

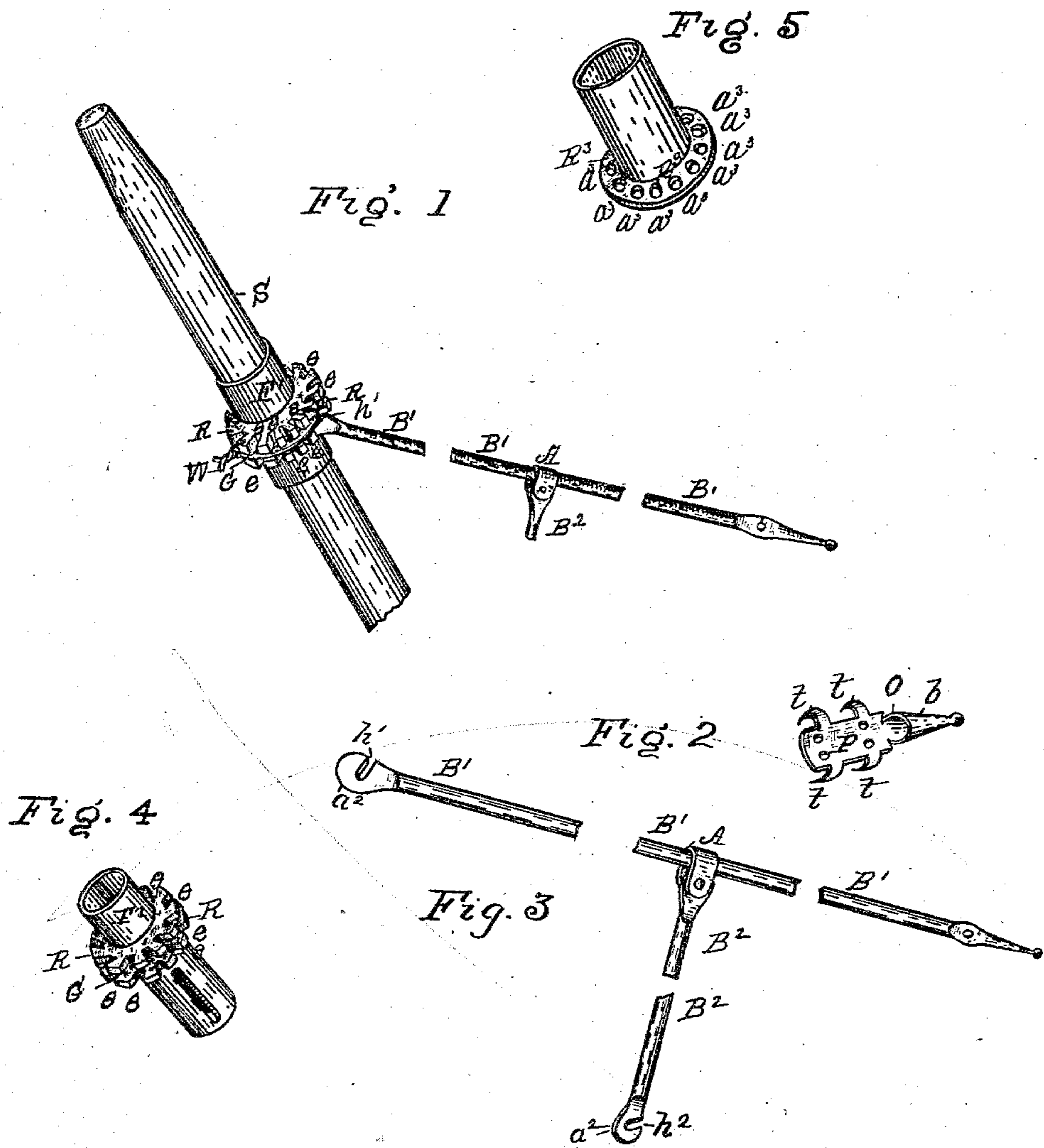
(No Model.)

M. NIAL.

DEVICE FOR ATTACHING THE RIBS AND BRACES OF UMBRELLA FRAMES.

No. 295,042.

Patented Mar. 11, 1884.



Witnesses

Stanley M. Holden.

Charles S. Brintnall

Inventor

Matthew Nial

by W. E. Hagan his
att'y.

UNITED STATES PATENT OFFICE.

MATTHEW NIAL, OF TROY, NEW YORK.

DEVICE FOR ATTACHING THE RIBS AND BRACES OF UMBRELLA-FRAMES.

SPECIFICATION forming part of Letters Patent No. 295,042, dated March 11, 1884.

Application filed September 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW NIAL, of the city of Troy, county of Rensselaer, and State of New York, have invented a new and useful Improvement in Devices for Attaching the Ribs and Braces of Umbrella-Frames, of which the following is a specification.

