No. 858,527. PATENTED JULY 2, 1907.

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FOLDING UMBRELLA.

APPLICATION FILED JULY 28, 1906.

Fig. 1.

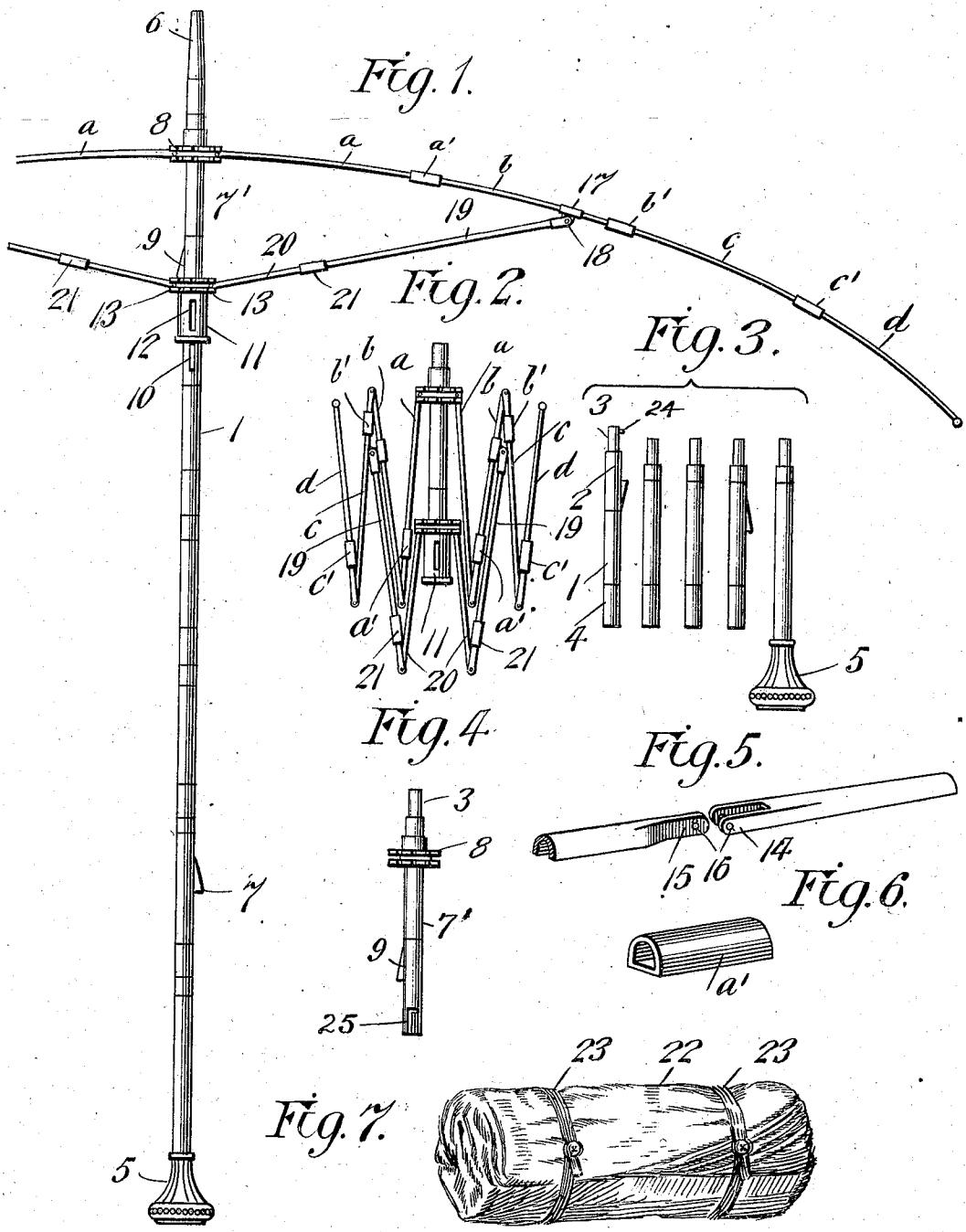


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

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FOLDING UMBRELLA.

No. 858,527. Specification of Letters Patent. Patented July 2, 1907.

Application filed July 28, 1906. Serial No. 328,190.

To all whom it may concern:

Be it known that I, FREDERICK G. MINOR, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented new and useful Improvements in Folding Umbrellas, of which the following is a specification.

This invention relates to umbrellas, the object of the invention being to provide what may be termed a folding collapsible or knock-down umbrella which may be taken apart and folded into a very simple compact bundle and adapted to be carried in the pocket or in a satchel, suit case or trunk, the folded umbrella being in the form of a small cylindrical package a few inches in diameter and one about six inches in length.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings, Figure 1 is a view in elevation of an umbrella frame embodying the present invention, showing the stick or staff complete and two sets of ribs and braces in proper position. Fig. 2 is a similar view, showing the manner of folding the ribs and braces, only one of the staff sections being shown. Fig. 3 is a plan view of the staff sections shown disconnected from each other. Fig. 4 is a similar view of the rib-carrying section of the staff. Fig. 5 is an enlarged detail view of one of the joints in the ribs and braces. Fig. 6 is a detail perspective view of one of the sliding ferrules or sleeves; and Fig. 7 is a perspective view showing the umbrella completely folded and the cover thereof placed about the folded frame and fastened.

