





# UNITED STATES PATENT OFFICE.

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## UMBRELLA.

No. 871,611.

Specification of Letters Patent.

Patented Nov. 19, 1907.

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*To all whom it may concern:*

Be it known that I, ALFRED NELSON, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Umbrellas, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the connection for the swivel or hinged ends of the ribs and braces.

The object of the invention is to so construct the hinged or swiveled connections between the ribs and braces and the stick as to reduce friction and avoid accidental breakage.

In my improvement, the hinged end of each rib has a curved or ball end which rests in a casing which is secured to the stick. In this casing are curved slots or orifices through which the rib projects, each rib having its own slot. The ribs are flattened where they pass through these orifices, the width of the orifices being of such width that the ribs do not bind therein in their movement, and the sides of the slots act as guides. The movement of this end of the ribs to open and close the umbrella causes the balls to roll in the casing. Thus the friction at this point on opening and closing the umbrella, and the liability to breakage, are reduced to a minimum. In like manner the hinged or swivel ends of the braces may be provided with balls which rest within a casing, each brace extending through a curved orifice or slot in the wall of this casing. The casing in this case is secured to, or formed with the sliding member surrounding the umbrella stick. The casing may be prolonged to form the sliding member, which prolongation is provided with a slot to coact with the locking member carried by the stick. With this arrangement all the swivel or hinged connections are of such construction as minimize both the friction and the liability to breakage.

I will now describe the embodiment of my invention illustrated in the accompanying drawings and then point out the invention in the claims.

In the drawings: Figure 1 is a view of my invention in connection with an umbrella stick; Fig. 2 is a section view of the fixed cas-

ing; Fig. 3 is a detail view partly in section of the sliding casing; Fig. 4 is a horizontal section through the casing.

*a* is the umbrella stick, *b* the ribs, *c* the braces, *d* the sliding member surrounding the stick, *g* the locking member carried by the stick. The upper, swivel or hinged end of each rib *b* has secured thereto, preferably integral therewith a ball *q*. These balls rest within the casing *h* which is secured to the stick near its upper end. As shown, this casing *h* is in two parts, the upper part being fixedly secured to the stick. The lower part is movable upon the stick but can be secured thereto by the pin or rivet *i* which passes through the projecting portion of the casing and the stick. This casing *h* has curved slots *j* in number equal to and corresponding in position to the ribs. In practice, with the specific form of casing, the two parts of the casing are separated, the balls entered with the flattened portion of each rib resting in its corresponding slot *j*. The other part of the casing is then brought into proper position and locked by the pin or rivet *i*. The upper surface of the casing is rounded and slightly inset to allow the cover to be properly secured around it.

In case of the braces *c* each has at its inner or hinged end a ball *k*, which ball rests in a casing *l* which, as shown, is provided with an extension *d* forming the sliding member surrounding the stick *a*, the braces ending through curved slots *n*. The projection *d* forming the sliding member is provided with the slot *p* to coact with the locking member *g* carried by the stick. The ends of both the braces *c* and ribs *b* opposite to that before described, are secured in the ordinary manner to the cover.

When I use the term umbrella in the specification and claims, I intend to include parasols and devices of like character.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. In an umbrella, the combination with a stick, of a rib casing composed of upper and lower members provided respectively with semi-spherical complementary recesses and mutually alining slots, the upper rib casing member having a shank encircling the stick and the lower rib casing member having a shank encircling the shank of the upper rib casing member and riveted thereto and to



the stick, a brace casing composed of upper and lower members provided respectively with semi-spherical complementary recesses and mutually alining slots, the upper brace casing member having a vertically slotted shank slidable upon the stick and the lower brace casing member having a shank encircling the upper part only of the shank of the upper brace casing member and riveted thereto, ribs extending through the slots of the rib casing and having heads resting within the rib casing, and braces extending through the slots of the brace casing and having heads resting within the brace casing, substantially as described.

2. In an umbrella, the combination with the stick, of a rib casing composed of upper and lower members provided respectively with semi-spherical complementary recesses and mutually alining slots, the upper rib casing member having a shank encircling the stick and the lower rib casing member having a shank encircling the shank of the upper

rib casing member and riveted thereto, a brace casing composed of upper and lower members provided respectively with semi-spherical complementary recesses and mutually alining slots, the upper brace casing member having a vertically slotted shank slidable upon the stick and the lower brace casing member having a shank encircling the shank of the upper brace casing member and riveted thereto, ribs extending through the slots of the rib casing and having heads resting within the rib casing, and braces extending through the slots of the brace casing and having heads resting within the brace casing, substantially as described.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 10th day of September, 1906.

ALFRED NELSON.

Witnesses:

M. M. HAMILTON,  
A. M. URIAN.