

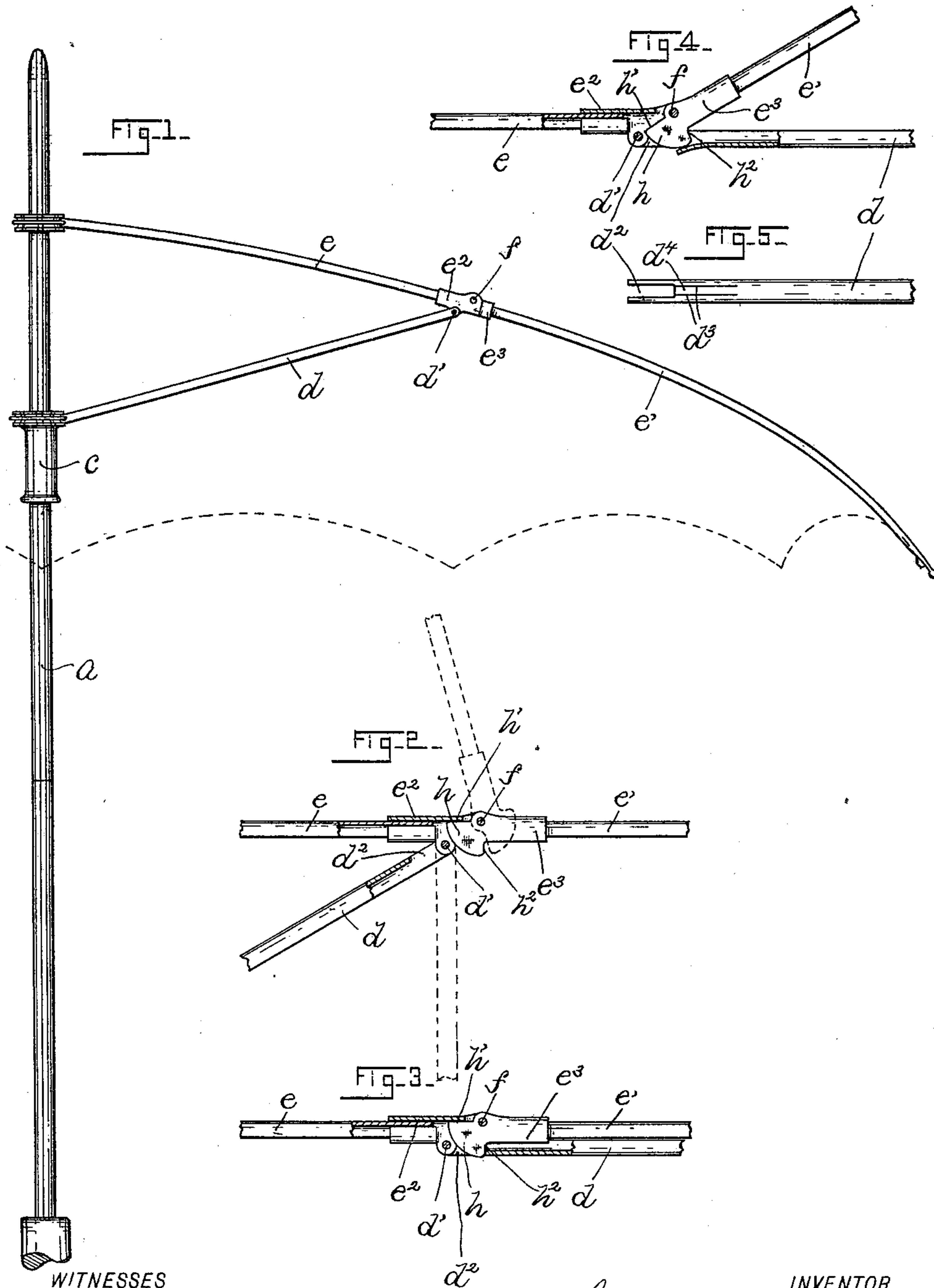
No. 626,203.

Patented May 30, 1899.

C. C. FROST.  
FOLDING UMBRELLA RIB JOINT.

(Application filed July 5, 1898.)

(No Model.)



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## FOLDING-UMBRELLA RIB-JOINT.

SPECIFICATION forming part of Letters Patent No. 626,203, dated May 30, 1899.

Application filed July 5, 1898. Serial No. 685,092. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE C. FROST, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Umbrellas, which improvements are fully set forth and described in the following specification, reference being had to the accompanying drawings.

