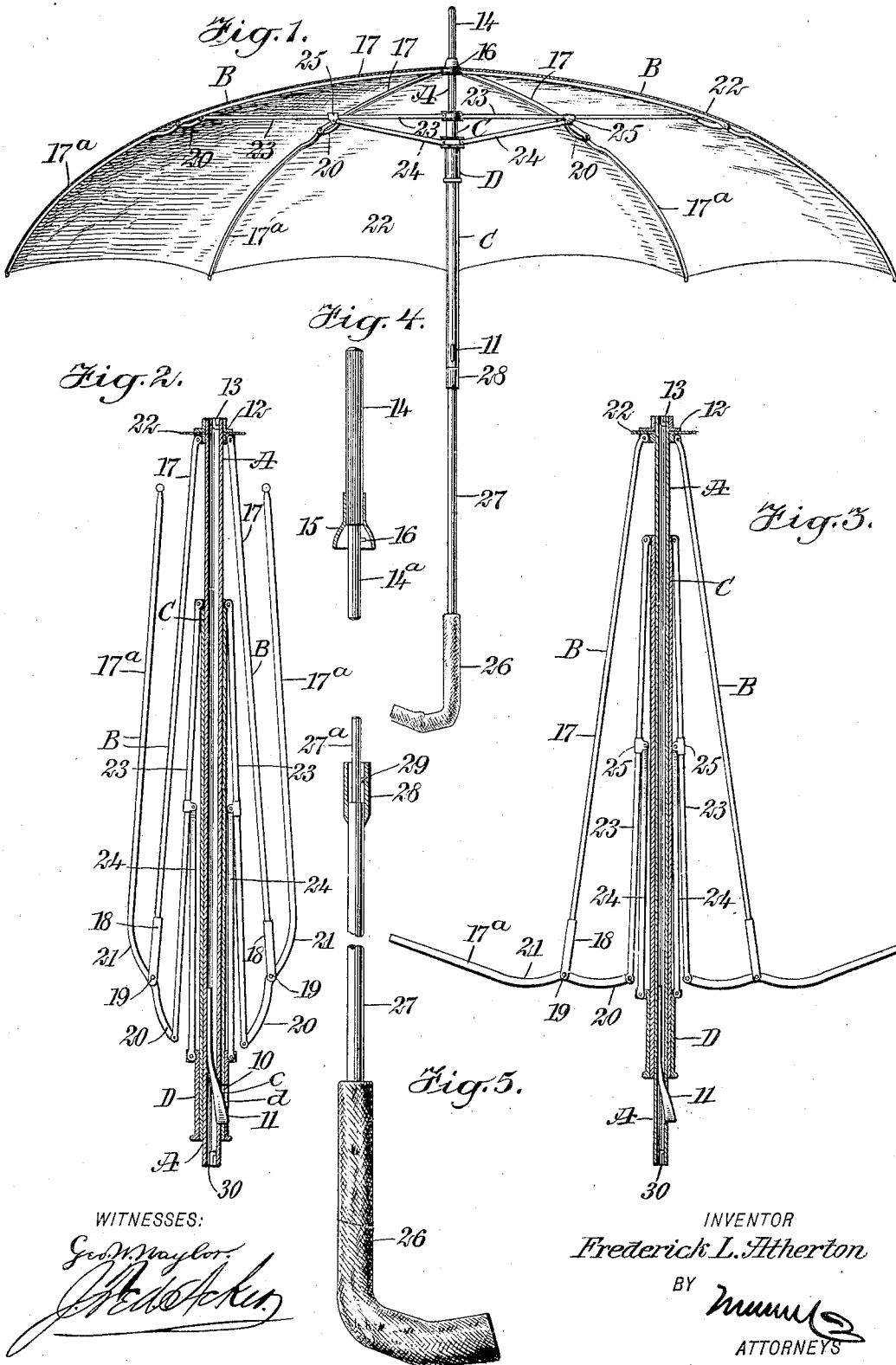


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PATENTED JULY 31, 1906.

F. L. ATHERTON.
FOLDING UMBRELLA.
APPLICATION FILED NOV. 15, 1905.



UNITED STATES PATENT OFFICE.

FREDERICK L. ATHERTON, OF PATERSON, NEW JERSEY.

FOLDING UMBRELLA.

No. 827,599.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed November 15, 1905. Serial No. 287,432.

To all whom it may concern:

Be it known that I, FREDERICK L. ATHERTON, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and Improved Folding Umbrella, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a very simple, economic, and readily-operated folding umbrella so constructed that an umbrella of average length can be so compactly folded that it may be easily placed in a medium-sized hand-bag.

Another purpose of the invention is to so construct the umbrella that the ribs can be permitted to remain at full length in opening and closing, operating at such time in practically the same manner as an ordinary umbrella or so that when the umbrella is closed the ribs will automatically fold outward upon themselves, reducing the body portion of the umbrella to about one-half of its length.

