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FOLDING UMBRELLA.

1,039,977.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM A. LITTLE, a citizen of the United States, residing at Cresson, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Folding Umbrellas, of which the following is a specification, reference being had to the accompanying drawings.

This invention comprehends certain new and useful improvements in umbrellas of the folding type and the invention has for its primary object a simple, strong and efficient construction of folding umbrella embodying foldable bows or ribs and a foldable rod or stick, the parts being so arranged that they will be held securely in extended relation to each other without any liability of folding accidentally, while at the same time the construction is such that by a simple movement of the runner in one direction, the hinged joints of the rod and of all of the ribs will be exposed and placed in position for the subsequent folding of the parts.

The invention also has for its object an improved construction of folding umbrella, the parts of which are so formed and arranged that they will be well able to withstand the torsional strains and other strains to which devices of this character are subjected in use, as a result of sudden gusts of wind, the parts being capable of being cheaply manufactured, being few in number and without any complicated connections. And the invention also aims to generally improve this class of devices and to render them more useful and commercially desirable.

With these and other objects in view, as will more fully appear, as the description proceeds, the invention consists in certain construction, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing in which:

Figure 1 is a view of a portion of an umbrella frame embodying the improvements of my invention. Fig. 2 is a view of practically the same parts with the umbrella in closed condition. Fig. 3 is a view with the

parts folded. Fig. 4 is an enlarged detail sectional view illustrating the joint between the two sections of a rib. Fig. 5 is a transverse sectional view on the line 5-5, of Fig. 4. Fig. 6 is a view similar to Fig. 4 but with the parts in different relative positions and, Fig. 7 is an enlarged fragmentary section of the rod or stick of the umbrella.

Corresponding and like parts are referred to in the following description and designated in the accompanying drawing by like reference characters.

Referring to the drawing, A designates the rod or stick of my improved folding umbrella, B the bows or ribs thereof, C the stretchers, and D the sleeve or runner. The upper or inner ends of the ribs B are pivotally connected in the usual manner to the crown ring *b* and the inner ends of the stretchers C are pivotally connected in the usual manner to the apertured ears formed on the upper end of the runner D.

In carrying out my invention, each of the ribs B is constructed in preferably co-extensive sections 1 and 2 hingedly connected together at their adjoining ends, as indicated at 3. A sleeve 4 encircles the rib and is mounted for a sliding movement thereon, whereby when the sleeve overlaps the joint between the two sections 1 and 2, the ribs will be held as against any folding movement of the sections, while when the sleeve is slipped upwardly on the section 1, a distance sufficient to expose the joint 3, the lower section 2 may easily be folded outwardly and upwardly upon the section 1, as best illustrated in Fig. 3.

The sleeve 4 is pivotally connected, as at 5, to the outer end of a stretcher C, it being particularly noted that the upper section 1 of a rib is slightly longer than the stretcher C, whereby an upward movement of the runner on the rod will result in sliding the sleeves of all of the ribs simultaneously upward thereon to expose the joints and to permit the ribs to be folded. To those skilled in the art to which this invention appertains, it will be obvious that it is a desideratum to prevent this sliding movement of the sleeves 4 when the parts are in the closed position illustrated in Fig. 2 and it is merely desired to open the umbrella, for otherwise, the joints of the ribs would be exposed when this is not required

or intended. Hence, it is one of the objects of my invention to provide means for automatically locking the sleeves in their operative positions so long as the operator or user of the device desires the umbrella for service, and to attain such object, each stretcher C is provided at its outer pivoted end with a preferably hooked lug 6 designed to pass into a slot 7 formed in the sleeve 4 and to engage a transversely extending pin 8 secured in the channel of the corresponding upper section 1 near the lower end of the latter. Thus it will be understood that so long as the parts are in the relative position illustrated in Figs. 1, 2 and 6, or if desired, only in the positions illustrated in Figs. 2 and 6, any tendency of the stretchers C to slide the sleeves 4 upwardly on the sections 1 by an upward sliding movement of the runner D to open the umbrella will be effectually resisted and overcome by the locking engagement of the lugs 6 with the pins 8; but when the runner D is moved to a position where the ribs are fully opened the lugs 6 will have been turned out of engagement with the pins 8 and consequently, the further movement of the runner D in an upper direction will result, the sleeves having thus been unlocked in the upwardly sliding movement of the sleeves to expose the joints 3 and to permit the ribs to be folded. Preferably, in order to prevent the sleeves 4 from turning axially on the ribs, which would tend to strain the joints 5, each sleeve is formed at one end with an inwardly projecting preferably integral tongue 9 projecting into the channel of the rib section.

