No. 688,037. Patented Dec. 3, 1901.

W. C. B. SPARRY.

UMBRELLA RIB.

(Application filed June 17, 1901.)

(No Model.)

FIG. 1.

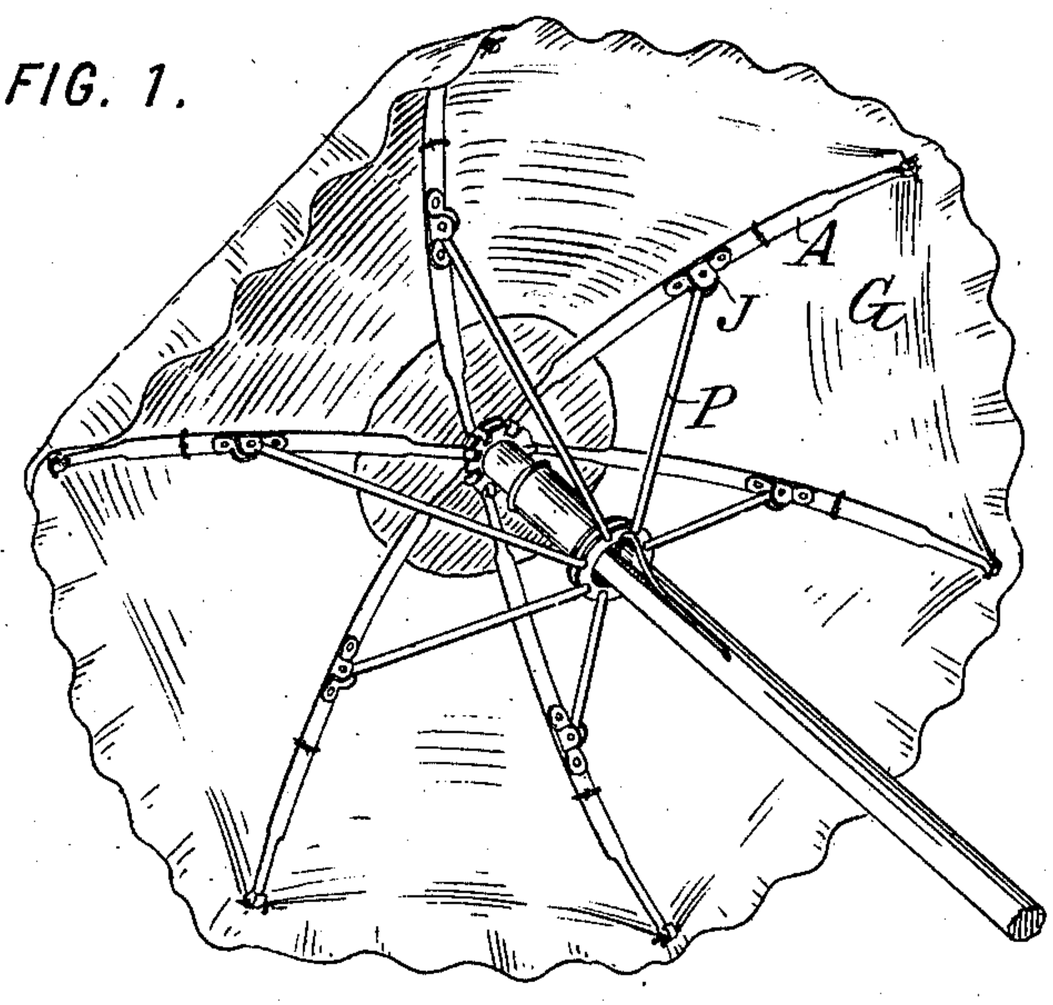


FIG. 2.

