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UMBRELLA

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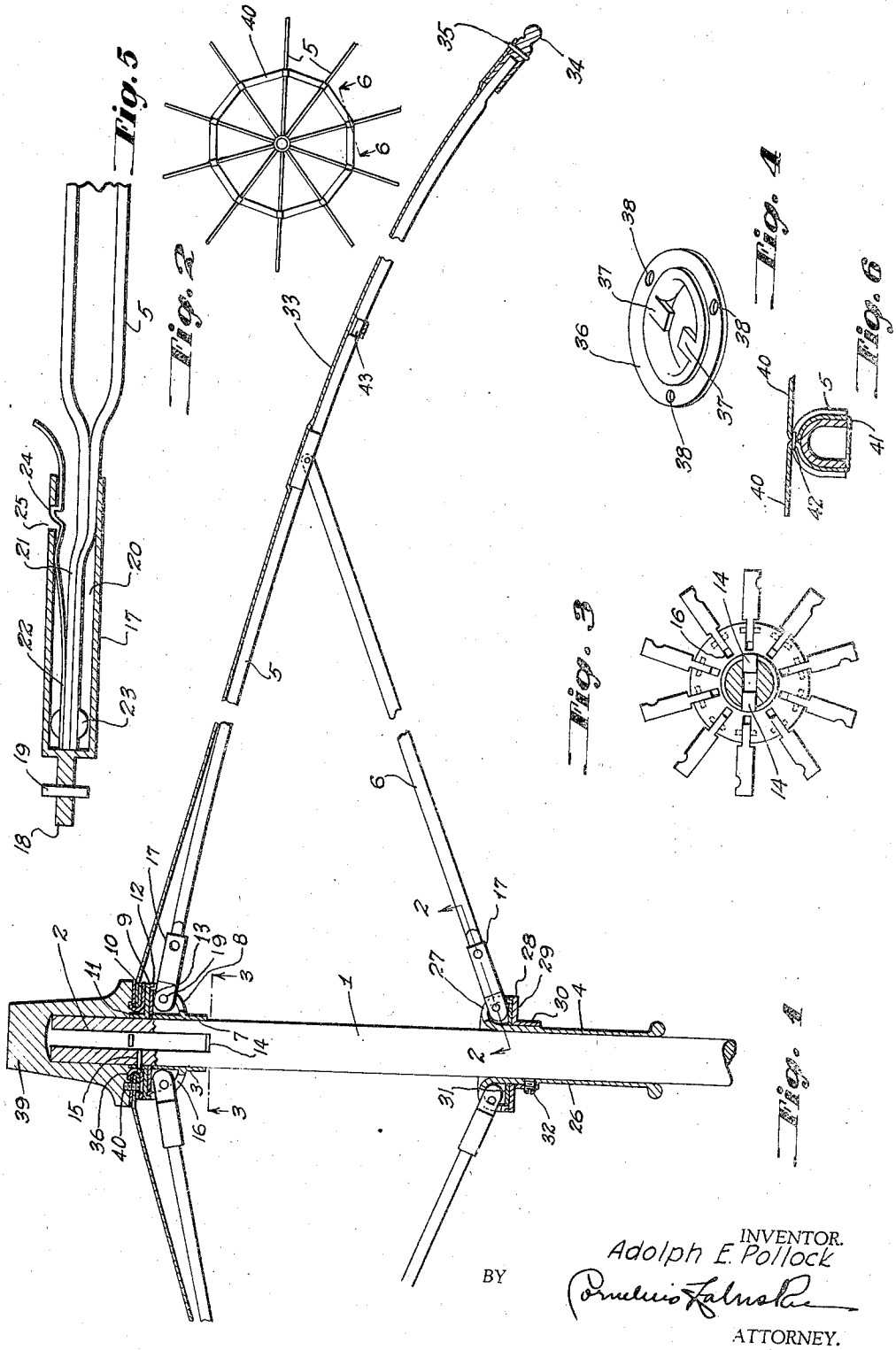


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

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UMBRELLA

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This invention relates to umbrellas and is directed more particularly to an umbrella construction so constituted that practically all of the parts of the structure can be dismantled without the need of tools. The invention is particularly directed to a construction which will permit of substitution of one cover for another, in order to effect repair or replacement, or to permit covers of different colors to be used as occasion may require. The structure also provides for the expeditious removal of a rib and stretcher in the event of breakage thereof, and the substitution therefor of a new and intact part.

