

No. 748,359.

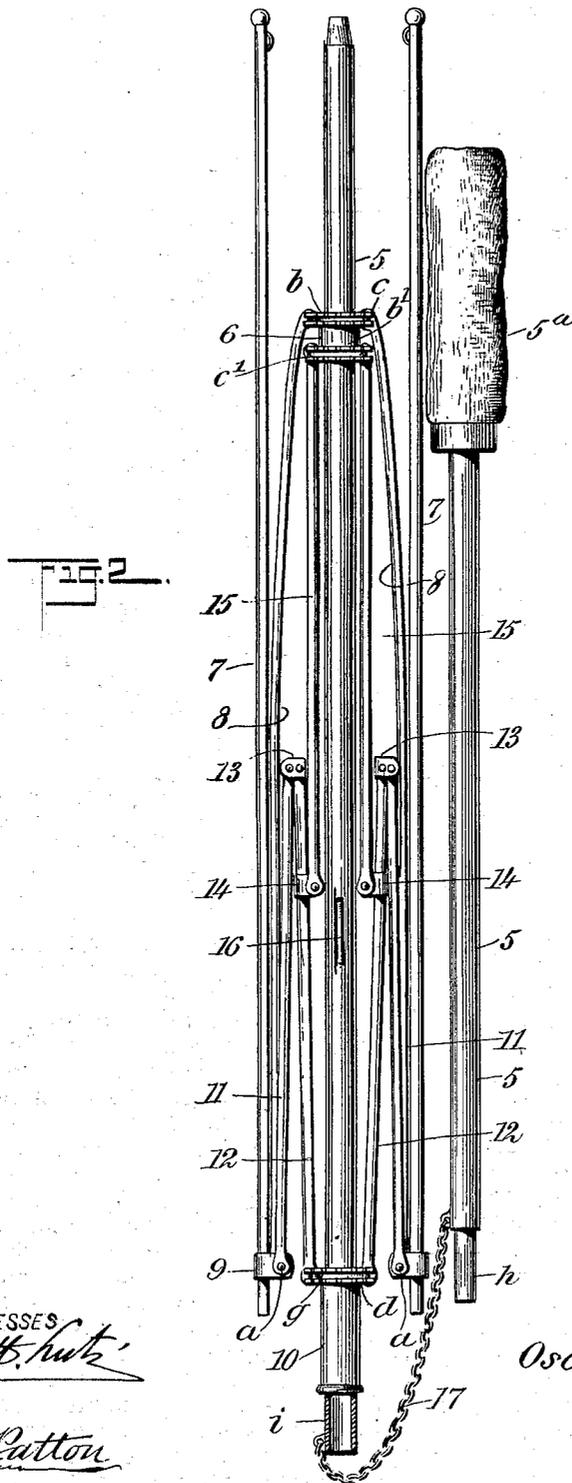
PATENTED DEC. 29, 1903.

O. L. FOGLE.
UMBRELLA.

APPLICATION FILED MAR. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



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UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 748,359, dated December 29, 1903.

Application filed March 21, 1903. Serial No. 148,868. (No model.)

To all whom it may concern:

Be it known that I, OSCAR L. FOGLE, a citizen of the United States, and a resident of Columbus, in the county of Franklin and State of Ohio, have invented a new and Improved Umbrella, of which the following is a full, clear, and exact description.

This invention relates to umbrellas of a class wherein the frame of the umbrella is rendered foldable to close it and also to reduce its length, and has for its object to provide novel details of construction for the umbrella frame and stick which are very simple, convenient to manipulate for folding or expansion of the umbrella, adapt the frame and stick for cheap manufacture, and enable the close folding of parts of the frame, so as to considerably reduce the length of the same, forming a short compact package, which may be readily packed in a trunk, valise, or other receptacle for transportation.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended 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 partly-sectional side elevation of a portion of the umbrella-frame in opened adjustment engaging a stick shown reduced in length between its ends. Fig. 2 is an enlarged side view of the umbrella frame and stick folded. Fig. 3 is a transverse sectional view on the line 3 3 in Fig. 1, showing one of the ribs and means for pivotally connecting it with an end of a supporting stretcher-rod; and Fig. 4 is an enlarged plan view of the jointed connection between the rib and stretcher-rod seen in direction of arrow *x* in Fig. 3.

The stick 5 is of usual form, consisting of a wood or metal cylindrical body having a suitable diameter and length and provided with a handle 5^a, secured upon one end, the stick and handle being made of any preferred material. A crown-piece 6 is mounted upon the stick 5 and secured thereto near the top end of the stick by any suitable means, said crown-piece being adapted for the pivotal support of the frame-ribs and the stretcher-

rods that support said ribs, this connection of parts being hereinafter described.

