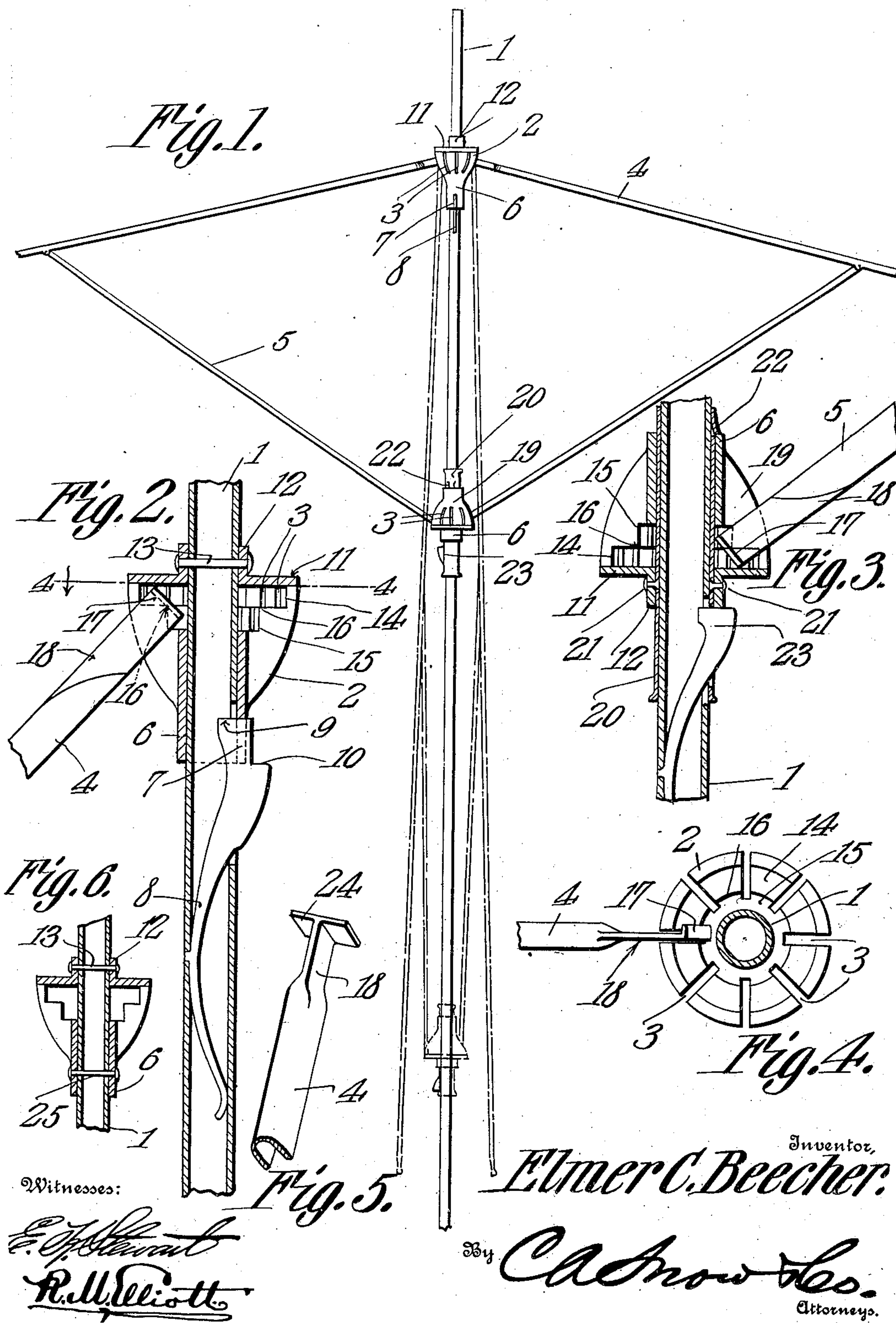


E. C. BEECHER.
 UMBRELLA FRAME.
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938,950.

Patented Nov. 2, 1909.



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UNITED STATES PATENT OFFICE.

ELMER C. BEECHER, OF NORWALK, OHIO.

UMBRELLA-FRAME.

938,950.

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To all whom it may concern:

Be it known that I, ELMER C. BEECHER, a citizen of the United States, residing at Norwalk, in the county of Huron and State of Ohio, have invented a new and useful Umbrella-Frame, of which the following is a specification.

The object of the invention is in a novel and practical manner, to dispense with the employment of wires in holding the ribs and spreaders assembled with the notch and the runner, and further to facilitate the replacement of a damaged or worthless rib or spreader by a new one, and this without the employment of special tools for the purpose.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a notch, runner, rib and spreader for an umbrella, as will be hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts:—Figure 1 is a view in side elevation of an umbrella frame constructed in accordance with the present invention, the raised position of the runner and the ribs and spreaders being shown in full lines, and their lowered position in dotted lines. Fig. 2 is a vertical longitudinal sectional view, on an enlarged scale, through the notch and a portion of the staff or rod. Fig. 3 is a similar view through the runner. Fig. 4 is a horizontal sectional view, taken on the line 4—4, Fig. 2 and looking in the direction of the arrow thereon. Fig. 5 is a perspective detail view of a portion of a modified form of rib or spreader. Fig. 6 is a vertical, longitudinal section showing in a modified form, means for holding the notch 2 in contact with the cap 11.

