F. WETTEROTH.

HINGE JOINT.

APPLICATION FILED SEPT. 1, 1909.

957,528. Patented May 10, 1910.

Fig. 2.

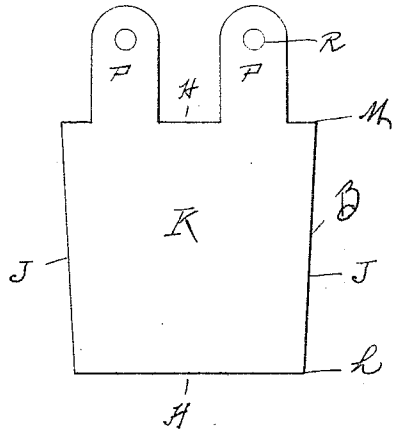


Fig. 1

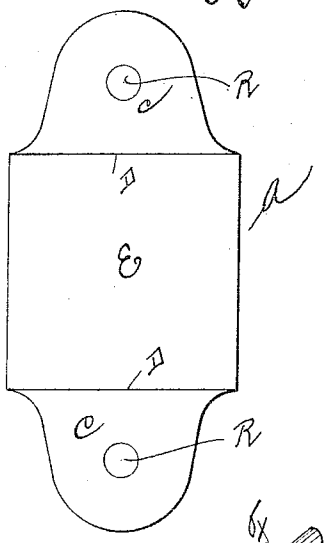


Fig. 4

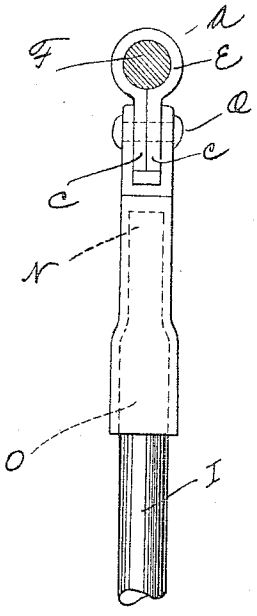


Fig. 5

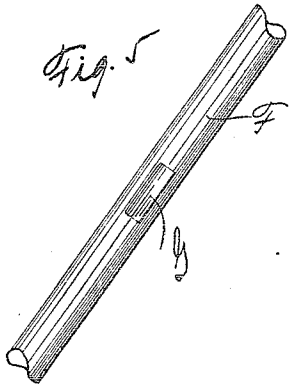
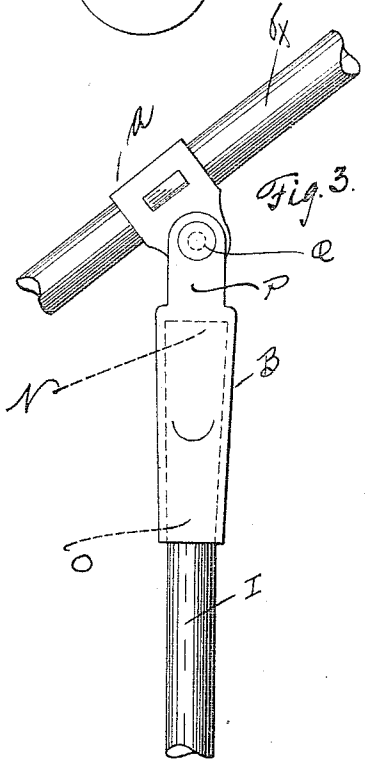


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK WETTEROTH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ZITTLOSEN MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

HINGE-JOINT.

957,528. Specification of Letters Patent. Patented May 10, 1910.

Application filed September 1, 1909. Serial No. 515,616.

To all whom it may concern:

Be it known that I, FRANK WETTEROTH, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Hinge-Joint, of which the following is a specification.

My invention relates to improvements in hinge joints, more particularly, but not necessarily, adapted for use in the construction of umbrellas; and the objects of my improvement are, to provide a simple, inexpensive, and easily applied device; to afford a hinge actually locked upon its supports; to reduce the number and variety of operations heretofore necessary in constructing and positioning devices of the class described; and to insure against breakage of the parts composing said joint. These desideratums I attain by the peculiar construction and application of parts herein illustrated and described, like letters of reference denoting like parts throughout.

Figure 1 is a plan view of the member which is secured upon a rib of an umbrella frame; Fig. 2 a like view of the member which is secured to a so-called rib-brace or "stretcher"; Fig. 3 a side elevation of the completed joint; Fig. 4 a front elevation of said joint; and Fig. 5 depicts an indentation or oblong slot provided in the metal of said rib, into which is afterward impressed a portion of the body of said rib member.

A suitable sheet of metal being provided, it is stamped out as shown in Figs. 1 and 2, and for simplification of description the article of Fig. 1 (the rib member) shall herein be designated as "part A", and the article of Fig. 2 (the "stretcher" member) as "part B". In the application of part A, lugs C are bent, along demarcation D, D, at substantially right angles to body portion E, which latter is then encircled about the proper portion of rib F, which operation brings lugs C closely together (Fig. 4). Thereafter, said rib, carrying part A, is placed upon a machine adapted to strike or bear upon body portion E at a point just opposite slot G, and thus said part is positively locked upon its support. Part B is bent, along line H, H, so as to completely incase an extremity of stretcher I, its lateral margins J closely contacting, and said part is thereafter actually locked upon its said support by being compressed upon its upper half, said compression simultaneously flattening the incased end of said stretcher as indicated in dotted outline (Fig. 4). It will here be noted, by reference to Fig. 2, that from the peculiar formation of the body portion K which gradually widens from what may be termed its base line L to its upper margin M, the said compression or swaging operation naturally causes said extremity of said stretcher to become wider at point N than at point O, and obviously it will be impossible for part B to revolve or to slip upon its said support. Parts A and B being thus positioned, opposing lugs P of part B fit snugly over and against the external face of lugs C and are pivotally secured in that position by the passage of a rivet Q through registering apertures R.

From a consideration of the drawing, in view of the foregoing description, the objects and advantages earlier set forth will be apparent: the device is simple, easily applied, and inexpensive to produce; there can be no question of the positive locking of the said parts upon their respective supports, effected through a novelty of construction and by an original method; a reduction of the number and variety of operations heretofore necessary in constructing and positioning devices of the class in question is manifest by comparison, for but six (6) steps are necessary to the formation and subsequent application of my invention,—namely, the cutting of the two said parts simultaneously with a single stroke of a die; their disposal upon their respective supports; their locking thereupon; and the final insertion of the rivet; and from the fact that no delicate shoulders, sharp corners, or other and secondary formations are evolved from the original blank, thereby enabling me to use the strength of comparatively heavy metal, it may with propriety be said that breakage of my hinge joint is insured against.

What I claim as new and desire to secure by Letters-Patent is:—

1. A device of the class described, comprising a member completely incasing an extremity of a brace, said incasing member gradually widening from its extremity L to its extremity M, the portion of said member adjacent its wider extremity and the underlying portion of said brace being com-

pressed, and lugs integral with said member in pivotal engagement with a second member upon an adjacent rib.

2. A device of the class described, comprising a rib having an indentation, a member completely encircling said rib, a portion of said member depressed in register with said indentation, and a second member completely incasing an extremity of an adjacent brace, said second member gradually widening from its extremity L to its extremity M, the portion of said second member adjacent its wider extremity and the underlying portion of said brace being compressed, and lugs integral with said second member in pivotal engagement with lugs upon the first named member.

FRANK WETTEROTH.

Witnesses:
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