In order to properly guide the runner D on the rod A and to securely hold it at the upper and lower limits of its movement, I preferably provide the rod A with a longitudinally extending groove 10 and form the runner D with an inwardly turned lip 11 received in said groove, so as to prevent the runner from turning on the rod or stick. The metal of which the runner is formed is turned outwardly where the slits are made to form the lip 11 to form bearing ears 12 in which a pintle rod 13 is mounted. A latch 14 is mounted between said ears on said rod and is formed with an angularly disposed end 15 adapted to ride in the groove 10 and to be seated in sockets 16 formed in the bottom of the groove at the upper and lower ends thereof. By this means, the runner will be held securely at either limit of its movement. A spring 17 extends around the pintle 13 and bears against the rear or handle end of the latch. By pressing inwardly on the rear end of the latch, it may be disengaged from the sockets 16 and the runner will then be free to be moved upwardly or downwardly on the rod A, as required. It is also to be noted that the rod or stick A of my improved folding umbrella is constructed in

upper and lower sections, designated 18 and 19, respectively, and pivotally connected together by a butt joint 20. The two sections are held in alinement with each other by means of a spring catch 21 carried by one of the sections and adapted to engage the other, and also by the runner D when the umbrella is in open position, it being clearly seen by reference to Fig. 1 that the lower end of the runner overlaps the joint between the sections 18 and 19 when the umbrella is open, thereby securely preventing any hinged movement between the sections. In the closed position of the umbrella the runner D preferably extends down into the handle 22, as indicated in dotted lines in Fig. 2.

From the foregoing description in connection with the accompanying drawing, the operation of my improved folding umbrella will be apparent.

In the practical use of the device, when the umbrella is desired for service, the parts are in the relative positions illustrated in Figs. 1 and 2. When it is desired to open the umbrella, the runner is grasped in the usual manner and moved upwardly on the rod A until the parts assume the position illustrated in Fig. 1, at which time the latch 14 will enter the uppermost socket 16 and prevent any further accidental upward movement of the runner, all accidental sliding movement of the sleeves 4 being prevented in this operation, owing to the locking engagement between the pins 8 and the hooked lug 6 of the stretchers C. When it is desired to fold the umbrella, it is only necessary to release the latch 14 and to move the runner D still farther in an upward direction whereupon the stretchers C will draw the sleeves 4 upwardly and expose the joints 3 as well as the joint 20 being exposed by the upward movement of the runner and consequently, the rod or stick may be folded as well as the ribs B, the parts assuming the relative position illustrated in Fig. 3, and the umbrella being then capable of being stored away in a comparatively small space whereby it may be conveniently carried in a hand bag or the like.

While the accompanying drawing illustrates what I believe to be the preferred embodiment of my invention, it is to be understood that the invention is not limited thereto, but that various changes may be made in the construction, arrangement and proportions of the parts without departing from the scope of the invention, as defined in the appended claim.

What I claim is:—

A foldable umbrella including a stick, channeled ribs pivotally connected to the stick and constructed in jointed sections, sleeves formed with slots slidably mounted on the sections and adapted to overlap the joints, stretchers connected to said sleeves,

transversely extending pins carried by the upper sections of the rib at the lower ends thereof, hook shaped lugs formed on the stretchers at the outer ends thereof and
5 adapted to project through the slots in said sleeves and engage said pins for the purpose specified and the said sleeves being formed with integrally extending tongues adapted to engage the channels in said ribs, whereby axial movement of the sleeves is prevented. 10

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

WILLIAM A. LITTLE.

Witnesses:

GEO. S. LIVINGSTON,
FREDERICK S. STITT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."