Heretofore, umbrella structures have been suggested wherein the ribs or cover could be removed and changed, but these structures have, in the past, been unsatisfactory for various reasons, notably among which weakness of structure has been prevalent, or the arrangement has been so complicated that the change could not be readily made by inexperienced persons. The object of the present invention is to provide a simple and economical construction of the character under consideration, and which is so constituted that it may be promptly manipulated for the purposes stated by the uninitiated and without the employment of any tools.

An important feature of the invention resides in the novel crown construction adapted to be incorporated in the crown or in the corresponding portion of the runner or slide. This novel construction is strong and durable and yet is so constituted that it may be economically manufactured.

Another feature of the invention resides in a detachable connection between the ribs and the crown, and the stretchers and the runner, so constituted that the ribs and stretchers may be easily removed from the crown and slide when desired, and yet will give a tight connection which will not inadvertently become detached or rattle.

Another feature of the invention resides in a novel construction for mounting the crown of the frame and the cap or finial of the cover in proper cooperative relation with the staff of the umbrella, so that there will be proper registration of the seams of the cover with the ribs of the frame. This feature consists primarily in registering devices mounted on the cover portion and on the crown portion, and both cooperating with a slot formed in the end of the staff, so that exact registration between the ribs and the seams of the cover must necessarily result.

Features of the invention other than those specified will be apparent from the following detailed description and from the accompanying drawing.

In the accompanying drawing, I have shown one practical embodiment of the invention, but the structure thereof is to be understood as illustrative only, and not as defining the limits of the invention.

Fig. 1 is a cross section of an umbrella embodying the present invention, the greater portion of the staff being shown in elevation.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a perspective view of a grommet employed in the construction.

Fig. 5 is a plan view of the frame on reduced section showing the manner in which the ribs are tied together against lateral displacement.

Fig. 6 is a transverse section on the line 6—6 of Fig. 5.

Referring to the drawing, 1 designates the staff of the umbrella. This may be of any suitable material such as metal or wood. It is provided with an appropriate handle, not shown, while its other end is bifurcated through the provision of a slot 2 which extends for a distance from the free or upper end of the staff. The crown is indicated generally by the reference character 3, while the runner or slide is designated 4. The ribs are indicated at 5 and are pivotally connected to spacers 6 as shown.

The crown is of novel and unique construction. It embodies a sleeve 7 with which is formed a hollow cup-like shell 8, the upper free edge of which is externally rabbeted to provide an upstanding flange of reduced thickness, indicated at 9. A plate or disc, 10, is formed integral with the lower edge of a sleeve 11, and rests on the top of the flange 9. This disc is provided at its outer circumference with a depending flange 12 which extends into the rabbet of the part 8, and comes flush with the outer circumference of the latter. A disc 13 is clamped between the upper edge of the sleeve 3 and the lower edge of the sleeve 11, and is of such diameter as to bear against the inner periphery of the flange 9, and thus cooperate with the flange 12 in a manner to clamp the flange 9 in place, and properly reinforce the part 8 against bending stresses. The lower end of the sleeve 7 is provided with inturned tongues 14 which extend into the slot 2 and seat on the lower end thereof, as shown in Figs. 1 and 3. A pin 15 is passed through the sleeve 11 and enters the shaft 1 to lock the parts described from withdrawal from the shaft and keep all of said parts

in tight rigid condition. In this way, the crown is locked permanently to the shaft in a manner to preclude movement thereof in any direction, and in such a way that the cup portion 8 thereof is effectually braced and strengthened.

The cup portion 8 of the crown is provided with radial slots 16 as shown best in Fig. 3, and these slots divide the major portion of the cup part into a series of tongues, the upper free ends of which are locked in place between the flange 12 and the disc 10, so that it is impossible for these tongues to bend outwardly and free the ribs. In all prior constructions where slotted crowns forming tongues were employed, this structure constituted points of weakness, for any appreciable pressure on the tongues caused them to bend and release the ribs. By anchoring the free ends of the tongues as described, this cannot occur.

Associated with each slot 16 is a rib terminal socket 17, there being as many of these sockets as there are ribs in the umbrella. Each socket is hollow. It is provided with one open end and its other end is formed with a projecting tongue 18 of such size and shape as to extend through one of the slots 16. A pin is passed through each tongue and forms therewith trunnions 19. The sockets 17 are adapted to be associated with the crown as a step in the assembling of the latter. They are engaged with the slots before the discs 10 and 13 are brought into cooperation with the cup portion 8, and after one socket has been associated with each slot, the discs 10 and 13 are brought into the position shown in Fig. 1, and the pin 15 inserted to maintain the parts in assembled relation. In this way, the parts may be expeditiously assembled in the manufacture of the umbrella and become permanently attached to one another.

