

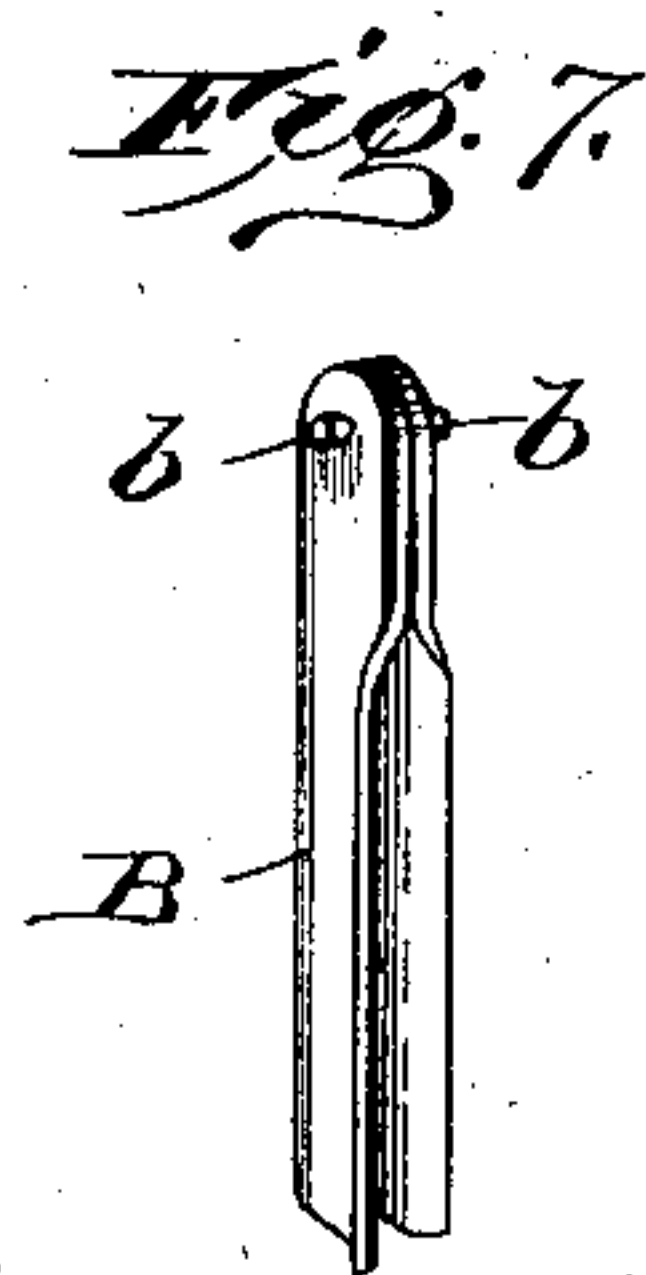
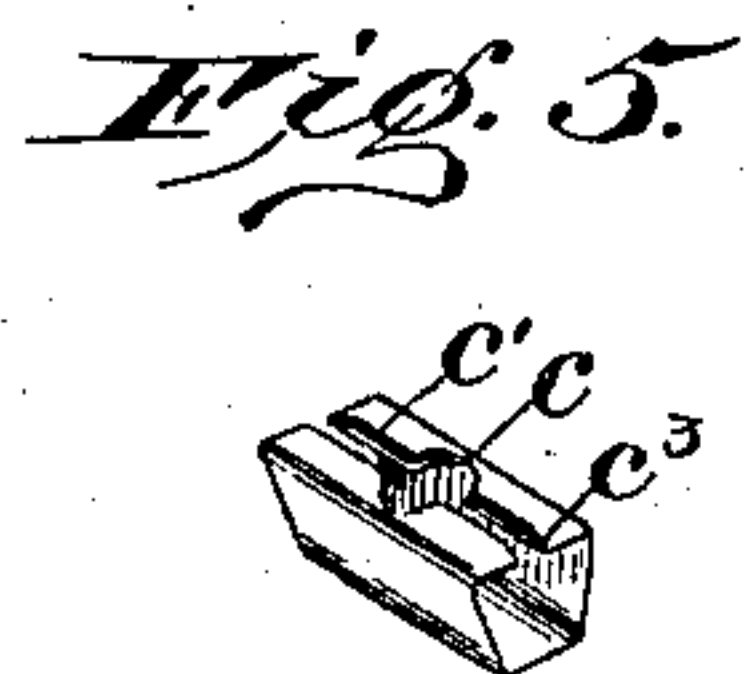
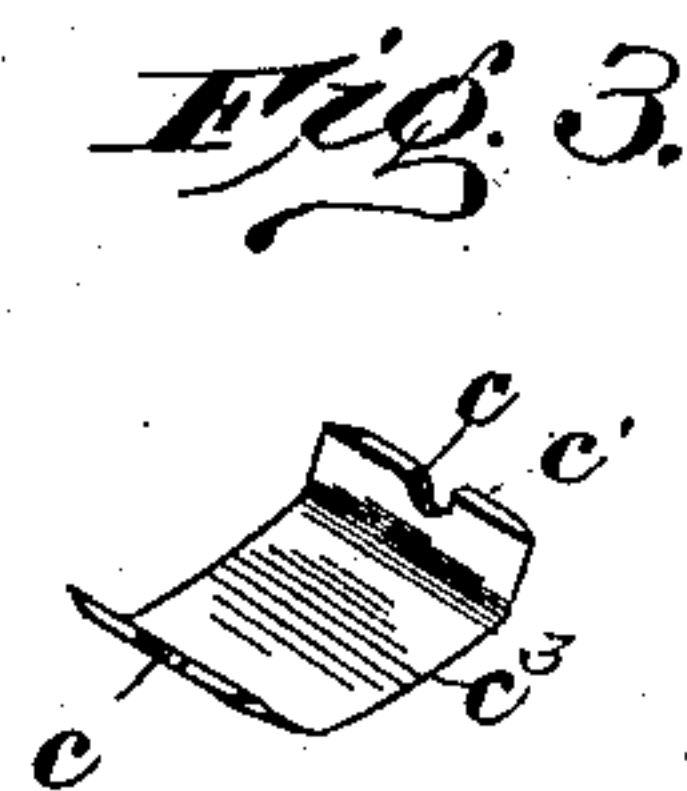
