

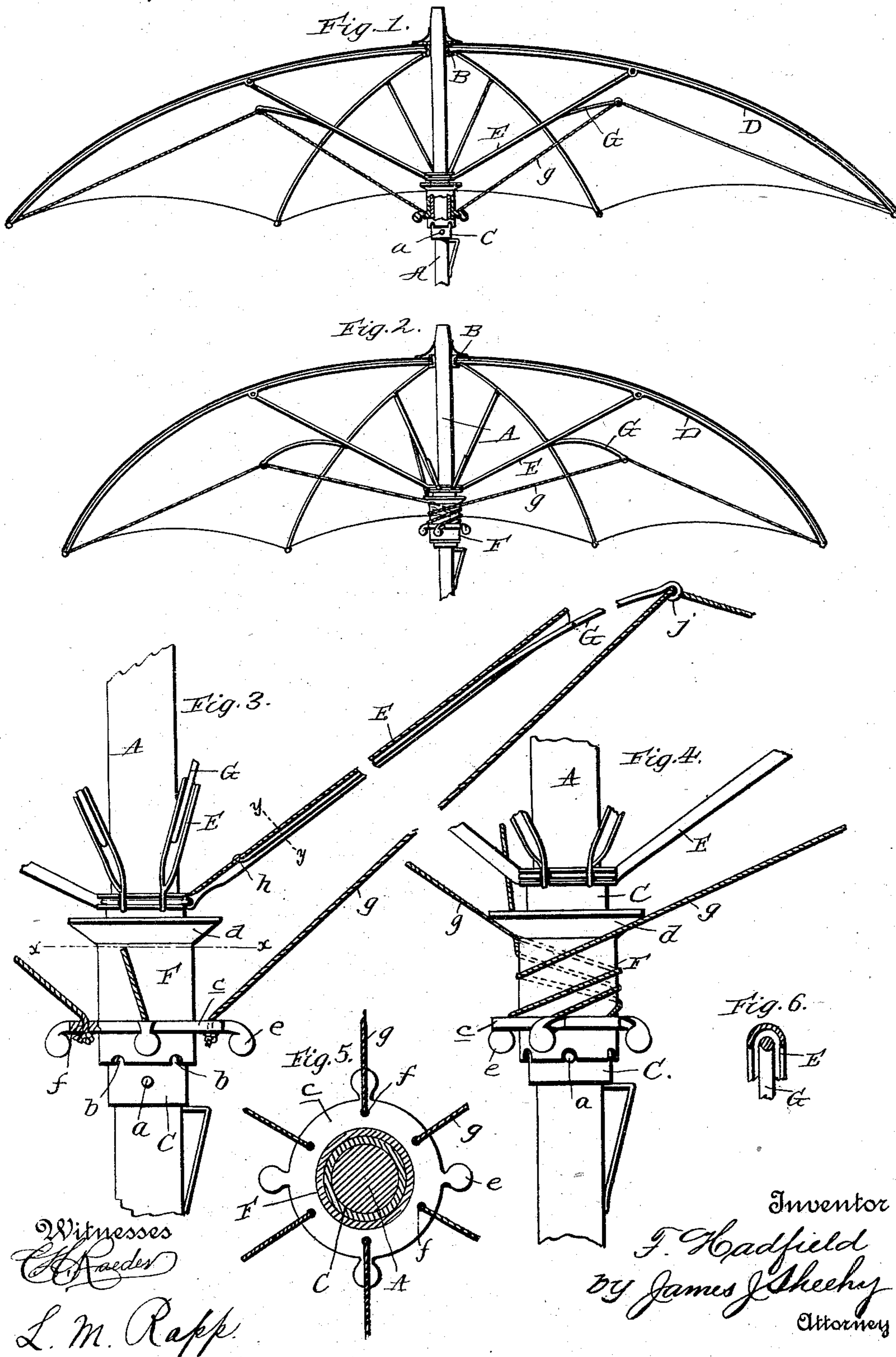
(No Model.)

F. HADFIELD.
UMBRELLA.

No. 559,577.

Patented May 5, 1896.

5



UNITED STATES PATENT OFFICE.

FREDERICK HADFIELD, OF WOONSOCKET, RHODE ISLAND.

UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 559,577, dated May 5, 1896.

Application filed March 5, 1896. Serial No. 581,926. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK HADFIELD, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Umbrellas; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in umbrellas; and it has for its object to equip an umbrella with means whereby the ribs may be stiffened and prevented from becoming damaged or injured by being bent or sprung in stormy and windy weather.