The invention includes a notch, shown in Fig. 2, and a runner, shown in Fig. 3, the same being designated generally as "staff-inclosing members"; and ribs 4 and spreaders 5, the same being designated generally as "supporting members".

The staff 1 may be of any preferred construction, and in this instance is shown as being of the tubular metal type in common use. Slidably mounted upon the upper portion of the staff is a notch 2 which is provided with regularly disposed slots 3 to receive the inner ends of the ribs 4 which, as

well as the spreaders 5, are of the semi-tubular type, as clearly shown in Fig. 5, although if preferred they may be of the solid wire type, and as this will readily be understood, detailed illustration of so obvious a modification is omitted. The notch is provided with a tubular extension 6 having a longitudinal slot 7 to be engaged by a latch 8 carried by the staff and of the usual construction, except that it is provided in addition to the shoulder 9, which is common to such attachments and that engages with the upper wall of the slot 7 to hold the notch in the position shown in Fig. 1, with a second shoulder 10, the function of which will appear farther on. To prevent upward movement of the notch and also to cause its upper end to hold the ribs against detachment and to insure their proper operation, a cap or cover 11 is provided which is circumferentially commensurate with the notch, and is provided with a tubular extension 12 through which, and through the staff, passes a pin or rivet 13, the ends of which are upset, as clearly shown in Fig. 2. The upper portion of the notch is formed with two coaxial chambers 14 and 15, the difference between the diameters of which forms a circumferential shoulder, the edge 16 of which constitutes a fulcrum or bearing for the heads 17 of the ribs. These heads are formed by transversely flattening one end of each rib, as shown at 18 and then bending the end of this flattened portion at substantially right angles to its length, as shown in Fig. 4. By the provision of the circumferential fulcrum, the ribs and spreaders are caused to work easily and without danger of contacting or binding when the umbrella is opened or closed. As will be observed by reference to Fig. 2, the upper corners of the heads 17 bear against the under face of the cap 11 when the ribs are raised or lowered, and this will prevent any looseness of the ribs that would be objectionable. Furthermore the two chambers 14 and 15 are of such size as to permit perfect freedom of movement of the ribs but without any unnecessary play. As will be obvious, the slots 3 must be extended into the chamber 15 in order to permit the proper arcuate movement of the ribs.

Referring now to the latch 8, the function of the shoulder 10 will be explained. As above stated, the shoulder 9 operates to hold the notch in contact with the cap, and

in order to permit removal of a damaged or broken rib, it will be necessary to move the notch away from the cap for this purpose. It is with this object in view that the shoulder 10 is provided, it being designed to allow the notch to be moved a sufficient distance downward upon the staff to permit a rib or ribs to be removed without disturbing the others. This limitation in the movement of the notch is important, inasmuch as if the shoulder 10 were not present, the notch might be moved downward such a distance that all of the ribs would become detached, and in an attempt to replace them, the person repairing the umbrella might get a rib in the wrong slot, and the result would be that when the umbrella was raised, there would be a binding action between the ribs and the slots which might result in breaking one or more ribs.

The runner shown in detail in Fig. 3 is of the same general construction as the notch, and therefore the same reference characters are employed in designating like parts. There is, however, an additional element employed, such as is common with runners of ordinary construction, and that is a sleeve 20 to which the cap 11 is rigidly secured by rivets 21. This sleeve is provided with a slot through which projects an ordinary latch 23 that engages with the under side of the tubular extension 12 of the cap, and thus holds the runner in raised position, as shown in Fig. 1. The spreader 5 is provided with a head 17 of the same construction as the rib and operates in exactly the same manner.

In order to permit the head 19 of the runner, which is slidably mounted upon the member 20, to be moved away from the cap or closure 11, the member 20 is provided with a spring tongue 22, formed by incising the metal for this purpose and which normally engages with the upper edge of the tubular extension 6 of the head. When it is desired to replace a damaged or broken

spreader by a new one, the tongue 22 is forced inward a sufficient distance to clear the extension 6, whereupon the runner may be moved upward, and thus allow the spreader to be removed.

Generally, a single head 17 will answer all practical purposes, but if preferred, and as shown in Fig. 5, the head 24 may be T-shaped.

From the foregoing description, it will be seen that while the improvements herein defined are simple in character, they will be thoroughly efficient for the purposes designed and will coact in the production of an efficient, durable, and highly effective form of umbrella frame.

It is obvious that, as shown in Fig. 6, the latch 8 may be dispensed with, the notch being held in place by a pin 25 passed transversely through the tubular extension 6 of the notch and the staff 1, into aligned apertures therein, and having its end overturned to hold it in place.

I claim:—

1. In an umbrella, a staff-inclosing member having coaxial, communicating chambers of different diameters defining between them a circumscribing fulcrum within the member; and a supporting member having a head to engage the fulcrum.

2. In an umbrella, a staff-inclosing member having coaxial communicating chambers of different diameters defining between them a circumscribing fulcrum, the member being provided with upright notches intersecting the walls of the chamber and the fulcrum; and supporting members having laterally inclined heads to engage the fulcrum and being mounted in the notches.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ELMER C. BEECHER.

Witnesses:

J. M. BECHTOL,
CHARLES SUHR.