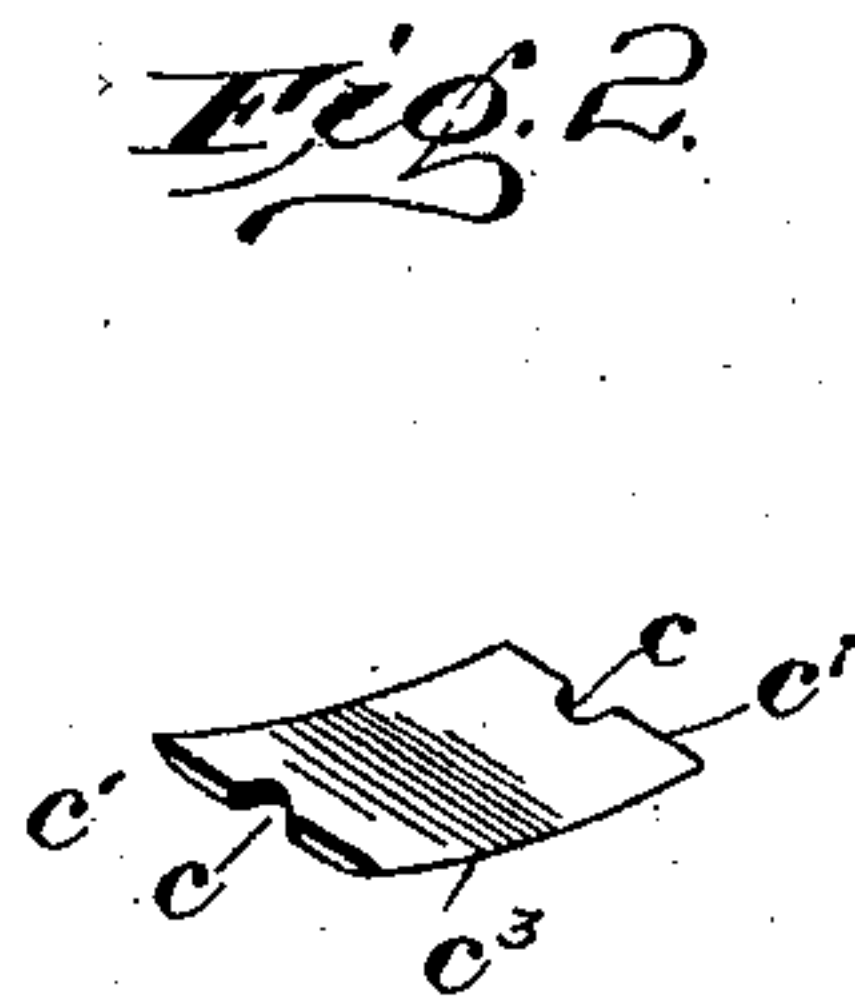
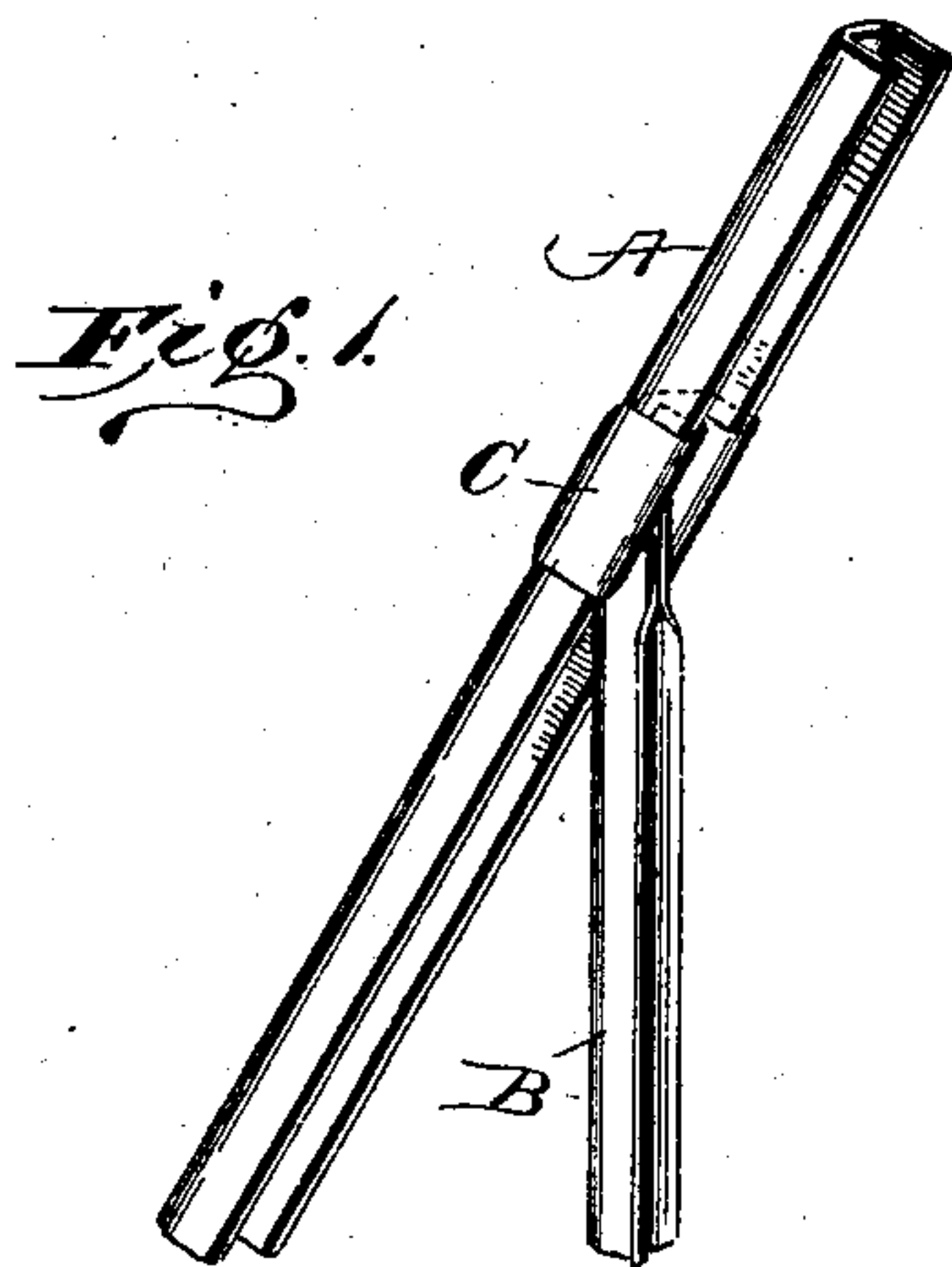
No. 732,781.