Other objects and advantages will appear from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a side view of an umbrella with the cloth removed, the stick partly broken away and the runner partly in section, my improvements being applied in a position which the parts assume preparatory to the action of the cords to stiffen the ribs. Fig. 2 is a side view showing the cords wound upon the spool or sleeve so as to stiffen the ribs. Fig. 3 is an enlarged detail view with parts in section. Fig. 4 is an enlarged detail view illustrating the cords partly wound on the spool or sleeve. Fig. 5 is a cross-sectional view taken in the plane indicated by the dotted line *x x* on Fig. 3, and Fig. 6 is a sectional view taken at the point and in the plane indicated by the dotted line *y y* on Fig. 3.

Referring by letter to said drawings, A indicates the stick, B the top notch, and C the runner, all of which may be mainly of the construction usually employed.

The ribs D may be secured to the top notch in the ordinary or any approved manner and are connected at a suitable point in their length with the runner by means of braces E. These braces I prefer to make of a U shape or V shape in cross-section for a purpose which will presently appear; but I do not wish to confine myself to such form of construction, although the construction shown is the one preferred in practice.

The runner C, which is adapted to travel

up and down the stick, differs but slightly from the runner at present in use, having a lateral stud or pin *a* to receive the notches on the lower edge of the slidable and rotatable spool or sleeve, so as to fix said sleeve with respect to the runner.

The spool or sleeve F is arranged upon the tubular part of the runner and is provided at its upper end with an outwardly-beveled flange *d*, which, while serving as a stop for the cords, will permit them to assume the proper oblique position in passing to the ribs. The sleeve is furthermore provided in its lower edge with notches *b* to engage the stud or pin *a*, and at a suitable point above this notched portion is a horizontal external flange *c*, which may have at suitable points knobs or projections *e* to serve as a convenient means for grasping the spool or sleeve to slide and turn it upon the runner. This annular or external flange is provided with a suitable number of holes *f* for the passage of the cords or ropes *g*, which are secured thereto at one end and have their opposite ends secured to the outer ends of the ribs, an eye or the like being provided at the outer ends of said ribs for the attachment of the cords.

G indicates tension or take-up springs for the ropes or cords. These springs may be composed of steel of a suitable form and length and are secured at their inner ends to the ribs and within the hollow portion or groove, as shown at *h*. The opposite or outer ends of these springs are provided with an eye *j*, through which the cords *g* pass.

It will be seen that the normal position of the spool or sleeve is free from engagement with the pin or stud of the runner, and in this position the cords are unwound, as will be seen in Figs. 1 and 3. In such position of the spool the springs are nearly straight or flat and mainly concealed within the hollow or grooves of the braces, so that the cords will be carried quite close to the braces and ribs and will thereby not interfere with the head of the user.

I do not wish to be understood as confining myself to the form of springs here shown and described, as it is obvious that any spring which will keep the cords raised so as not to interfere with the head of the user might be made to serve the purpose for which the

present springs are designed, nor do I wish to be understood as confining myself to the particular construction of spool or sleeve which I have illustrated.

5 It will be seen that when the spool or sleeve has been turned upon the runner and the cords wound thereon they will draw inwardly the outer ends of the ribs and materially strengthen the same, which is so desirable in
10 windy or stormy weather, and by sliding the sleeve down and bringing the desired notch in engagement with the pin or stud *a* the spool or sleeve will be held in such position and the ribs consequently held in the bowed
15 positions in which they have been drawn. When it is desirable to relieve the ribs of such tension, by simply disengaging the spool or sleeve from the stud said spool will turn in a reverse direction, paying out the
20 cords and allowing the ribs to return to their normal position.

Having described my invention, what I claim is—

25 1. An umbrella having a slidable and rotatable sleeve arranged on its stick, in combination with cords attached at one end to said sleeve and at the opposite ends to the ribs.

30 2. An umbrella having a slidable and rotatable sleeve arranged on the stick or runner thereof, and having cords attached at one end to the sleeve and at the opposite ends

to the ribs, and a spring receiving said cords and adapted to take up slack therein.

3. In an umbrella, the combination with the stick and runner having a stud or pin; of the slidable and rotatable sleeve having notches to engage said pin, and cords secured at one end to the sleeve and their opposite ends secured to the outer ends of the ribs. 40

4. The combination with the stick and runner thereon; of the slidable and rotatable sleeve adapted to engage said runner, the cords secured at one end to the sleeve and at their opposite ends to the ribs, and the springs 45 secured to the braces and engaging the cords so as to take up slack therein substantially as specified.

5. The combination with the ribs; of the hollow or grooved braces, the springs having 50 an eye at one end and secured at their opposite ends to said ribs, the slidable and rotatable spool or sleeve arranged on and movable with the runner and adapted to engage the same, and the cords secured at one end 55 to the spool and at their opposite ends to the ribs, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK HADFIELD.

Witnesses:

E. LE ROY SPAULDING,
GEO. W. SPAULDING.