The frame-ribs are provided in sufficient number for the proper support of the fibrous cover (not shown) of the umbrella, and each rib comprises two metal strips of proper length that are bent to give them U-shape in cross-section, whereby these rib-sections 7 8 are rendered light and strong. The adjacent end portions of the sections 7 8 forming each rib are held lapped together and hinged where they lap by means of a clip-band 9.

The clip-band 9 is U-shaped in cross-section and preferably bent from a strip of sheet metal, so folded together that it will be doubled and at and near the bow end thereof afford a longitudinal channel therethrough for the reception of an end portion of one of the U-shaped rib portions 7 that projects through the clip-band and beyond it a short distance, as shown in Figs. 1 and 3, and is therein secured by any suitable means.

The end of the U-shaped rib-section 8 that is to be hinged upon the rib-section 7 is flattened laterally, so as to form a hinge-leaf that is to be inserted between the end portions of the clip-band 9. A forked joint-piece 9^a, U-shaped in cross-section, embraces and is secured upon the end portion of the rib-section 8, near the flattened end thereof, so that the members of said forked piece may embrace the end portions of the clip-band 9, and a transverse pivot *a* is passed through alined perforations in the flattened end of the rib-section, the clip-band, the forked piece 9^a, and a forked end of a stretcher-rod, as will be further explained.

Referring to the crown-piece 6, said part is in the form of a short cylinder that receives the body of the stick 5 and at each end is provided with radial flanges *b* and *b'*. The upper flange *b* is peripherally grooved, and at equal distances apart a series of radial notches is formed therein, producing openings for the reception of the ends of the rib-sections 8 that are to be pivotally supported thereon. A transverse perforation is formed in each rib-section 8, close to the end, which is loosely engaged within one of the notches in the flange *b*, and when the ribs are all positioned within the respective notches they are loosely secured upon the flange by a wire

c, that passes through each rib-perforation and has its ends secured together by twisting them or by other means, so as to draw the wire into the groove, and thus adapt it to serve as a pivot for each rib, this being a well-known means for pivotally connecting the adjacent ends of frame-ribs with a crown-piece.

A runner 10 of ordinary form is mounted loosely on the stick 5 below the crown-piece 6 and is thus adapted to receive reciprocation thereon, said tubular runner having a radial flange *d* formed on its upper end, wherein a set of spaced radial slots is formed equal in number to the notches in the radial flange *b*, the flange *d* having a peripheral groove, as usual.

Each rib, comprising the jointed sections 7 8, is connected with the runner 10 by a two-part stretcher-rod, the sections 11 12 of which are hinged together by means of a clip-band 13. The band 13 is substantially U-shaped and has its bowed portion seated upon and secured to an end of the stretcher-rod section 12, so as to permit the sides of the band to loosely embrace an adjacent end of the stretcher-rod section 11, upon which said side portions of the clip-band are pivoted, this connection permitting the sections of each two-part stretcher-rod to be closely folded together, as is clearly shown in Fig. 2.

The remaining end of each stretcher-rod section 12 is flattened to form a hinge-leaf thereon, which is introduced within an appropriate radial slot in the flange *d* on the runner 10 and is held to rock therein by a wire ring *g*, that passes through a perforation in the end of each rod-section 12 and seats in the groove formed to receive it in the periphery of the flange *d*, said ring being secured in place by any preferred means.

The two sections 11 12 of each stretcher-rod are preferably of equal length, and at the outer end of the rod-section 11 a fork 11^a is formed thereon, the spaced members of which at their ends embrace the limbs of the forked connection or joint-piece 9^a, before mentioned, and the rivet *a* is projected beyond the limbs of the joint-piece 9^a sufficiently to pass through aligned perforations in the limbs of the fork 11^a, whereon these ends of the rivet are riveted.

Upon the stretcher-rod section 12, at a point near the clip-band 13, a similar clip-band 14 is mounted and secured, having its spaced limbs turned upward, and upon said limbs one end of a brace-rod 15 is pivoted, said rod extending diagonally upward and toward the crown-piece 6. Preferably the hinged point between a brace-rod 15 and the clip-band 14 is similar to the jointed connection of the rib-sections 7 and 8 that are provided for each two-part rib, and to this end a reinforced joint-fork similar to the fork 9^a is secured upon the U-shaped body of the brace-rod adjacent to its laterally-flattened end that is inserted between the upright members of the

clip-band 14. The spaced limbs of the joint-fork embracing the clip-band is pivoted thereon by the rivet that also passes through the end of the brace-rod and the clip-band.

It is understood that each stretcher-rod section 12 is provided with a brace-rod 15, so that the number of said rods 15 is equal with the number of rib-sections 8, and, as shown in Figs. 1 and 2, each brace-rod at its upper end is hinged upon the radial flange *b'* by means of a wire ring *c'*, that encircles the flange seated in the groove therein and passing through opposite perforations in the ends of the brace-rods that occupy the radial slots formed in the flange *b'* for their reception.