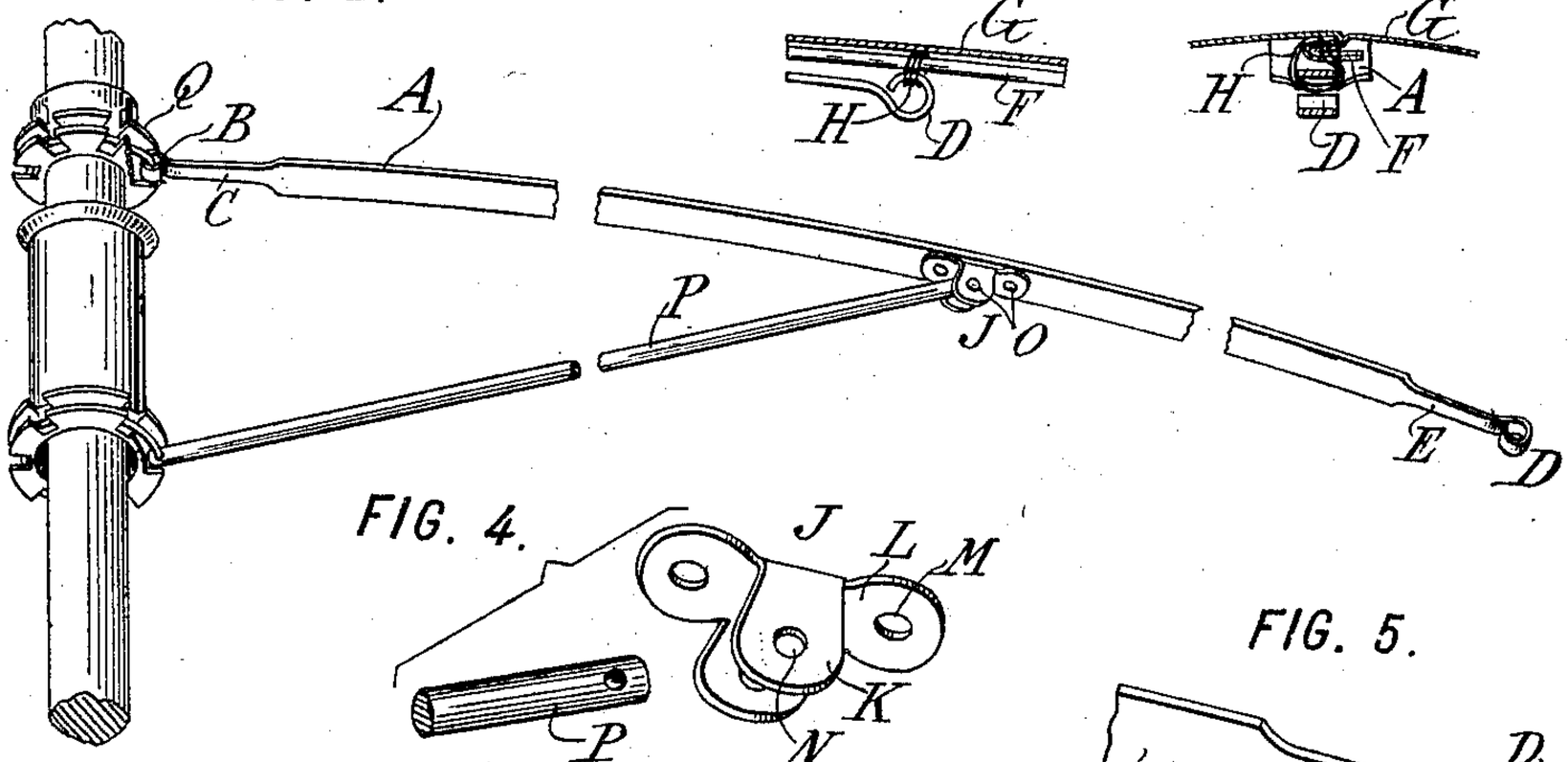


FIG. 6.

FIG. 7.

FIG. 4.

FIG. 5.

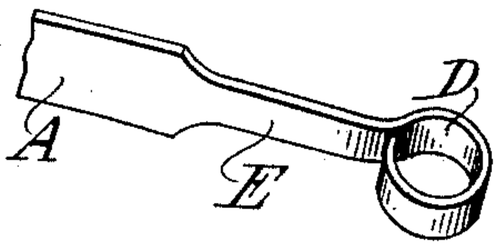


FIG. 3.