A further purpose of the invention is to provide a combination of stretchers which when the umbrella is opened will so brace one another and the ribs as to effectually prevent the umbrella from turning inside out.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a vertical central section through an open umbrella, the stick or rod and parts running thereon being in side elevation. Fig. 2 is a vertical section through the frame of the umbrella, showing the ribs in folded position, the section being taken through the stick or rod and the parts traveling thereon. Fig. 3 is a view similar to that shown in Fig. 2, the ribs being illustrated in position to fold or unfold, according to the direction in which the runners are moved. Fig. 4 is a detail sectional side elevation of the ferrule end of the umbrella detached from the stick or rod, and Fig. 5 is a sectional side elevation of the handle portion of the umbrella detached from the stick or rod.

A represents the tubular stick or rod of the body portion of the umbrella, which tubular

stick or rod is provided with a slot near its lower end, through which slot the free end of a spring 11 extends, the opposite end of the said spring being secured in said stick or rod, as is shown in Figs. 2 and 3. The ordinary crown 12 is secured to the outer end of the tubular rod A, and in the outer end of said rod, which is open, a bayonet-slot 13 is produced. The open outer end of the rod A is adapted to receive the reduced inner end 14^a of the ferrule-section 14 of the umbrella, which ferrule-section where its body connects with the reduced portion 14^a is provided with a downwardly-extending surrounding cup 15, and within said cup a pin 16 is secured to the reduced section of the said ferrule end. When the said ferrule end is applied to the umbrella stick or rod, its reduced end 14^a is passed into the open outer end of the rod until the pin 16 enters the bayonet-slot 13, whereupon the said ferrule end 14 is turned, and consequently locked to the rod.

The ribs B are pivoted in the usual manner to the crown 12, as is shown in Figs. 2 and 3, but said ribs B are in two sections 17 and 17^a, which sections may be of equal length, but usually the upper sections 17 of said ribs B are longer than the lower sections 17^a.

A tip 18 is secured to the lower end of the upper section 17 of each rib B, and these tips are longitudinally slotted at their outer ends to receive the inner end portions of the lower sections 17^a of the said ribs, the lower sections of the ribs being pivoted to the upper sections by pivot-pins 19, also shown in Figs. 2 and 3.

The lower sections 17^a of the ribs B extend inward beyond their pivotal connection with the upper sections 17 a predetermined distance, and these inner extensions 20 of the lower sections 17^a of the ribs are longitudinally curved, their upper edges being concaved and their lower edges convexed, and preferably a similar curvature is given to the lower sections 17^a of the ribs at the outer side of the pivots 19, as is shown at 21 in Figs. 2 and 3, and this latter curvature 21 is provided in order that when the lower sections 17^a are folded up upon the upper sections 17, as is shown in Fig. 2, sufficient space will be between the two sections where they are connected to prevent the cover 22 from being chafed or unduly crowded at the fold therein, and it may be here remarked that the cover

22 is attached to the crown 12 and to the ribs B in the customary or in any approved manner.

Two runners are employed in connection with the body-rod A—namely, an auxiliary sleeve-runner C, which is quite long, being more than half the length of the said rod, as is shown in Figs. 2 and 3, and a main runner D. This auxiliary or sleeve runner C slides upon the tube A, and the main runner D is mounted to slide upon the auxiliary runner C.

Auxiliary stretchers 23 are pivotally attached to the upper or outer end of the auxiliary runner C, and the inner ends of the said auxiliary stretchers 23 are pivotally attached to the inner ends of the inner curved extensions 20 from the lower sections 17^a of the ribs. The main or ordinary stretchers 24 are pivotally connected, as is customary with the upper end portion of the main runner D, and are likewise pivotally connected with the central portions of the auxiliary stretchers 23 by means of suitable attached sleeves 25, as is shown in both Figs. 2 and 3.

The handle 26 of the umbrella has an attached, preferably solid, rod 27, which is in the form of an extension, and this handle-rod 27 is provided with a reduced upper end 27^a, having a pin 29 secured thereto, and an upwardly-extending cup 28 is secured to the handle-rod 27 adjacent to its reduced portion, which cup 28 extends over the pin 29, and in the lower portion of the body rod or stick A of the umbrella a bayonet-slot 30 is produced, as is also shown in Figs. 2 and 3. When the handle is to be attached to the body of the umbrella, the reduced portion 27^a of the handle-bar 27 is passed up into the body-rod A at its lower end until the pin 29 enters the bayonet-slot 30 at that point, whereupon the handle is turned and is locked to the body of the umbrella.