PATENTED JULY 7, 1903.

R. REININGER.
GEAT FOR UMBRELLAS.

APPLICATION FILED OCT. 10, 1900. RENEWED JUNE 1, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

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GEAT FOR UMBRELLAS.

SPECIFICATION forming part of Letters Patent No. 732,781, dated July 7, 1903.

Application filed October 10, 1900. Renewed June 1, 1903. Serial No. 159,616. (No model.)

To all whom it may concern:

Be it known that I, RICHARD REININGER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Umbrella-Frames; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to umbrella ribs and stretchers, and it relates particularly to means for connecting those forms of these parts of an umbrella-frame which are formed as to allow the stretchers to rest within the ribs when the frame of which they form parts are folded, thus allowing the ribs and stretchers to lie closely along the umbrella-rod to present a compact body of small diameter when the cover is tightly wound around the frame.

The object of the present invention is to provide a simple and cheap device for connecting the parts referred to, capable of rapid attachment, and which may be formed from metal by machinery capable of being operated by an unskilled person.

Further, the object of the invention is to provide means for the connecting umbrella ribs and stretchers of such form that no weakening of the parts by piercing the different members to allow the introduction of pins or rivets is necessary.

Further, the object of the invention is to provide means for connecting umbrella ribs and spreaders which shall present no rough or protruding edges to come into contact with or injure a fabric cover to be attached to the ribs.