Each socket is provided with an interior chamber 20, open at one end as shown best in Fig. 2, and adapted to receive one end of a rib 5. To allow of this cooperation between the parts, each rib, which is of channeled or U-shaped cross section, is flattened at its end and is swaged as shown at 21, to provide a relatively thin offset portion. To the free end of this offset portion, a leaf spring 22 is secured by a rivet 23, and this leaf spring is so shaped that when compressed against the adjacent face of the rib, it will substantially conform thereto. However, the leaf spring is provided, intermediate its ends, with a detent 24, adapted, when the leaf spring is distended, to enter into an opening or perforation 25 in the shell of the socket so as to thereby lock the rib in place therein. All is clearly shown in Fig. 2. To release the rib, however, it is only necessary to compress the leaf spring against the side of the rib, and this will withdraw the detent 24 from the opening 25, so that the rib may be withdrawn without difficulty. By swaging and offsetting the rib as shown, it is possible to make the sockets very thin so that they are of minimum size, and the rib 23 is made sufficiently large so as to centralize the free end of the rib at the base of the socket, while the leaf spring and the remote side of the rib contact with opposite sides of the socket near the open end of the latter. There is thus a snug fit between the rib and the socket, with the socket of minimum size, and consequently there will not be any undesirable lost motion or rattling.

The runner 4 is formed similarly to the crown as hereinbefore described. More specifically, the runner is in the form of a sleeve 26, the upper end of which is spun or stamped outwardly to form a cup shaped shell 27, which corresponds in shape and function to the cup shaped shell 8. The shell 27 is similarly radially slotted to receive sockets 17, identical in form with the sockets of the crown. Likewise, the true periphery of the shell 27 is rabbeted to receive the flange 28 of a disc 29, forming part of a sleeve 30. A filler disc 31 cooperates with the flange 28 to reinforce the outer periphery of the shell 27, and the sleeve 30 is secured to the sleeve 26 by a screw or pin 32.

The sockets 17, associated with the runner 4, cooperate with the stretchers 6 in the same manner as the ribs 5 cooperate with the sockets of the crown, and it will thus appear that, when desired, because of breakage or otherwise, to remove a rib and stretcher, this may be expeditiously accomplished by persons with little mechanical skill and without the employment of any tools whatsoever, for finger pressure against the leaf springs 22 will instantly and easily disengage the rib and stretcher to permit of their withdrawal. New parts can be readily substituted by simply pressing the ends of the rib and stretcher into the sockets, for the leaf springs 22 will yield under such pressure and permit of their introduction into the sockets, as will be readily understood.

The cover 33 is made in the usual way, by the joining of appropriate sections together by seams, adapted to register with the ribs of the frame. At each seam the cover is secured to a hollow tip 34 in any appropriate way, as by stitches 35, and the outer end of each rib is swaged or formed to enter into the socket of the corresponding hollow tip of the cover.

The center or apex of the cover has heretofore generally been secured to a sleeve or ring by gathering it into an annular channel within the ring, and sewing it in place. This produces a job which is far from neat. The stitches frequently break and the cover rips. These difficulties are overcome in the prevent invention by providing the apex of the cover with a hole through which a grommet 36 is passed, and the two sections of the grommet are secured together, in a way conventional with grommets, to tightly clamp the grommet to the apex of the cover in a way to preclude release of the fabric and to produce a perfect finish and pleasing appearance, and one which is permanent in its nature, for the fabric cannot pull free from the grommet if properly applied. The grommet, however, differs from conventional grommets, for as shown in Fig. 4, it is provided with two fingers 37 which extend toward one another and are of a size to be received into the slot 2 of the staff, and furthermore, the grommet is punched to provide perforations 38. When the cover is associated with the grommet as stated, the grommet is so positioned that when it is passed over the end of the staff, the fingers 37 will extend into and traverse the slot 2 until the grommet seats on the disc 10, to bring about automatic registration of the seams of the cover and the ribs of the frame. The free end of the staff is covered and concealed by a finial or cover cap 39 which is hollow and has a smooth, sliding fit upon the staff, and the grommet is secured to the under end of the finial by means of screws 40 which extend through the perforations 38 and are threaded in the finial as shown best in Fig. 1. The finial and grommet thus become part and

parcel of the cover, and are removable and replaceable on the frame and staff therewith.

To remove a cover, it is only necessary to close the umbrella, withdraw the hollow tips **34** from the respective ribs, and the finial may then be removed from the staff, carrying with it the grommet and cover.

It will, of course, be understood that the runner **4** is provided with the usual spring catch conventional to umbrellas, and the purpose of which is to maintain the runner in elevated position, when the umbrella is open.

