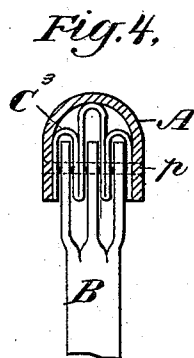
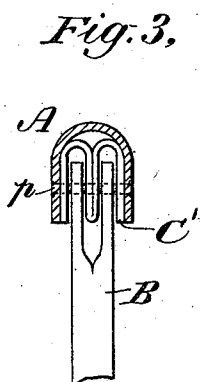
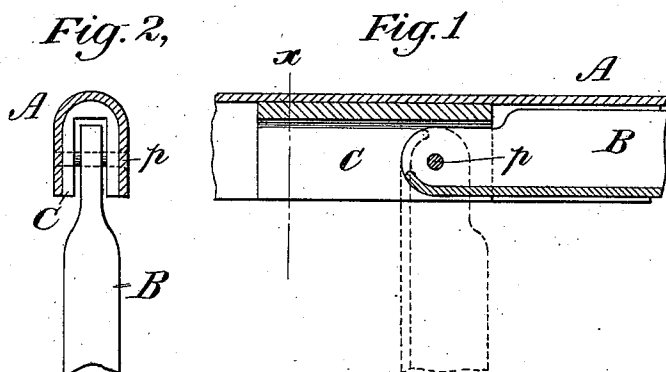


(No Model.)

R. P. KNAPP.
UMBRELLA.

No. 577,529.

Patented Feb. 23, 1897.



WITNESSES:

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ROBERT P. KNAPP, OF BROOKLYN, NEW YORK.

UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 577,529, dated February 23, 1897.

Application filed March 25, 1896. Serial No. 584,725. (No model.)

To all whom it may concern:

Be it known that I, ROBERT P. KNAPP, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Umbrellas, of which the following is a specification.

In umbrellas, parasols, and like articles as commonly constructed the ribs and stretchers are made of hollow or trough-like construction, the stretchers being made large enough to embrace the ribs and being connected with the ribs by means of clips extending around the outer sides of the ribs.

The object of my improvement is to provide a more compact construction for the frame of an umbrella, parasol, or similar article, and also to obviate certain disadvantages which result from the ordinary construction.

My improvement consists in the combination, with a rib made of hollow or trough-like construction, of a stretcher constructed of a size to fit within the rib and pivotally connected to the rib in such manner that it may be adjusted into the space within the rib. The pivotal connection between the stretcher and the rib will preferably be made by passing the pin through the walls or sides of the rib. There is a bracing or strengthening piece fitted inside the rib at the point where this connection is made.

By means of this improvement the frame of an umbrella, parasol, or like article may be made to shut up more compactly than heretofore and the clips commonly employed outside of the ribs for the purpose of connecting the stretchers thereto may be dispensed with. The latter feature is of great importance, because it obviates the injury which the covering always sustains through the presence of these clips and dispenses with the stay-pieces or protecting-pieces of fabric which are necessarily used intermediately of the clips and the covering.

In the accompanying drawings, Figure 1 is a central longitudinal section of portions of a rib and stretcher made in accordance with my improvement. Fig. 2 is a transverse section taken at the plane of the dotted line *x*, Fig. 1. Fig. 3 is a transverse section similar

to Fig. 2, but showing a modification. Fig. 4 is a transverse section similar to Fig. 2, but showing a modification.

Similar letters of reference designate corresponding parts in all the figures.

A designates a rib of an umbrella, parasol, or like article. It is of hollow or trough-like construction, being made by bending a strip of metal along its length intermediately of its side edges.

B designates a stretcher which in construction resembles the rib. Its open side is opposite the closed side of the rib. The stretcher is made so much narrower than the rib that it is capable of moving into the same. Its outer end is pivotally connected by a pin *p* to the rib. In the present instance there is a bracing or strengthening piece C of trough-like construction fitted into the rib, and the end of the stretcher fits snugly within this. The pin *p* passes through the sides of the stretcher into the bracing or strengthening piece, and also, as here shown, into the sides of the rib. The ends of the pin may be riveted.

In Fig. 3 I have shown the bracing or strengthening piece made of a piece C' of metal bent so as to have two trough-like portions, and the end of the stretcher is bifurcated to fit into such two trough-like portions. In other respects the parts are combined as in Figs. 1 and 2, where the bracing or strengthening piece is made in the form of a single trough.

The construction of Fig. 4 is like that shown in Fig. 3, excepting that the bracing or strengthening piece C³ is bent so as to have three trough-like portions and the end of the stretcher is constructed so as to have a corresponding number of tongues which enter the said trough-like portions.

While the bracing or strengthening piece of trough-like construction has advantages, it is not indispensable, but bracing-pieces or strengthening-pieces of different shapes may be used.

What I claim as my invention, and desire to secure by Letters Patent, is—

In an umbrella, parasol or like article, the combination of a rib of hollow or trough-like

construction, a bracing or strengthening piece fitted snugly within said rib and lying entirely within the hollow of said rib, a stretcher of hollow or trough-like construction adapted to
5 enter the rib and bracing or strengthening piece, and a pivot-pin passing through the sides of the rib, through the bracing or strengthening piece and stretcher, the said pin being a means for holding the bracing or

strengthening piece in place, substantially as is specified.

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

ROBERT P. KNAPP.

Witnesses:

K. BERRALL,
PIERSON L. WELLS.