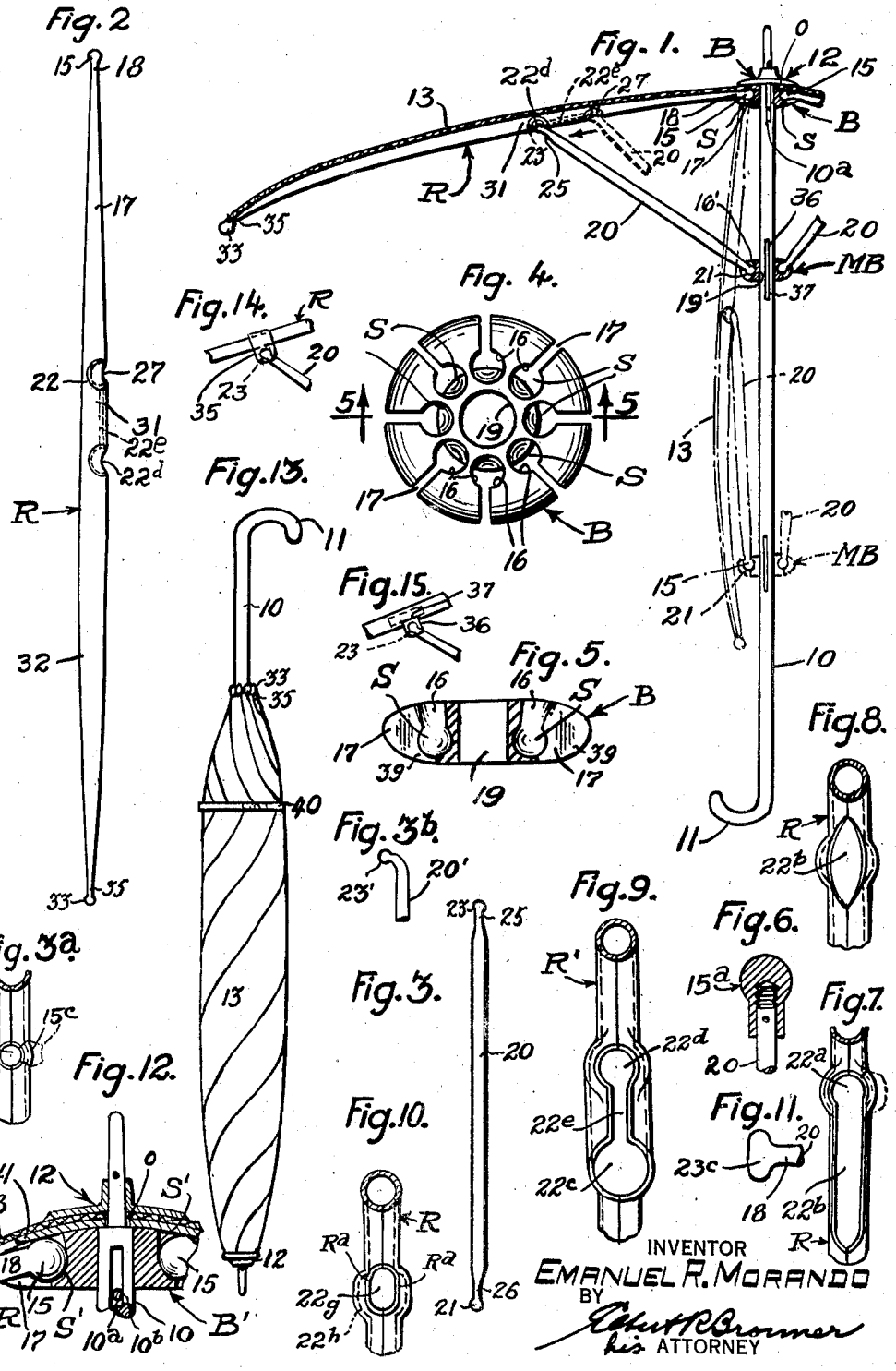
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UMBRELLA

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UMBRELLA

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1 Claim. (Cl. 135—29)

This invention relates generally to umbrellas and has particular reference to improved elements of construction therefor.

