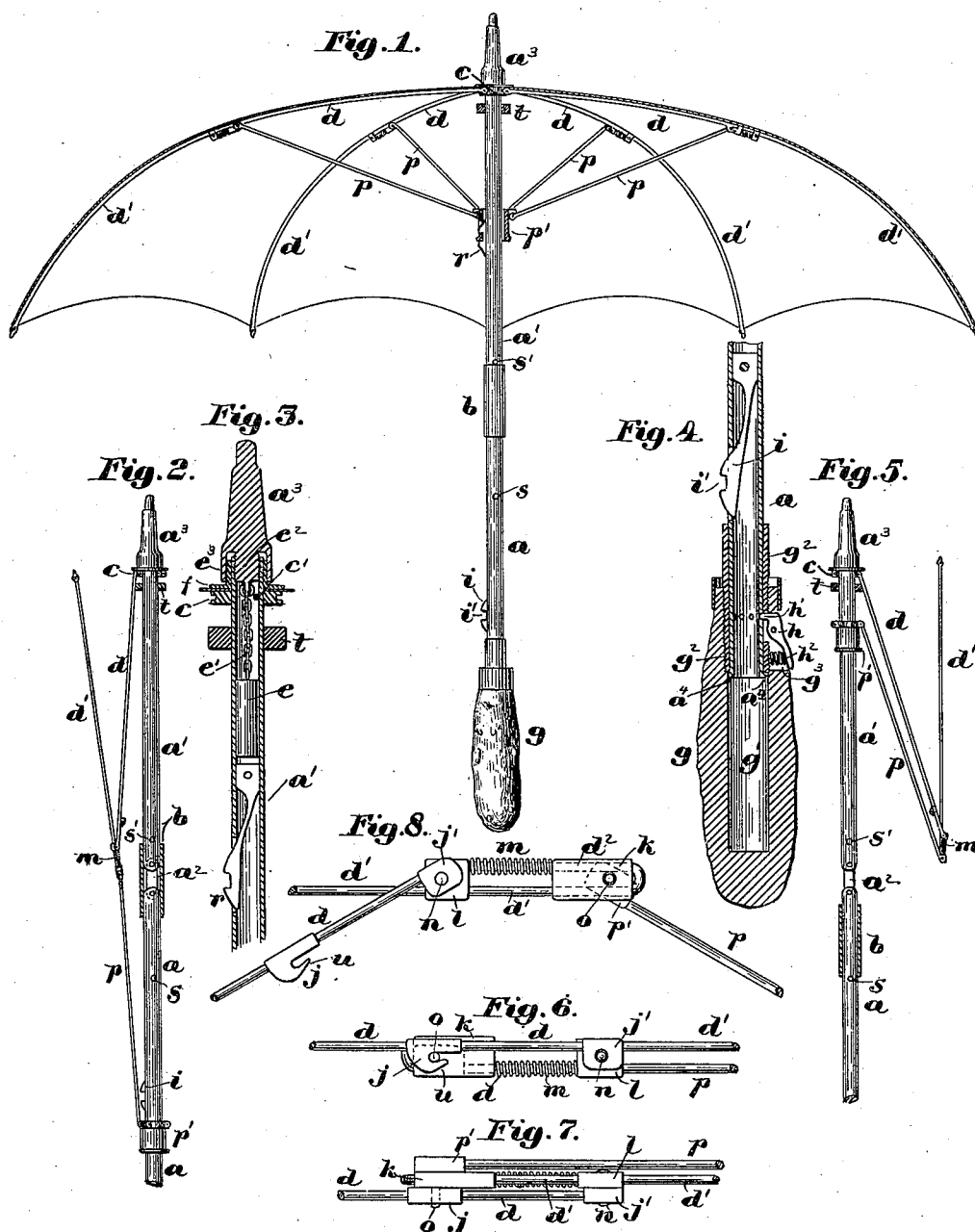


(No Model.)

F. H. GÉNÉREUX.
FOLDING UMBRELLA.

No. 579,942.

Patented Mar. 30, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANÇOIS H. GÉNÉREUX, OF SALEM, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO ARMAND MIGNAULT AND LOUIS JONCAS, OF SAME PLACE.

FOLDING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 579,942, dated March 30, 1897.

Application filed September 19, 1896. Serial No. 606,352. (No model.)

To all whom it may concern:

Be it known that I, FRANÇOIS H. GÉNÉREUX, of Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Folding Umbrellas, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to folding umbrellas; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the accompanying drawings and to the claims hereto appended, and in which my invention is clearly pointed out.