The umbrella constructions as hereinbefore described are complete and may be used as such without further additions. However, I find in some cases, particularly with men's umbrellas, that there may be a tendency of the ribs to become laterally displaced and out of registration with the seams intermediate the ends of the latter and I consequently provide simple and efficient means of precluding such displacement. For example, I may connect the ribs intermediate their ends by a tape or ribbon **40** which is stretched from one rib to the next in a continuous manner about the frame and is provided in juxtaposition with each rib with a loop **41** sewed in by stitches **42**, as shown best in Fig. 6, so that there is a loop embracing each rib and forming part of the substantially annular ribbon tie **40**. With this arrangement, lateral displacement of the ribs is effectually precluded when the umbrella is in raised position. It is of course essential that appropriate means be provided to preclude the ribbon tie from shifting longitudinally of the ribs and this may be readily accomplished by swedging the ribs to form therein recesses **43**, as indicated in Fig. 1. These recesses **43** receive the loops, so as to preclude longitudinal shifting along the ribs and at the same time provide a flush upper surface so that the cover is not deformed. Consequently, the presence of the ribbon tie cannot be observed from the exterior of the umbrella.

An important advantage of the ribbon tie structure described is that it forms, in effect, an inherent part of the umbrella frame and is entirely separate and independent of the cover, so that the cover may be changed without making any adjustments whatsoever in the ribbon tie and without detaching the cover from the tie as said cover is never actually attached thereto.

In practice, the ribs and stretchers are preferably made of the usual conventional material, such as steel properly enameled to preclude corrosion thereof, while the runner, crown, sockets and the springs associated with the sockets are preferably made of some appropriate non-corrosive material, such as a non-ferrous metal, so as not to corrode and deteriorate or stain the cover.

It will be noted that the crown construction as well as the runner construction differ from the corresponding conventional constructions now in general use in that each rib with its associated stretcher is mounted independently of all the other ribs and stretchers, so that any particular rib can be expeditiously and easily removed and replaced without disturbing any of the other ribs and without the use of any tools. According to conventional umbrella construction, the ribs and stretchers are held in place with wire common to all, so that when the wire is loosened, it loosens all of them. Such is not the case with the present invention.

It will also be noted that according to this invention, the staff, crown, and associated parts, are so constituted that they insure proper assembly and continued correct relation. For example, when the crown is brought into position on the staff, the projection of the crown seats at the bottom of the slot in the staff and this properly spaces the crown longitudinally of the staff, and the finial rests on the crown so that there is a definite and predetermined relationship positively established between these parts. Consequently, the cover must be properly positioned with respect to the frame so that it will not sag or become loose, or get out of shape, and all of the seams of the cover will be automatically brought into register with the corresponding ribs of the frame.

Furthermore, the several respective parts of the umbrella are interchangeable and may be used in any position, according to their particular construction.

I have hereinbefore described the structure of the present invention as adapted for use in umbrellas, but it will, of course, be understood that it may be employed in parasols, beach umbrellas or parasols, and similar structures as well. Inasmuch as the cover is interchangeable, it provides for the quick change of covers, so that the umbrella or parasol may be used with such color as may be appropriate to the occasion or to the dress or gown worn by the user.

The structure which I have described may be economically manufactured, is thoroughly efficient for its intended purposes, and is strong and rugged in construction. The changeable parts may be expeditiously dismantled and replaced, and when in use, the structure appears, to all intents and purposes, as absolutely conventional in form, so that the present invention does not detract from the appearance of the article, and its presence is not apparent to the casual observer.

The foregoing detailed description sets forth the invention in its preferred practical form, but the invention is to be understood as fully conventional with the pending claims.

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

1. An umbrella comprising a staff slotted at its upper end, a crown embracing said staff and having a projection extending into the slot to circumferentially position the crown with respect to the staff, a plurality of rib sockets pivoted to the crown, ribs detachably received in said sockets, a seamed cover provided at its apex with a grommet that also has a projection extending into the slot of the staff to position the seams of the cover in registration with the ribs.

2. An umbrella comprising a staff slotted at its upper end, a crown embracing said staff and having a projection extending into the slot to circumferentially position the crown with respect to the staff, a plurality of rib sockets pivoted to the crown, ribs detachably received in said sockets, a seamed cover provided at its apex with a grommet that also has a projection extending into the slot of the staff to position the seams of the cover in registration with the ribs, and a chambered finial, secured to the grommet and adapted to receive and cover the free end of the staff.

3. An umbrella comprising a staff slotted at its upper end, a crown having ribs detachably secured thereto and embracing the staff, and provided with a projection extending into the slot of the staff, and a seamed cover provided at its apex with a grommet extending into the slot of the staff to position the seams of the cover in registration with the ribs.