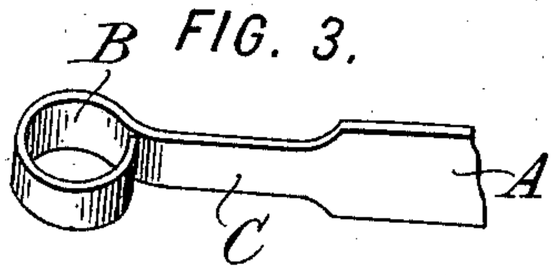
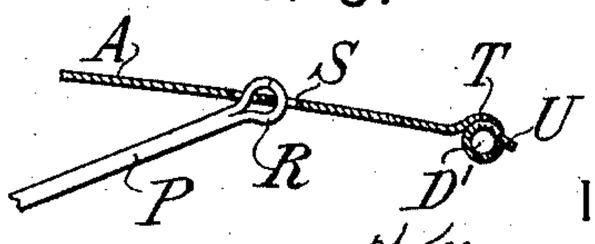


FIG. 8.



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UMBRELLA-RIB.

SPECIFICATION forming part of Letters Patent No. 688,037, dated December 3, 1901.

Application filed June 17, 1901. Serial No. 64,783. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. B. SPARRY, a citizen of the United States, residing at Fordham Heights, in the borough of Bronx, city, county, and State of New York, have invented certain new and useful Improvements in Umbrellas and Parasols, of which the following is a specification.

My invention aims to provide certain improvements in umbrellas and parasols, and especially in frames therefor, whereby the same can be made more cheaply and better than at present, whereby the bending of the ribs is avoided and the wearing of the cloth along the rib is also avoided, and whereby various other advantages, referred to hereinafter, are obtained.

Referring to the drawings forming part of this specification, Figure 1 is a perspective view of the under side of a complete umbrella embodying my invention. Fig. 2 is a view showing on a larger scale a single rib and connected parts. Figs. 3, 4, and 5 show details of the several parts of the rib and connections. Fig. 6 is a longitudinal view of the end of the rib, showing the preferred mode of fastening the cover thereto; and Fig. 7 is a cross-section of Fig. 6 through the eye in the end of the rib. Fig. 8 is a longitudinal section of a modification.

An important feature of my improved frame is that the ribs are made of comparatively broad flat strips of steel or other metal, whereby considerable elasticity is obtained, which tends to preserve the shape of the ribs and avoid the bending of the same when they are subjected to sudden strains, as from a puff of wind or the like, which bending is a frequent occurrence and a most objectionable feature of many umbrellas as at present made. By the use of a flat rib the connections are also very cheaply made, the ribs being bent or curled over to form an eye at the end, which is a cheaper and better construction than the flattening and punching of the ribs as now commonly practiced. Eyes of this sort are formed in the same manner at both ends—at the upper end for stringing the ribs on the wire to fasten the same to the notch and at the lower end for sewing on the cloth or other material composing the cover.

Referring to the drawings, A is a rib made according to my invention of flat steel, which is attached at its upper end to the stick by means of the usual notch and wire, the wire being strung through an eye B, Fig. 3, formed by merely bending the material either downward or upward, as desired. The end portion of the rib is preferably reduced or tapered, as shown at C, to make a smaller joint. This arrangement gives a very good action of the rib at the point of its connection to the notch Q, and on account of the width of the rib at that point gives it considerable stiffness against lateral movement, and consequent durability. The outer end of the rib is formed with an eye D, Fig. 5, similarly formed by bending over the material downward, as shown, or upward, as in Fig. 6, the end E being preferably reduced or tapered also. The rib being thin is quite flexible, but is made broad enough to give the necessary strength. In addition to the advantage of flexibility the broad upper surface of the rib makes a flat smooth bearing for the cover, which reduces the lumpy appearance due to ordinary ribs when the umbrella is closed and which also reduces the wear on the cover along the ribs. As this is the first point at which umbrella-covers usually wear and as it is solely due to the sharp line of contact between the rib and the cover, it will be seen that this feature of my invention is extremely valuable.

By reason of the shape of my improved rib the method of fastening the cover to the same, as shown in Figs. 6 and 7, is simpler than that at present in use, which necessitates generally the partial folding of the cover about the rib and in which also the end of the rib projects beyond the edge of the cover. My improved mode of attaching the cover has also the advantage that it does not show on the outside of the cover. For this purpose in the preferred mode the seam F of the cover G, which is of course on the under side of the cover, rests on the flat top of the eye D of the rib, being attached thereto by a thread H, passing through the part of the cloth forming the seam and through the eye D. The cloth of the cover does not, therefore, come around the rib at all, but rests flat on the top of the same at all points.