One of the important features of this present invention, resides in open socket or bearing members or roller-like socket joints, these joints requiring no pins or wires. The ribs and strut-braces are provided with T or oval shape end portions, which are adapted to be removed and replaced instantly in the open socket or bearing members on the rod handle of the umbrella, the ribs also are provided with an intermediate enlarged opening and extending slotted opening therefrom to facilitate the removal or replacement of the strut-brace end portions.

Umbrellas have, heretofore, been constructed with ribs and accompanying struts or operating members therefor, with which were associated such features as pins, wire portions and the like. Since these prior features have not been entirely satisfactory, as to the extent that, with such features, including angular parts of the sockets, ribs and struts, the arrangements have been instrumental in cutting or prematurely wearing out the fabric covering, therefore, it is the object of this instant invention to eliminate such prior features.

The object of this invention, is to provide simplified structures, which, if for any reason they become broken or damaged, may easily be repaired by the user, so as to avoid the cost of securing a new umbrella, it being well known that when umbrellas have heretofore been strained, partly broken or blown out of proper place, such umbrellas had to be thrown away as useless, for the reason they could not be fixed conveniently.

With the above indicated objects and advantages in view, as well as others which will hereinafter appear, this invention resides in certain novel constructions and arrangement of parts, the essential features of which are herein clearly described in the following specification, and illustrated in the accompanying drawing, in which:

Figure 1 is a fragmentary sectional view of one side of an umbrella, showing one rib and its brace.

Figure 2 is an exterior view of one of the ribs.

Figure 3 is a similar view of a strut, or brace for the rib support.

Figure 3*a* shows a fragmentary view of socket portion of the ribs, that retain the ball end of the strut-braces.

Figure 3*b* shows the ball end of the strut braces curved.

Figure 4 is an enlarged top plan view of the socket bearing at the top end of the umbrella stem for the universal or ball ends of the ribs to operate therein.

Figure 5 is a sectional view on the line 5—5, Figure 4.

Figure 6 shows a separate end element attachment for ribs and strut braces.

Figure 7 is an enlarged cross-sectional view of one of the ribs, showing an alternative socket portion.

Figures 8, 9 and 10 are similar views of much preferred forms of socket portions for the ribs.

Figure 11 shows a T shape or an oval shape end for the strut braces and rib members.

Figure 12 is an alternative of the socket bearing assembly showing the end of ribs securely locked therein by the stem plate.

Figure 13 is a view of the umbrella folded.

Figures 14 and 15 show alternative means for securing the end of the strut-brace either by an inside or outer clip.

As illustrated in said drawing, the particular embodiment of the invention selected for disclosure, includes a rod stem or handle rod 10, having a hand grip 11, but this embodiment is merely one type or style of the many models which may be constructed, and the features shown are suitable for incorporation in models of the ladies type, or in umbrellas for beach or other use, for example:

The stem or handle rod 10 has thereon at one end a shield or protector 12 for the usual opening O in the fabric cover 13, said opening being formed at the tapering ends of the sections of the cover, well known in this art.

Adjacent the shield 12, is an upper annular bearing B suitably secured thereat, in which are a number of socket portions S. The number of these sockets here shown is eight, for convenience, but any other number of socket portions with openings 16 may be used, and all of these socket openings are alike.

Cooperating with the socket primary openings 16, are rib members which include a T shape end portion 15. In viewing Figures 4 and 5, taken with Figure 1, it is seen that the end 15 is inserted in an opening 16 of the socket, and from the opening extends a slot 17, wherein a neck part 18 of the rib is inserted and movable therein, said rib being adapted to be positioned in the extended position, as shown in Figure 1, or in the closed position shown in dot-and-dash lines.

