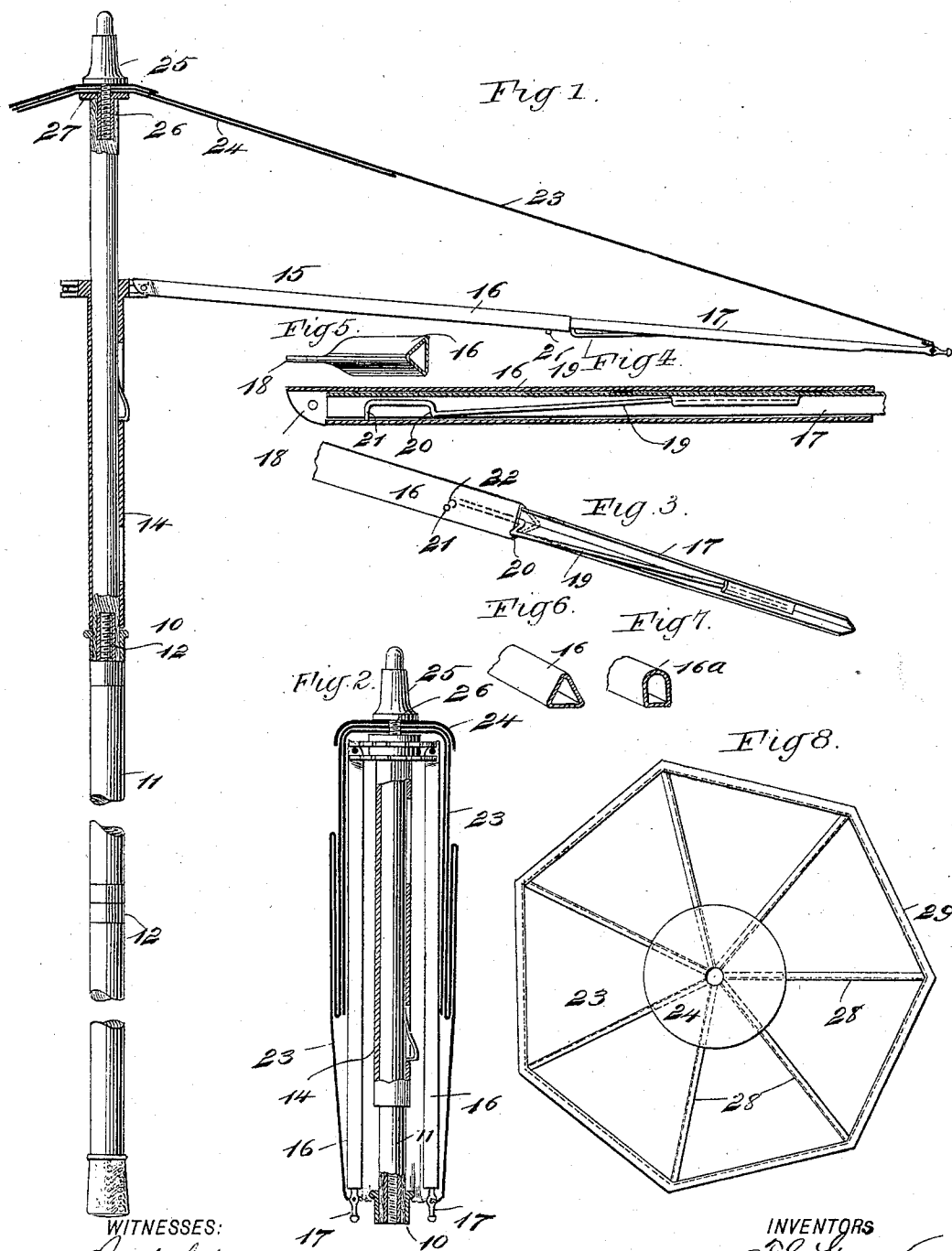


(No Model.)

F. G. GROVE & D. P. LILLARD.
FOLDING UMBRELLA.

No. 540,098.

Patented May 28, 1895.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK G. GROVE AND DON P. LILLARD, OF LURAY, VIRGINIA, ASSIGNORS
TO FRANK G. GROVE AND FRANCIS H. THARP, OF SAME PLACE.