The staff of the umbrella is composed of a plurality of sections each somewhat less than six inches in length. Each staff section comprises a body portion 1 preferably of wood, although the same may be composed of metal or other suitable material. The body 1 is provided at one end with a metal tip 2 having a reduced end or shank 3, while the other end of the body 1 is provided with a metal tip 4 in the form of a sleeve or a ferrule having the outer end thereof left open to form a socket in which the reduced end or shank 3 of the adjoining staff section fits, whereby the several staff sections are fitted one into the other to form a staff or stick of any desired length. The lowermost section is provided with a handle 5 of any suitable description, while a tapering tip or ferrule 6 is applied to the opposite end of the staff above the umbrella frame to give the desired finish thereto. The staff section adjacent to the lower portion or handle 6 is provided with a spring catch 7 to engage the runner of the umbrella for the purpose of holding the umbrella closed in the usual manner.

The rib-carrying section 7′ is provided with the double-flanged top notch 8 to which the ribs are pivotally connected in the usual manner and the staff section just below the staff-carrying section is provided with a catch or stop-shoulder 9 which limits the upward movement of the runner hereinafter described. Said staff section also carries a snap catch 10 which snaps outward under the runner, as shown in Fig. 1 to sustain the umbrella frame in an expanded condition in the manner illustrated in Fig. 1.

11 designates the runner which, in the main, is of the usual construction, the same being in the form of a sliding sleeve movable lengthwise of and upon the staff or stick and provided with a slot 12 to receive the catch 7 for holding the umbrella closed, said runner also comprising the notched flanges 13 to which the inner ends of the braces are pivoted in the usual manner.

Each of the ribs comprises jointed sections *a*, *b*, *c* and *d*, *a* designating the section which is pivotally connected to the top notch 8. The joint between each of the rib sections is illustrated in Fig. 5, and it will be noted in said figure that the rib as a whole is substantially U-shaped or semi-circular in cross-section, the joint being formed by splitting or bifurcating the end of the one rib section, as shown at 14, while the end of the adjoining section is mashed to form a single projecting tongue 15 which is inserted in the split end of the adjacent section, both of said overlapping ends being provided with holes 16 to receive a pin or pivot whereby the adjoining rib sections are piviotally connected together, forming a hinge joint. Each of the hinge joints is formed in such manner as not to interfere with the general cross-sectional shape of the rib as a whole, so that a series of sleeves or ferrules *a′*, *b′* and *c′* may be used in connection therewith. One of said sleeves or ferrules is shown in detail in Fig. 6, in which it will be seen that the same is substantially semi-cylindrical in cross-section, adapting it to slide lengthwise of the rib so as to cover its respective hinge joint, Fig. 1 illustrating the sleeves or ferrules as covering the joints between the rib sections *a*, *b*, *c* and *d*. When the joints are so covered by the sleeves or ferrules, they are held in rigid relation to each other, thus forming a rib which is the equivalent of a solid or unjointed rib from end to end.

On the section *b* of each rib, there is mounted a sliding sleeve 17 to which is pivotally connected at 18, the outer extremity of the other section 19 of a jointed brace, the inner section 20 of which is pivotally connected to the notched flanges 13, above referred to. Each brace is provided with a sliding sleeve or ferrule 21 corresponding exactly with that shown in Fig. 6 and adapted to cover a joint in the brace corresponding exactly with the joint illustrated in Fig. 5.

It will be observed by reference to Fig. 2 that the joint between the sections *a* and *b* is adapted to break downward, the joint between the sections *b* and *c*, upward, and the joint between the sections *c* and *d*, downward. It will also be observed that the joint be-

tween the sections 19 and 20 of each brace is adapted to break downward. Therefore, when it is desired to collapse the umbrella for packing or storing or transportation, the sleeves a', b', c' and 21 are all slid out of engagement with the hinge joints which they cover and stiffen, after which the ribs and braces are all folded like a bellows side inward toward and against the rib-carrying section 7 of the staff or stick, as shown in Fig. 2. The staff sections are then taken apart in the manner shown in Fig. 3 and after all of said parts have been bunched together, the umbrella cover 22 is snugly wrapped around the said parts in the manner shown in Fig. 7 to form a small cylindrical bundle which may be held securely by one or more straps or bands 23. Any suitable means may be employed for fastening the umbrella cover 22 on the extended frame so that it may be readily removed to form a cover for the bundle.

The shank 3 of the staff section 1 is provided with a laterally projecting pin 24 which fits removably in a bayonet slot 25 in the section 7′ to allow said sections to be disconnected at such point.

I claim:

The herein described folding umbrella consisting of a staff made in sections detachably connected together, an umbrella frame composed of ribs and braces, each rib consisting of a plurality of short sections of substantially semi-circular cross section, said rib sections being hinged together to fold alternately in opposite directions, sleeves of D-shape in cross-section movable over the joints of said sections to hold the same in alinement, braces comprising a plurality of sections pivoted to fold downward, a tubular sleeve fitted to slide over the joint of said braces to hold the same rigid, and a sliding sleeve mounted to move lengthwise of one of the rib sections and provided with downwardly projecting lugs, and having the outer section of the adjoining brace pivotally connected to said lugs.

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

FREDK. G. MINOR.

Witnesses:
JOHN W. EVANS,
ROBERT HURD.