My flat rib is especially convenient for forming an attachment to the stretcher. This attachment may be arranged cheaply and strongly by riveting thereto a plate J, Fig. 4, comprising flanges K and a base L. The base and the flanges are preferably formed from a single blank of flexible metal by punching the necessary rivet-holes M and N and bending up the flanges K, as shown. Fig. 4 shows the member J attached to the rib by means of rivets or the like O and having its flanges attached to the stretcher P by means of similar rivets or the like. The ends of the plate L, which are arranged for riveting to the rib, are preferably extended beyond the sides of the flanges K, so as to give a long bearing along the rib, which adds to its firmness and prevents its yielding under the strain of opening or closing. It will be seen that this forms a cheap connection and one that is perfectly rigid on the rib and very strong. It has a decided advantage over flanges which are merely clamped on the rib by being bent around it, as flanges of this sort are apt to slide along the rib and so throw the several ribs out of adjustment. This connection has also the advantage that the stretcher P fits between the flanges K and does not therefore need to be forked, as is necessary where the flange is made by bending around the rib, as explained, and where the stretcher needs, consequently, to be forked to embrace the flange. By the construction shown I also secure a smooth and flat outer surface to the rib in place of the lumps formed by the use of flanges which are bent around the rib. The stretcher of my improved umbrella may therefore be made of a single rod or strip with suitable holes punched in the end, as shown in Fig. 4. The inner end is of similar construction, as clearly shown in Fig. 2. It will be seen, therefore, that I provide an umbrella having various points of improvement in detail, whereby I provide a frame which as a whole is more flexible than those now in use, is not so liable to breakage, and is stronger and therefore better able to withstand the rough handling which umbrellas sometimes receive. The connection of the ribs to the notch is stronger and has considerable stiffness against relative lateral movement of the parts by reason of the width of the rib at that point, wherefore it is more durable. The work of sewing the cover to the end of the rib may be much more quickly done than in previous constructions, and the tip of the cover will therefore be more strongly made than with ordinary frames.

While I have described in great detail an umbrella or parasol embodying my invention, it is to be understood that I do not mean to limit myself to the particular forms of the various parts shown and described, but desire to include all modifications thereof which accomplish the same result by substantially the same means. It will be understood that various modifications of the same are possible to those skilled in the art without departing from the spirit of my invention. For example, the manner of joining the stretcher to the flat rib A may be modified, as shown in Fig. 8. In this case the eye R in the end of the stretcher P is formed by splitting the stretcher in two parts to form a sort of forked end. The two prongs are then passed through the two holes S, provided either for rivets O or for the forked end of the stretcher, and are brought together on the outside of the rib to form the attachment. This modification illustrates the especial usefulness of my flat rib in the making of connections to the same. The eyes in the end of the rib may also be formed by bending the metal either upward or downward and either to the point shown in Figs. 3 and 5 to form a single convolution or even farther around to form more than a single convolution, and thereby to insure that the threads H, used in attaching the cover to the eye, shall not slip out of the eye. For the same purpose the end of the metal may be passed through the intermediate portion thereof after being bent around to form the eye or the two features may be combined, as shown, in the eye D′, Fig. 8, in which after forming a complete convolution the metal is still further bent around, as at T, to form an additional half-convolution, and the end U thereof is passed through the body portion to lock the end to the same.

What I claim is—

1. In an umbrella, the combination with a member J comprising a flat base L and flanges K, said base L extending beyond the sides of said flanges and adapted to give a long bearing on the rib and to be fastened to said rib, of a rib fastened to said base L and a stretcher fastened to said flanges K.

2. In an umbrella, a flat rib A bent at the end to form an eye and having the free end U passed through the body of the same, whereby to prevent the thread from slipping out of the eye, and to lock the free end of the rib in position.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM C. B. SPARRY.

Witnesses:

J. R. STEWART,

A. E. DURYEA.