The end portions of the rib-sections 7 that extend beyond the clip-band 9 lap upon the lower surfaces of the adjacent end portions of the reinforcing joint-pieces 9^a when the ribs are extended to stretch the umbrella-cover.

The combined length of the stretcher-rod sections 11 12 is so proportioned that each pair of said sections that form a stretcher-rod will be disposed at an obtuse angle when the runner 10 is moved toward the crown-piece 6 sufficiently to fully extend the ribs of the umbrella-frame, as shown in Fig. 1. This angular adjustment of the stretcher-rods where they flex at the joints of their sections 11 12 is an essential feature of the invention, as it will be seen that the cooperation of the diagonal brace-rods 15 therewith serves to convert the stretcher-rod sections 11 into toggle-levers that press forcibly upon the sectional ribs and along with the tension of the umbrella-cover (not shown) enforces the contact of the ends of the rib-sections 7 that lap on the joint-pieces 9^a, so as to greatly stiffen the joints of the rib-sections and prevent the ribs from yielding laterally at said joints.

A yielding catch 16 is placed on the stick 5 at a proper point to afford support to the runner-sleeve 10 when it is slid toward the crown-piece 6 for expansion of the umbrella-frame, said catch, that may be of the usual form or any preferred construction, providing an abutment below the runner-sleeve for its retention at a desired point on the umbrella-stick 5 when said runner is moved for the complete distension of the umbrella-frame.

The stick 5 may be formed either of wood or tubular metal, and to enable a reduction of its length to be conveniently effected when the umbrella is to be folded to shorten its frame it is preferred to bisect the stick at a suitable point between its ends and furnish a dowel-and-socket connection for the end portions that are to be detachably joined together.

As indicated in Fig. 2, *h* represents the dowel formed at one end of the stick-section, having a handle-piece 5^a on the opposite end, and *i* indicates the socket in the end of the other stick-section, said socket having such diameter as will adapt it to receive the dowel *h*, that should fit neatly therein to prevent

improper lateral flexure of the stick at said connection.

It will be seen in Fig. 2 that the described construction of the umbrella frame and stick permits the frame to first be folded so that all the ribs hang pendent and then the rib-sections 7 be folded upward to lie in contact with the rib members 8. Simultaneously with the upward folding of the rib-sections 7 the sections 11 of the stretcher-rods are folded downward upon the upwardly-folded stretcher-bar sections 12, and the braces 15 hang pendent in contact with the stick 5, while the handle-piece 5^a and portion of the stick it is mounted upon are placed adjacent to the folded frame, thus affording a compact package around which the attached cover of the umbrella may be wrapped in an obvious manner.

To prevent loss of the portion of the stick that has the dowel *h* on one end, a chain 17 or any other suitable flexible connection is secured by one end upon a ring-eye formed or secured upon the stick near said dowel, the other end of this flexible connection being similarly attached upon the lower end of the stick-section whereon the socket *i* is formed, permitting a folded adjustment of the two portions of the stick 5 to be effected, as represented in Fig. 2, it being understood that this folding of the stick members is effected before the umbrella-cover is wrapped around the frame and stick, which when done affords a compact small bundle about half the length of the umbrella when it is arranged for use.

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

1. An umbrella-frame comprising a plurality of ribs, each having two sections of nearly equal length, a U-shaped clip-band fixed upon one rib-section near an end thereof,

a reinforcing joint-fork secured on the other rib-section near a flattened end thereof that forms a hinge-leaf and that is embraced by the clip-band, said band being embraced by the reinforcing joint-fork, and all held to flex by a rivet that passes laterally therethrough.

2. An umbrella-frame made up of a series of ribs, each comprising two parts hinged together, a corresponding series of stretcher-rods, each formed of two parts hinged together by a clip-band and rivet, and a brace-rod for each stretcher-rod, hinged on a section thereof near the joint between the stretcher-rod sections.

3. The combination with an umbrella-stick, a crown-piece thereon, a runner-sleeve and a catch that may engage said runner-sleeve, of a foldable frame comprising a series of two-part ribs, the sections of each rib being hinged together so that one section at its end may overlap the other, a plurality of stretcher-rods, each comprising two nearly equal sections, a clip-band fixed on an end of one section and pivoted upon an end of the other section that it embraces, one end of each stretcher-rod having a fork that embraces and is pivoted upon the joint on a respective two-part rib, the other end thereof having hinged engagement with the runner-sleeve, a series of brace-rods, each hinged at its upper end on the crown-piece, and a U-shaped clip-band on a section of a respective stretcher-rod, the members of said band embracing and being pivoted upon the lower end of the brace-rod.

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

OSCAR L. FOGLE.

Witnesses:

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