My invention relates to that class of devices which are used to connect the ribs and braces of umbrella-frames with the staff-handle ferrules and the cover; and the object of my improvement is to make each connected brace and rib separately attachable and detachable from the ferrules and cover, to facilitate repairing or replacing one or more without disturbing the connection of the others.

In the accompanying drawings, forming a part of this specification, there are shown five figures illustrating my invention, with the same designation of parts by letter-reference used in all of them, and of which—

Figure 1 is a perspective of a part of the umbrella-shaft or handle-staff, the stationary ferrule in which the ends of the ribs are radially hinged at their ends, one of the ribs attached thereto, and the attached and hinged end of one of the braces. Fig. 2 illustrates a device made to attach to the cover to receive the end of one of the ribs. Fig. 3 shows one of the ribs and attached braces. Fig. 4 is a perspective of the sliding ferrule to which the braces are hinged, and by which the frame is radially spread and the umbrella raised. Fig. 5 illustrates a modification of my invention.

The several parts of an umbrella with which my invention connects and the parts constituting my invention are designated by letter-reference and their functions explained as follows:

The letter S indicates a part of the staff-handle, F' the fixed ferrule, and F² the sliding ferrule as removed from the handle. Both of these ferrules are made alike for the attachment of the ribs or braces, and are made in the usual manner, as shown at Figs. 1 and 4.

The letters R R' indicate in each ferrule flanges in revolution thereon, which are made with radially-arranged slots *e*, that are parallel with each other on the two flanges and to the staff-handle.

The letter G designates a gutter or groove between the flanges to contain the hinging-wire W.

The ribs are designated at B', and the braces at B², one end of the latter being hinged centrally to the former at A in the usual manner. As before used, the ends of the ribs and braces were made with eyes and threaded on the wire, with each one of the ends of the ribs or braces within one of the radial slots *e* of their respective ferrules, with the wire drawn taut, and its ends twisted together to secure them. Thus connected, to remove one of them necessitated the separation of the wire ends and the unthreading of the ribs, and to reconnect them with the ferrule when the cover was on the frame was difficult. To remedy the inconveniences of this older method of attachment, I dispense with the eye in the connecting ends of the ribs and braces and substitute therefor a hook-form hinge opening or slot made in the ends of the ribs and braces, that made in the end of the ribs being slanted upwardly and outwardly from the latter, and forming an acute angle therewith, as indicated at *h'*, and that made for the hinging of the attaching brace ends being made in the flattened end of the latter, or as designated at *h*², the flattened ends of the ribs and braces being designated at *a*² *a*².

To secure the outer ends of the ribs, I employ a sheath-form tip, which is made with a flaring receiving end opening, O, to the tube *b*, which tapers to its outer closed end, a flat guide-plate, P, at the mouth of the tapering tube-sheath, and tangs *t t* on the plate, made to pass through the umbrella-cover, be turned down, and clinched for attachment thereto. Although I prefer this form of tip, any form of tip made with an outer closed and inner opened end may be used. As thus made, the end of the rib is hooked into the ordinary hinging-wire, W, by springing downwardly the rib near its hook end, so that it can be passed under the wire for the engagement of the latter with the hinging-hook *h'*, the rib being within one of the radial slots in the fixed ferrule. The brace-hook *h*² is then hooked into the wire of sliding ferrule from between one

of its radial slots, and finally the rib is bowed or sprung out to enter its outer end within the sheath-tip.

To remove one of a series of ribs and braces thus connected to form an umbrella-frame, the steps before detailed are reversed in their order and application.

If desired, the wire W may be dispensed with, and an additional flange, R³, made with the rim-openings a³, and said flange being made with a smaller diameter than the flanges R R, and inserted between them, with the openings a³ each inside of and opposite to one of the radial slots e, so that the hinging-hooks on the ends of the ribs or braces can be hooked in said openings a³ in place of the wire, such a flange being shown at Fig. 5.

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

1. In an umbrella-frame fastening, the com-

bination of the hinging-hook h', formed on the hinging end of each of the ribs, the hinging-hook h² on the hinging end of the braces, with the said hooks on the ribs constructed to attach to the fixed ferrule, and said hooks on the braces to the sliding ferrule, in the manner herein shown and described.

2. In an umbrella-frame, the combination of open-mouth sheath-tips on the umbrella-cover to receive the tip ends of each of the ribs, hinging-hooks on the hinging ends of the ribs, hinging-hooks on the hinging ends of the braces, said hooks on the ribs being constructed to attach to the fixed ferrule, and those on the braces to the sliding ferrule, in the manner herein shown and described.

MATTHEW NIAL.

Witnesses:

ISAAC P. TURNER,

CHARLES S. BRINTNALL.