With these objects in view the invention consists, essentially, of the fastener for the purpose specified, comprising a clip inclosing an umbrella-rib and having its ends notched, the notched ends extending into the groove of the rib, and a spreader having projections protruding therefrom and adapted to engage the respective notches of the clip.

Further, the invention consists of novel details of construction of the connecting means, substantially as hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a section of an umbrella-rib having a spreader attached thereto by my improved means, the inner face of the rib being shown. Fig. 2 is a perspective view of the blank for forming the attaching-clip. Figs. 3, 4, and 5 show progressive stages of forming the clip for attaching the spreader to the rib. Fig. 6 is a longitudinal sectional view of the blank shown in Fig. 2, and Fig. 7 is a perspective view of the end of a spreader adapted for attachment by my means to a rib.

In the drawings, A represents an umbrella-rib of the usual grooved form, constructed, preferably, of steel and adapted to be arranged in an umbrella with its curved smooth face outward.

B represents a spreader corresponding in cross-section to that of the rib and being somewhat smaller in size than the latter, permitting the spreader to lie within the groove of the rib when the umbrella is folded.

The clip by which the rib and stretcher are connected is shown in position for use in Fig. 1 of the drawings, and the progressive stages of its formation are shown in Figs. 2, 3, 4 and 5. In forming the clip, which is designated in the drawings by the letter C, a blank slightly curved from end to end having a notch *c* in each end is cut from metal by a punch or otherwise. The blank is then struck by a die or otherwise operated upon to bend up the ends *c'* at an obtuse angle to the main portion of the blank. Next the blank is formed into the shape shown in Fig. 4 by bending up the ends thereof, leaving an intermediate rounded portion *c²* of a shape corresponding to the exterior of the solid portion of the rib to which the clip is to be applied. After this the ends *c'* are bent inward approximately at right angles to the portion of the blank adjacent to them, and the clip is then ready to be attached to the rib and to be bent into its final shape to con-

nect the spreader to the rib. It will be observed that the blank when first formed is, as will be seen from Fig. 6 of the drawings, beveled along the edges c^3 , which in the completed clip form the ends of the latter. The bevel is entirely on the outer face of the clip, the inner face being left plain in order to lie close to the rib to which it is attached. The bevel is such as to present a sharp edge, so that when the clip is closely applied to a rib the edge practically loses itself in the surface of the rib, and therefore offers no projecting surface. The end of the spreader adapted for attachment to the rib has formed with or attached to it projections b , extending laterally from the spreader. These projections are adapted to enter and engage the notches or openings in the ends of the clip when the parts described are in place for use.

In assembling the parts the blank after assuming the former shape in Fig. 5 is slipped upon the rib, and the end of the spreader having the projections is introduced, the projections being within the groove in the rib and in line with the notches in the ends c' of the blank. The ends c' are then bent downward into the rib, closely confining the inner faces of the sides of the rib. Thus the projections from the spreader, which are approximately of a length corresponding to the thickness of the metal of the clip at the center thereof, are retained by the notches, and removal of the spreader from the rib is rendered impossible, and at the same time a hinge-joint permitting movement of the spreader to lie within the rib or to be extended at an angle thereto is provided.

The clip is, as shown, permitted to be as thick as may be necessary at its center to give proper strength at the point at which the projections of the spreader come in contact with it and at the same time to offer no objectionable protuberance on the rib at its point of attachment, the beveling of the rib on its outer surface presenting a smooth surface which is practically a continuation of the rib. The construction of the clip requiring no weakening of the rib or spreader by

piercing to allow the introduction of the pin or rivet has many advantages over the ordinary means of connection of these parts. In fact, additional strength is given the ribs at the point where the most wear and strain comes in raising and lowering the umbrella.

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

1. The combination of a grooved umbrella-rib, a clip inclosing the exterior of the rib and having indentations in the ends thereof, the notched ends extending into the groove of the rib, and a stretcher having projections extending from the opposite sides thereof and engaging the notches of the clip, the indentations being of a size corresponding to that of the projections, substantially as described.

2. The combination of a grooved umbrella-rib, of a clip the edges whereof are beveled, inclosing the exterior of the rib and having indentations in the ends thereof, the indented ends being bent to lie along the inner faces of the rib, and a spreader having projections extending from opposite sides thereof and adapted to enter the indentations, the indentations being of a size to closely confine the projections, substantially as described.

3. The combination with a grooved umbrella-rib of a clip extending around and closely confining the outer surface of the rib, the inner surface of the clip being plane and the outer surface being beveled at the edges, the ends of the clip being notched and extending into the groove of the rib along the respective sides thereof, and a spreader having projections extending from opposite sides thereof, the projections being adapted to enter and be confined in the notches of the clip, substantially as described.

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

RICHARD REININGER.

Witnesses:

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