In operation let it be supposed that the ribs of the body of the umbrella are folded, as is shown in Fig. 2, and it is desired to open the umbrella. At such time it may be remarked that a slot *c* in the lower end of the runner C and the slot *d* in the lower end of the runner D are in registry, and the free end of the spring 11 passes out through said slots to lock the runners in position. In opening the umbrella the spring 11 is forced in and the main runner D is pushed upward, carrying the auxiliary runner C with it, owing to the fact that the main and auxiliary connected stretchers are practically in a straight line, and as the auxiliary runner C is pushed up or outward along the body-rod A the extension ends of the lower sections 17^a of the ribs B are drawn upward or in the same direction as the said auxiliary runner, and consequently the lower sections of the ribs are brought practically in end alinement with their upper sections, as shown in Fig. 1,

and in Fig. 2 the lower sections 17^a of the ribs are shown in the position that they occupy either when just about to be folded up or just about to be folded down. After the ribs have been brought in end alinement with each other, the auxiliary runner will slide up the rod A but a short distance, while the main runner D can be pushed up in the ordinary way on the auxiliary runner and the umbrella will be opened. After the runner C D has been carried upward on the rod A sufficiently to practically straighten out the main stretchers 24 the auxiliary runner is drawn downward until its opening *c* receives the latch 11, as is shown in Fig. 1, whereupon the upper portion of the auxiliary runner will have been brought down so far as to render the auxiliary stretchers 23 practically straight, and at said time the outer ends of the main stretchers are forced down sufficiently to cause their inner ends to exert a spring upwardly-holding action upon the main runner D, thus holding it in position without a latch. If it is desired to simply open and close the umbrella without folding it, the main runner D is pushed up and down in the ordinary way. When it is desired to fold the ribs of the umbrella and the umbrella is open, as shown in Fig. 1, the latch 11 is disconnected from the auxiliary runner C and the said runner is then pushed up with one hand, the other hand grasping the main runner D. The upward movement of the auxiliary runner will free the main runner from its upper locked position, and the main runner can then be carried down along the auxiliary runner, and when the main runner D has been carried down a certain distance on the auxiliary runner C the auxiliary runner will be carried down with the main runner, taking with it the auxiliary stretchers 23, which will bear downward upon the inner extension ends of the lower sections 17^a of the ribs B and will cause the said sections 17^a to fold upward substantially parallel with the upper sections 17, as is shown in Fig. 2. The handle member is then removed from the stick or rod A, and likewise the ferrule member or section, thus enabling the entire umbrella to be packed in an exceedingly small compass and be placed in a very small receptacle. It will be observed that the auxiliary runner C acts to lock and fold the ribs B and that the main runner D simply operates for opening and closing the ribs.

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

1. In an umbrella, a body-rod, a crown therefor, ribs constructed in pivotally-connected sections, the upper sections of the ribs being pivotally attached to the crown, an auxiliary runner mounted to slide on the said body-rod, a main runner mounted to slide on

the auxiliary runner, auxiliary stretchers pivoted to the upper end of the auxiliary runner and to the inner end portions of the lower sections of the ribs at a point inward of the pivotal connections between the said upper and lower rib-sections, and main stretchers pivotally connected with the main runner and with the auxiliary stretchers.

2. In umbrellas, a body-rod, a crown therefor, ribs constructed in upper and lower pivotally-connected sections, the upper sections of the ribs being pivoted to the said crown and the lower sections of the ribs having members which extend inward beyond their pivotal connections with the upper members, an auxiliary runner of slightly less length than the length of the said body-rod and mounted to slide on the said body-rod, a main runner shorter than the auxiliary runner and mounted to slide on the latter, auxiliary stretchers pivotally attached to a portion of the auxiliary runner and to the inner projections from the lower sections of the ribs, main stretchers pivotally connected to the upper end of the main runner and to the central portions of the auxiliary stretchers, the auxiliary and the main runners being capable of concerted movement and of independent movement, and a locking device carried by the said body-rod, and common to both of the runners.

3. In an umbrella, a body-rod, a crown therefor, ribs pivoted to the said crown, each rib being constructed in two pivotally-connected sections, the lower sections having members which extend beyond the inner portion of the pivotal connection between the two sections, an auxiliary runner mounted to

slide on the said rod, auxiliary stretchers pivoted to the auxiliary runner and to the inner extensions of the lower sections of the ribs, a main runner mounted to slide on the auxiliary runner, and stretchers pivoted to the main runner and pivotally connected with the auxiliary stretchers.

4. In folding umbrellas, a body-rod, a crown therefor, ribs pivotally connected with the said crown, each rib being constructed in two sections, an upper section and a lower section, the two sections being pivotally connected, the lower section of each rib being provided with an inner extension member carried beyond the pivotal connection between the two members of the rib, the said inwardly-extending member being curved, having an upper concaved and a lower convexed longitudinal edge, an auxiliary runner mounted to slide on the said rod, auxiliary stretchers pivoted to the upper end of the said auxiliary runner and to the inner ends of the inner extensions from the lower sections of the ribs, a main runner mounted to slide on the auxiliary runner, stretchers pivotally connected with the main runner and with the central portions of the auxiliary stretchers, the two runners being capable of independent and also of concerted movement, and locking devices for the runners.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK L. ATHERTON.

Witnesses:

IRA DUMONT,
RALPH GARLICK.