screw-tenon 18. In order to prevent the lower section 13^a from rotating on the upper section 13 and thus becoming loosened, we employ a locking device 20, which is constructed as follows: Said device is a flat elongated plate having a lateral projection that works in a slot 21 of the handle-section 13^a. Said plate has a longitudinal slot and slides on a cross-pin 22, fixed in the handle-section 13^a. A spiral spring 23 encircles the shank or slotted portion of the plate, and the latter has a lateral spring-catch 24, that holds it in the retracted position, as shown in Fig. 12, it being adapted to enter a slot 25, which is opposite the slot 21 in the handle-section 13^a.

It will be seen that by pressing upon the projection 24 it will be pushed inward out of the slot 25, and that the spring 23 will then force the device 20 forward into engagement with a nick in the head of the screw 18, and thus lock the two handle-sections so that they cannot turn upon each other. It will be further seen that in order to release these parts

the locking device 20 may be pushed back into the retracted position shown in Fig. 12 by applying the finger to the lateral projection 24^a, which works in slot 21.

The umbrella is opened and extended by sliding the top notch 15 up on the handle in the usual way. In order to collapse and fold the umbrella, each rib-section 2 is slid inward on its fixed section 1, which movement is easily and quickly effected by first pressing the curved end of the fixed section 1 inward, as before described, so as to disengage it from the locking device 4 and then pushing the section 2 up on section 1 until it is arrested by the top notch 15. The disengagement here referred to may be effected by pressing upon the curved end of rib-section 1 with the finger, or it may be done by holding one section in one hand and one in the other and then bending the rib outward at the middle until its curve corresponds to that of the end portion of section, which will cause such portion to lie back in the groove of section 2 flush with the edges of said groove, when its shoulder 7 will no longer engage the outer extreme end of rib-section 1. The ribs having been thus shortened and adjusted, as described, the tip 11 is next detached, and the portion of the cover 17, connected with it, is twisted upon itself and folded upon the body of the umbrella, as shown in Fig. 2. The handle-section 13^a, being also unscrewed and detached from section 13, it is laid upon such body, as shown, and the whole then occupies about half the length of the umbrella-handle and tip together when normally connected as required for use.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an umbrella, the combination with the slidable rib-section of a semitubular device secured thereto and having an engaging catch and stop as specified, the fixed rib-section having its inner end slightly curved, arranged at its extremity to abut the stop, and provided with a shoulder as specified, whereby such fixed section is adapted to normally lock and maintain engagement with the aforesaid catch and shoulder and to abut at its end against the stop so that the slidable section is immovable in either direction, but may be disengaged by depressing or straightening such curved portion of the fixed section, as specified.

2. An umbrella-rib composed of inner and outer sections slidably connected, one of such sections being provided with a tube-like portion having a slot and having at one end of said slot a pawl-like tongue and the other section being arranged to extend at its free end through the slot in the tube and having such free end deflected and notched for engagement by the pawl-like tongue substantially as described.

3. An umbrella-rib composed of sections

sliding upon each other at their meeting ends, one of such sections being free at its inner end or extremity and curved or deflected at such free end and springing thereby into engagement with the other such section whereby the two sections are interlocked substantially as described.

4. The combination with rib-sections adapted to slide on each other, of the semitubular clamp for said sections, the same having a lengthwise slot, and an inward projection and a shoulder arranged at the opposite ends of said slot, for the purpose of engaging the fixed rib-section, as shown and described.

5. In an umbrella, the combination with the tubular handle having a cross-pin at its upper end, of the tip secured to the cover and having a split spring-pin, which is adapted to enter the socket in the handle and engage said cross-pin, as shown and described.

6. In an umbrella, the handle made in sections having a screw-tenon and socket-joint, and a slidable locking device arranged in the

socket portion and adapted to engage nicks in the head of such tenon, substantially as shown and described.

7. In an umbrella, the combination, with the handle made in sections, one of which has a screw provided with nicks in the head and the other a screw-socket and lateral slots, as shown, of a locking device adapted to slide in such socket and engage the screw, a spring applied to said device, for forcing it into lock with the screw, the said device having two lateral projections adapted to enter the respective slots, one serving to retract the device and the other to hold it retracted, substantially as shown and described.

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