Figure 1 of the drawings is a sectional elevation of an umbrella embodying my invention. Fig. 2 is an elevation of the stick, handle, one stretcher, and one rib, partially folded. Fig. 3 is a longitudinal section of a portion of the upper end of the tubular stick, the top notch, the cap-ferrule, and the tip, and showing the means for detachably connecting said tip to the stick. Fig. 4 is a longitudinal section of the handle and a portion of the lower end of the stick and illustrates the means employed for adjusting the handle on the stick to shorten the same when folded. Fig. 5 is an elevation of a portion of the stick, a stretcher, and a rib, the latter being folded upon itself and the stretcher in position parallel, or nearly so, to the upper section of the rib. Fig. 6 is a side elevation of the coupling and locking devices connecting the two parts of the rib and the stretcher, with the two sections of the rib locked together in extended position. Fig. 7 is an elevation of the same parts in the same positions, but viewed from a position at a right angle to that of Fig. 6. Fig. 8 is an elevation of the same parts with the locking devices disconnected and the lower section of the rib partially folded upon the upper section.

In the drawings, a and a' are the two sections of the stick, preferably made of metal tubes, connected together by the link a^2 , to each end of which is pivoted one of the sections a or a' , said sections being held firmly in extended position by means of the sleeve b , fitting closely the peripheries of said stick-

sections and movable endwise thereon to cover or uncover the link a^2 and portions of the contiguous ends of said stick-sections in a well-known manner.

The upper section a' of the tubular stick has secured thereto by the pin c' the top notch c , of usual construction, and to which the upper sections d d' of the ribs are secured in a well-known manner. The upper end of the section a' of the stick has fitted therein, so as to be movable endwise and revoluble therein, the cylindrical piston e , to which is connected one end of the chain e' , the other end of which is connected to the threaded stem e^2 , fitted to a female thread in said stick-section a' and forming a portion of the tip or terminal a^3 of the stick, said stem being surrounded at its threaded end by the depending sleeve e^3 , which surrounds and incloses the upper end of the stick-section a' and the flanged sleeve or collar f when said tip is screwed to said stick-section, all as shown in Fig. 3.

The pin c' , which secures the top notch c to the stick-section a' , is located at one side of the axis of the stick-section, so as not to interfere with the chain e' , and in proper position to serve as a stop to limit the outward movement of the piston e and thus prevent the entire disconnection of the tip a^3 when unscrewed for the purpose of reducing the length of the folded umbrella.

The lower section a of the stick has adjustably secured thereto the handle g , which has formed therein a cylindrical chamber g' , in the open end of which is screwed the tube g^2 , fitted to and movable endwise upon the stick-section a , the lower end of which is expanded or flanged, as at a^4 , to prevent the handle being pulled entirely off said stick-section.

The handle g is slotted at g^3 and has pivoted in said slot the locking-lever h , having the inwardly-projecting lug or pin h' , which engages a hole in the stick-section a to secure said handle in its normal or extended position, said lug or pin h' being automatically forced into engagement with said hole by the spring h^2 , inserted between the opposite end of said lever h and the periphery of the tube g^2 .

The stick-section a is provided with the spring-catch i , firmly secured by one end

within said stick-tube, with its free or movable end projecting through a slot in the side of the tube *a*, and is provided with a notch *i'* in or near said movable end to engage the runner to maintain the ribs in closed position. The outer edge of the catch *i* upon each side of said notch *i'* is inclined so that the runner can be moved toward said notch from either direction, and the handle *g* may be moved over said catch without it being necessary for the operator to depress said catch.

The upper rib-section *d* has secured thereon near its lower end the locking hook or catch *j*, which projects inward therefrom, and the extreme lower end of said rib-section has formed thereon or secured thereto the lug or enlargement *j'*, as shown in Figs. 6, 7, and 8.

A portion of the upper end of the lower rib-section *d'* is bent inward and downward into a position parallel to the main body of said rib-section in the form of an inverted letter **U**, having one long arm *d'* and a short arm *d''*, upon which two arms is fitted the block *k* so as to be movable endwise thereon, and the block *l* is firmly secured to said two arms at the extreme end of the shorter arm, and a coiled spring *m* surrounds said shorter arm between the blocks *k* and *l*, all as shown in Figs. 6, 7, and 8.

The block or enlargement *j'* and the block *l* are pivoted together at *n*, and the block *k* has pivoted thereto by the pin *o* the enlarged end *p'* of the stretcher *p*, as shown in Fig. 8. The opposite end of the stretcher *p* is pivoted to the runner *p'* in a well-known manner. The runner *p'*, of usual construction, is made to slide freely over the sleeve *b* and to engage the spring-catch *i*, set in the stick-section *a*, to secure the ribs in closed position, and with the catch *r*, which is of the same construction as the catch *i*, and is set in the stick-section *a'* and serves to hold the runner *p* in its proper position when the umbrella is spread for use.

The endwise movements of the sleeve *b* are limited by the pins *s* and *s'*. (See Fig. 1.)

The stick-section *a'* has secured thereon just below the top notch *c* the rubber ring *t*, having a diameter about equal to the diameter of said top notch, which serves to prevent the ribs being packed too close together, so as to get entangled when the umbrella is folded, and it also serves to throw the folded ribs outward when it is decided to put the umbrella into condition for use after being folded.