This invention is in that class of umbrellas in which the ribs are so jointed that they may be folded into approximately one-half their normal length in order that the umbrella may be more conveniently packed for storage and carriage.

My immediate object in this present invention is to provide a strong and serviceable umbrella of this class, in which provision is made for positively locking the rib-joints when the umbrella is closed but not folded.

By means of my specified improvements I am able to produce very cheaply a folding umbrella in which there are no loose parts to be lost or mislaid.

In the drawings annexed hereto, Figure 1 is an elevation of an umbrella-stick and one connected rib and stretcher embodying my improvements. Figs. 2 and 3 are detached sectional views of the rib-joint and a portion of the stretcher, the former view showing in full lines the joint as if free to be folded and the latter showing said joint as extended and locked. Figs. 4 and 5 illustrate a certain modification of the rib-joint, that is fully explained hereinafter.

In the drawings, *a* denotes the stick or handle of the umbrella; *c*, the runner; *d*, the stretcher, and *e e'* the two sections of the rib. Secured to the inner rib-section *e* is a clip *e<sup>2</sup>*, and hinged to said clip at *f* is a clip or plate *e<sup>3</sup>*, that is secured to the outer or free rib-section *e'*. The stretcher *d* is hinged to clip *e<sup>2</sup>* at *d'*. The clip *e<sup>3</sup>* is formed with a projecting portion *h*, that enters between the side walls of clip *e<sup>2</sup>* when the two rib-sections are in longitudinal alinement, as seen in Figs. 2 and 3, the said projection *h* being provided with a shoulder *h'*, that abuts against the inner top wall of clip *e<sup>2</sup>* when the rib-sections

are thus in alinement, as shown in the drawings. The lower (inner) edge of the projection *h* is formed with an angular or hook-shaped portion *h<sup>2</sup>*. The said projection *h* is of such length that it may at all times swing freely past the pivot *d'*, that connects the rib and stretcher.

When the umbrella is opened for use, the rib-sections and stretcher assume the positions shown in Figs. 1 and 2, the ribs being then prevented from folding by the tension of the cloth cover.

When the umbrella is not in use and the ribs and stretcher are folded down against the stick *a* in order that the umbrella may be carried in the hand as a cane, the stretcher then lies along the inner side of the rib-section *e'*, as seen in Fig. 3, and when in this position the hook *h<sup>2</sup>* lies in a slot *d<sup>2</sup>* in the stretcher and abuts against the end wall of said slot, as plainly seen in Fig. 3 of the drawings. When in this last-described position, the otherwise free rib-section *e'* is prevented from swinging on the pivot *f*, the two rib-sections being positively locked in alinement with each other so long as the stretcher lies in close contact with the rib-section *e'*. So soon, however, as the umbrella is partly opened and the stretcher is swung away from said rib-section *e'* the wall of slot *d<sup>2</sup>* is moved out of engagement with hook *h<sup>2</sup>*, and said section *e'* is then free to be folded over upon its companion *e*.

It will now be understood that the ribs are held in their extended or open position by the tension of the cloth cover and in their closed position by the locking engagement of hook *h<sup>2</sup>* with the wall of slot *d<sup>2</sup>*, and it will also be noted that no loose parts are required for the successful operation of my improved joint.

Ordinarily when closing an umbrella of this class the hinged rib-sections remain extended—that is to say, in alinement—and the stretcher-slot *d<sup>2</sup>* passes freely over the hook *h<sup>2</sup>*; but in order to render it both possible and safe to swing the rib-section *e'* into line with the section *e* after the umbrella has been closed, as explained, I preferably slit the top wall of the stretcher, as at *d<sup>3</sup>*, thus



providing a spring-tongue  $d^4$ , that may yield when pressed by the hook  $h^2$ , as seen in Fig. 6, but which will spring in behind said hook the instant the rib-section  $e'$  is in line with its companion section  $e$ .

Having thus described my invention, I claim—

1. In a folding umbrella, in combination, a two-part hinged rib, and a stretcher pivoted thereto, the outer or free rib-section being formed with a hook adapted to enter a slot in the stretcher and abuts the end wall of said slot when the umbrella is closed, all substantially as specified.

2. In a folding umbrella, in combination, a two-part hinged rib, and a stretcher pivoted thereto, the outer rib-section being formed with a hook adapted to enter a slot in the stretcher when the umbrella is closed; the said stretcher having a spring-tongue the end of which engages the end of the rib-section, all substantially as and for the purpose specified.

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Witnesses:

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