FOLDING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 540,098, dated May 28, 1895.

Application filed March 20, 1894. Serial No. 504,396. (No model.)

To all whom it may concern:

Be it known that we, FRANK G. GROVE and DON P. LILLARD, both of Luray, in the county of Page and State of Virginia, have invented
5 a new and Improved Folding Umbrella, of which the following is a full, clear, and exact description.

Our invention relates to improvements in folding umbrellas of the kind illustrated in
10 Letters Patent of the United States No. 507,809, dated October 31, 1893.

The object of our invention is to improve the construction shown in the patent referred to, and particularly to provide an extensible
15 brace which is easily operated, is cheap and is very strong.

The invention consists in the particular construction and arrangement of parts as hereinafter described and pointed out in the claim.

20 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken sectional elevation of
25 the umbrella, showing our improvements, the umbrella being illustrated as spread. Fig. 2 is a detail sectional view of the folded umbrella. Fig. 3 is a broken perspective view of one of the braces in its extended position.
30 Fig. 4 is a longitudinal section of one of the braces in a collapsed state. Fig. 5 is a broken detail perspective view, partly in section, of the inner section of a brace. Fig. 6 is a view of a section of a brace. Fig. 7 illustrates a modified form of the brace, and Fig. 8 is a detail inverted plan view of the cover.
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The umbrella stick 10, is made up in sections 11 which are screwed together at the points 12, as illustrated, although the sections
40 may be united in any convenient way, and on the stick is the runner 14, substantially like that shown in our former patent referred to above, and to the runner are pivoted the braces 15 which embody the most essential
45 features of our invention, each brace comprising a hollow inner section 16 adapted to be pivoted to the runner, and an outer section 17 adapted to slide in the section 16. The section 16 is preferably triangular in cross
50 section, as this construction renders it strong

and enables it to be made light, but it may be made of a U-shaped cross section, as shown at 16^a in Fig. 7, or in any suitable shape. The inner end of the section 16 is elongated, as shown at 18, so that it may be conveniently
55 pivoted to the runner 14.

The section 17 is preferably of V-shaped cross section, so that it will fit snugly in the section 16, but it is of course shaped to fit snugly in the section without regard to what
60 the shape of the latter may be. In the hollow side of the section 17 is a fastening spring 19, which is secured to the section 17, and the free end of which is adapted to enter the section 16, this spring being bent at a right angle, as shown at 20, to form a shoulder to engage the outer end of the section 16, while it terminates in another right angled bend 21, adapted to engage a perforation 22 in the section 16, and thus lock the section 17 in an extended position. The brace may be collapsed by pushing in the spring 19 and then sliding the section 17 into the section 16 when it will be held therein by the said spring.
65 70

The cover 23 of the umbrella is arranged in substantially the usual manner, but it is double in the center as at 24, at which point it is fastened to the stick 10, being held in place by a detachable tip 25 which has a threaded stem 26 adapted to screw into a bushing 27 in the end of the stick 10, this bushing being turned out at the top to form a flange which serves as a crown-piece. The seams 28 of the cover are corded and made strong, while its edge is similarly corded or provided with a heavy hem 29 which is secured to the outer ends of the sections 17 of the braces.
75 80 85

When the umbrella is spread, the braces slide out until the springs 19 catch in the sections 16 and lock the cover in an extended position, and when the umbrella is to be folded the stick 10 is reduced to its most compact shape, the tip 25 removed, the braces 15 collapsed and the cover folded in, as illustrated in Fig. 2.
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The brace illustrated in Fig. 3 may be used as a rib in the ordinary umbrella, and in connection with the sectional handle described above, converts the ordinary umbrella into a folding one.
100

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

5 In a ribless umbrella, a sectional brace comprising a triangular hollow inner section 16 provided with the aperture 22, the V-shaped outer sections 17 fitted to slide in the hollow inner section 16, and the spring 19 secured to the section 17, having its inner free end 21

bent to enter the aperture 22 and provided with the shoulder 20 to engage the end of the section 16, substantially as described.

FRANK G. GROVE.
DON P. LILLARD.

Witnesses:
F. H. THARP,
I. H. GOCHMORN.