The pin *o*, by which the stretcher *p* is connected to the block *k*, projects from the side of said block *k* opposite to the stretcher *p* in a position to strike the inclined inner surface *u* of the locking-catch *j* when the rib-section *d'* is brought into line, or nearly so, with the rib-section *d*.

The operation of my invention is as follows: The umbrella being in extended and closed condition, with the runner engaging the notch *i'* of the catch *i*, if it is desired to fold the umbrella so as to pack it in a valise,

the first operation is to press the catch inward and draw the runner toward the handle, the effect of which is to compress the springs *m* to a sufficient extent to withdraw the pins *o* from engagement with the locking-catch *j*, when the reactions of the springs *m* will immediately throw the rib-sections *d'* outward about the pivots *n* into positions substantially at right angles to the stick. The operator then grasps the umbrella around the covering, near its connection to the stick, holds the umbrella vertical, with the handle upward, and turns the rib-sections *d'* downward into positions parallel, or nearly so, to the rib-sections *d*, and grasps their tips, in connection with what he already holds. He then moves the runner along the stick toward the top notch till the runner engages the notch in the catch *r*, at which time the folded rib-sections will diverge from the top notch at about the same angle as when the umbrella is spread for use. The operator, however, compresses the catch *r* and continues the movement of the runner toward the top notch *c* a distance sufficient to permit the folded ribs to be moved into positions parallel with and in proximity to the stick-section *a'*, when the handle *g* is unlocked from the stick-section *a* and moved toward the top notch *c* till the outer or handle end of the stick-section *a* strikes the closed end of the chamber *g'* in said handle, thereby shortening the aggregate length of the umbrella from two and one-half to three inches. The sleeve *b* is then moved toward the handle *g* until it strikes the stop-pin *s*, and then the stick-section *a*, with the handle, is folded over upon the folded covering and ribs and the tip *a''* is unscrewed and folded over upon the covering, in which condition an umbrella that when extended to its full length is three feet in length is reduced to a compact package only fifteen inches in length, capable of being easily packed in a comparatively small valise.

If the umbrella is folded and it is desired for use, the tip is screwed into position, the stick-sections are brought into alignment, the sleeve *b* is moved toward and into contact with the pin *s'*, and the handle is extended and locked in its normal position. The folded ribs are then moved away from the stick sufficiently for the operator to reach the runner *p'*, which he moves along the stick until it engages the notch *i'* in the spring-catch *i*, the umbrella being held in an upright position, with the tip *a''* uppermost, and then the rib-sections *d'* are moved about the pivots *n* till they are nearly in line with the rib-sections *d*, and the pins *o* strike against the inclined inner surfaces *u* of the locking-catches *j*. The umbrella is now in condition to be spread for use, although the rib-sections are not locked together.

In the act of spreading the umbrella the pressure of the stretchers *p* causes the pins *o* to move along the inclined surfaces *u* of the catches *j*, moving the blocks *k* toward the

blocks *l* and compressing the springs *m* to permit the pins *o* to pass the points of said catches when the reaction of the springs *m* completes the locking.

5 What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a folding umbrella a rib made in two sections, the upper section of which is pivoted at its movable end to the lower rib-section at a point removed from its inner end; a block mounted upon and movable endwise of said lower rib-section, between its inner end and its pivotal connection to the upper rib-section; a spring mounted on said lower rib-section between said movable block and the pivotal connection of said rib-sections; a locking-catch carried by said upper rib-section above its pivotal connection to the lower rib-section; a locking-pin carried by said movable block, and adapted to engage said locking-catch when said rib-sections are in extended positions; and a stretcher pivoted at one end to said movable block and adapted to be operated in the usual manner.

25 2. In a folding umbrella, the combination with a jointed stick, a top notch mounted thereon, and a runner movable endwise thereof, of the rib-section *d* provided with the locking-latch *j* and the lug or enlargement *j'*; the rib-section *d'*; the block *l* secured in a fixed position on said rib-section at a short distance from

its inner or upper end and pivoted to the lug or enlargement *j*; the block *k* movably mounted on said rib-section *d'* at its inner end; the spring *m*; the pin *o* set in the block *k*; and the stretcher *p* pivoted at one end to the block *k* and at its other end to the runner on the stick. 35

3. The combination in a folding umbrella of a stick jointed at or near the middle of its length; a handle provided with a cylindrical chamber extending nearly through its length and with a slot cut through its side; a tubular bushing set in a fixed position in the open end of said chamber fitted to and movable endwise of the stick and provided with an opening in its side registering with the slot in the side of said handle; a locking-lever pivoted in the slot of said handle and provided with a lug or pin to engage an opening in the stick-section; the lower stick-section provided with a radial opening or recess to receive said lug or pin; and a spring to force said lug or pin into engagement with said opening or recess. 45

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 18th day of September, A. D. 1896. 55

FRANÇOIS H. GÉNÉREUX.

Witnesses:

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