A feature of the opening 16 is that, with the

end 15 therein, and with the rib R in the extended position, as shown in Figure 1, or any lower position, said end is secured but operable in sockets S. To change the rib R, it is only necessary to urge the rib, or the bearing S may be lowered slightly on the keyway 10*a*, including the neck part 18, whereby the neck 18 and said end 15 being slidably out of the slot 17 and the opening 16, respectively.

An aperture 19 is shown in the fixed socket bearing B for the stem 10, and the ribs R may or may not be of the usual hollow or tubular type as shown. The movable medial bearing MB slidable on the lower part of the stem or handle rod 10, is substantially and identically similar to the fixed socket bearing B, already described.

The manner of removing a strut-brace 20, as at its end 21, is similar to the manner of removing the end 15 of ribs R, the member 20 being also urged upwardly and inwardly, so as to slide the end 21 out of its opening 16'.

Along the middle or medial portion of the aforesaid rib R is a socket portion 22, having the same diameter as the end 23 at the other end of the member 20. A slit flap 15*c* may be pushed outwardly as per dot-dash lines in Figure 3*a*, the end 23 is then inserted and the flap again returned to its normal position securing the end 23 in the socket 22.

It is noted that the socket 22, as at a portion 31, extends slightly beyond the opening 27, and this feature additionally secures the strut end in the rib, against accidental removal. A feature similar to this is noted at the opening 16, Figure 5, since said opening, at its major axis is nearer to the aperture 19', than just above said axis.

A portion 32 of a rib is about similar to a part 17, and this portion, having a T shape end 33, is narrowed thereat, this being at 35 to receive and secure the fabric 13 in place.

In Figures 7, 8, 9 and 10, are shown variable modifications of the socket 22 of the ribs R. In Figure 7 a slotted portion 22*b* extends from the enlarged opening of the socket 22*a* to make clearance for the shank 25 of the strut 20.

In Figure 8 an oval shape opening 22*b* is shown, which may be sprung open by urging each end of the rib R so the end 23 may be inserted therein. In Figure 9 the end 23 is inserted in large primary openings 27 and moved to the working socket 22*d* of the rib R', the shank 25 of the struts 20 clearing through the slotted opening 22*e*, which may be closed slightly to secure end 23 in socket 22*d* thereat. In Figure 10 an elongated opening 22*g* is shown for receiving a T shape, oval or an elongated or T shape end 23*c* of the strut 20, as shown in Figure 11, and in this same Figure 10, one of the ribs R is shown with an enlarged cross-sectional portion, in which the depressed sides R*a* form the socket portion 22*h* as shown. Figures 7, 8 and 9 are similar enlarged views.

In Figure 12, the end 15 of rib may be secured into the socket S' of the bearing B', by a plate member 41 as shown. In Figure 6, a removable member 15*a* is shown, and in Figure 11 an oval shape end or roller-like portion 15*b* is shown that it may be adapted in place of the end 15, 21 and 23, in which after insertion into the socket 22*g* of Figure 10, it is turned to prevent it coming out.

A retaining band is shown at 40, for the folded umbrella, and the portions 17 and 32 may be formed in any desirable manner, as to cross section, that they may bend or spring in considerably, as in the expanded position.

In Figures 14 and 15, an outer clip member 35 and an inner clip member 36 respectively, are shown to secure the end 23 of the strut 20, the clip 36 being locked in recess 37 of rib R.

The ends 15, 33, 23, 23*c* are to be either of a T shape, oval or elongated construction.

Variations may be resorted to within the scope of the invention and parts of the improvements may be used without others.

What I claim as new and desire to secure by Letters Patent of the United States of America is as follows:

In an umbrella of the character described, a rib member, a strut member, a joint therebetween, including a head formed on said strut member, a longitudinal slot of predetermined length, having an enlarged opening at one end thereof, formed at the medial portion of said rib member, said head engaging said enlarged opening and slot, whereby said head engages the other end of said slot when said umbrella is opened, and said strut and rib members adapted to be removable for substituting new members whenever desired.

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