4. An umbrella comprising a staff slotted at its upper end, a frame having ribs, and a crown, the latter of which is provided with a projection extending into the slot of the staff, a seamed cover having an aperture in its apex, grommet sections united to one another through the apex of the cover to grip the edges of the aperture and tightly engage the grommet with the cover, said grommet being provided with a projection extending into the slot of the staff, and a finial, secured to the grommet and covering the free end of the staff.

5. An umbrella comprising a staff slotted at its upper end, a crown having ribs detachably secured thereto, and embracing the staff, and provided with a projection extending into and seating upon the lower end of the slot, a pin extending through the crown and into the staff to secure the crown in said seated position, a grommet detachably seated on the crown and embracing the staff, and provided with a projection extending into the slot of the staff, and a cover centrally gripped by the grommet, and provided with seams registering with the ribs.

6. An umbrella comprising a staff slotted at its upper end, a crown having ribs detachably secured thereto, and embracing the staff, and provided with a projection extending into and seating upon the lower end of the slot, a pin extending through the crown and into the staff to secure the crown in said seated position, a grommet detachably seated on the crown and embracing the staff, and provided with a projection extending into the slot of the staff, and a cover centrally gripped by the grommet, and provided with seams registering with the ribs, and a hollow finial secured to the grommet and detachably housing the free end of the staff.

7. An umbrella comprising a staff slotted at its upper end, a crown embracing the staff and having a projection extending into and seated upon the base of the slot, said crown being provided with a hollow cup shaped shell, radially slotted, a plate resting upon the upper end of the shell to close the same, said plate being secured to the staff to hold the plate to its seat on the shell, rib sockets provided with tongues entering into the slots of the shell and having within the shell laterally extending trunnions to preclude the withdrawal of the tongues, a rib extending into each socket and having a detent resiliently associated with the rib to detachably secure the rib in the socket, a runner on the staff, stretcher sockets pivoted to the runner, a stretcher detachably secured to each stretcher socket at one end, with its other end pivoted to the corresponding rib, a grommet embracing the staff and having a projection extending into the slot of the staff, a seamed cover centrally clamped in the grommet with the seams registering with the ribs, a hollow tip secured to the cover, adjacent to the free end of each rib and detachably housing the free end of the rib, and a finial secured to the grommet and detachably housing the free end of the staff.

8. An umbrella comprising a staff, a crown secured to the staff, said crown having a plurality of outwardly and upwardly bowed prongs forming between them slots, a plate resting upon the tops of the prongs and provided with an annular channel into which the upper ends of the prongs are received to brace the prongs and maintain them against bending in either an inwardly or an outwardly radial direction, a rib socket associated with each slot and provided with a tongue extending through the slot into the interior of the crown and there provided with laterally extending trunnions, a rib projecting into each socket and having a detent normally engaging with the socket to lock the rib against removal therefrom, a runner slidable on the staff, stretcher sockets pivoted to the runner, and a stretcher secured at one end to each rib, and at the other end detachably connected to the corresponding socket of the runner.

9. An umbrella comprising a cover and a supporting frame having radial ribs connected together intermediate their ends by circumferential spacing elements, independent of the cover, and adapted to maintain the ribs in predetermined circumferentially spaced relation intermediate their ends.

10. A detachable joint for umbrella ribs and stretchers comprising a tubular member closed at one end and having intermediate its ends a shoulder accessible from the interior thereof, and a tongue projecting from the closed end of the tubular member and provided at its opposite sides with alined projecting trunnions, in combination with a rib or stretcher section projecting into the tubular member from the open end thereof and flattened within the confines of the tubular member, and a leaf spring secured to the rib or stretcher section within the tubular member and projecting into accessible position beyond the end of said tubular member, said spring being provided with a detent positioned to engage with the shoulder of the tubular member and biased to normally engage the detent with said shoulder, and said leaf spring being manually compressible to disengage the detent from the shoulder to permit withdrawal of the rib and stretcher section from said tubular member.

11. A detachable joint for umbrella ribs and stretchers comprising a tubular member closed at one end and having intermediate its ends a shoulder accessible from the interior thereof, a tongue projecting from the closed end of the tubular member and provided thereon with means for pivotally mounting the tubular member on a crown or slide, in combination with a rib or stretcher section having a flattened offset end projecting into the confines of the tubular member from the open end thereof, and a leaf spring, one end of which is secured to the flattened end of said section, and the other end of which projects outwardly through the open end of the tubular member, said leaf spring having a detent adapted to engage with said stretcher and the spring being biased to normally engage the detent with said shoulder, to secure the section against inadvertent release from the tubular member.

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