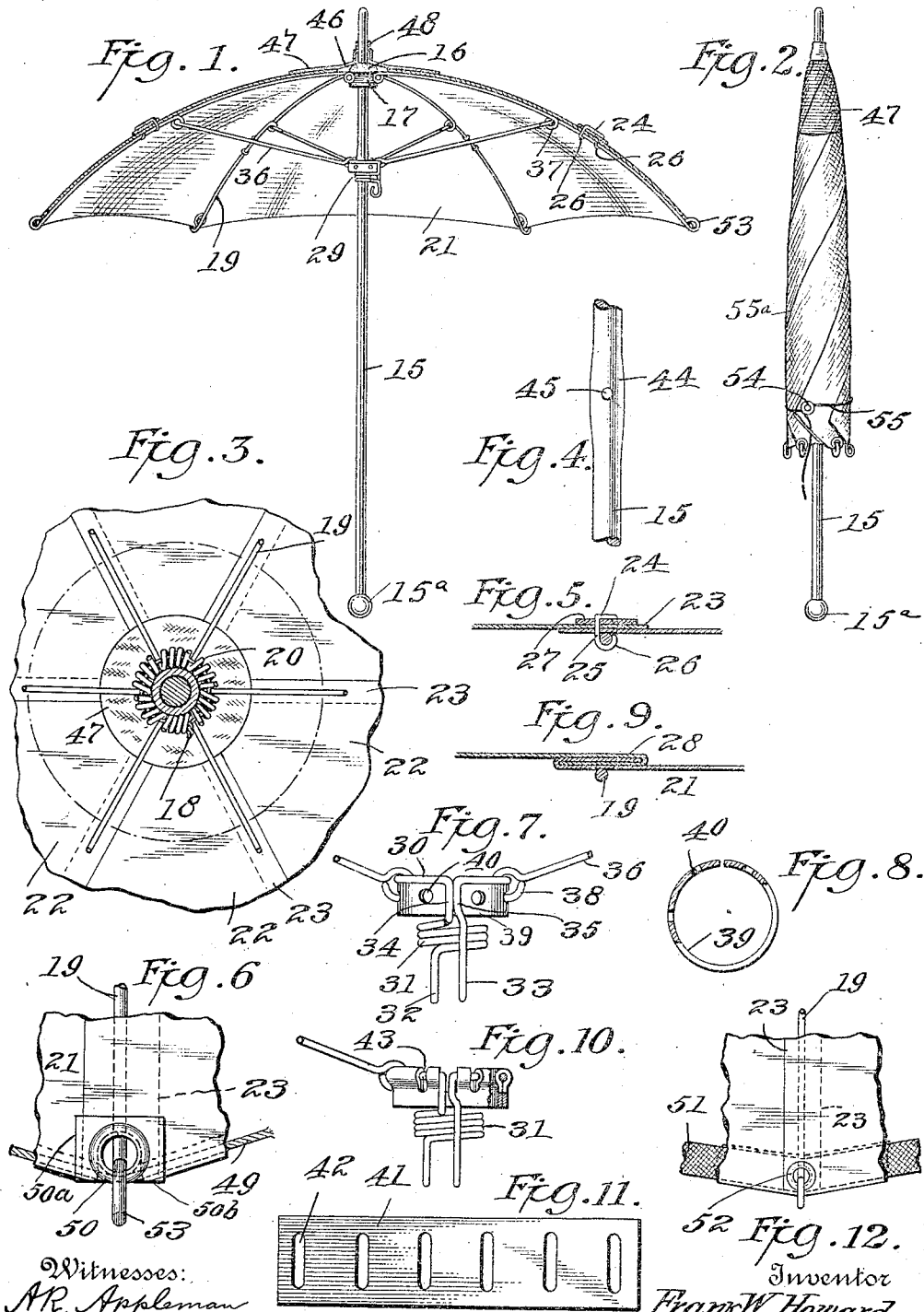


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UMBRELLA.

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Patented Mar. 18, 1919.



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UMBRELLA.

1,297,469.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK W. HOWARD, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Umbrellas, of which the following is a specification.

This invention relates to umbrellas, and a principal object of the invention is to produce an umbrella which is of very simple construction and very inexpensive, the general purpose being to enable such umbrellas to be available in an emergency, as for instance where a person is caught unexpectedly in the rain. While the umbrella may be used again it can be sold for such a low price that even if it could be used but once it would serve its purpose. Hence the general object of the construction is to produce such an arrangement as will enable the parts to be very cheaply constructed and very readily assembled to form the complete umbrella.

Further objects of the invention will appear hereinafter.

In the drawing which fully illustrates the preferred embodiment of my invention,

Figure 1 is a vertical section through the umbrella in its open position.

Fig. 2 is a side elevation showing the umbrella closed.

Fig. 3 is a cross section through the stick of the umbrella at the crown looking upwardly, and showing the middle portion of the cover broken away.

Fig. 4 is a side elevation showing a portion of the stick at the position of the runner when the umbrella is raised.

Fig. 5 is a cross section taken through the rib and showing the cover and the preferred means for attaching the cover to the ribs.

Fig. 6 is a fragmentary view indicating means for reinforcing the edge of the cover and for attaching same to the rib.

Fig. 7 is a side elevation showing the construction of the runner and means for securing the stretchers thereto.

Fig. 8 is a side elevation illustrating a portion of the runner, partly in section.

Fig. 9 is a cross section similar to Fig. 5, but showing a special construction for connecting the over-lapping edges of the cover at a rib.

Fig. 10 is a view similar to Fig. 7, but partly in section, and illustrating another form of runner.

Fig. 11 is a plan showing a portion of the runner illustrated in Fig. 10.

Fig. 12 is a view similar to Fig. 6, but showing a different kind of reinforcing member for the edge of the cover.

Referring more particularly to the parts, 15 represents a stick which is preferably of very inexpensive wood, one end of which may be provided with a knob 15^a to form a handle. On the outer end of this stick I force a crown 16, which preferably is in the form of a relatively large wooden spool or sleeve having a bore which fits tight on the stick.

This crown is preferably in the form of a sleeve provided with an enlarged circumferential socket groove or recess 17. The ribs 19 of the umbrella extend radially from the crown in the usual manner but each rib is preferably provided with an integral helical coil 20 the side of which rests in the bottom of the groove 17 so that each coil rocks in the socket 17 and each coil acts as a pivot for its rib when the umbrella frame is raised or lowered. I provide means for retaining these coils in the socket, which is preferably in the form of a ring 18 of wire which passes successively through the coils and holds them against the side of the crown. I also provide means for maintaining the ribs equidistant circumferentially around the stick. To accomplish this I prefer simply to make each coil 20 sufficiently long so that when applied to the groove or socket it will assume an arcuate form and extend along the groove, its outer end engaging an adjacent rib. In this way the coils themselves act as distance pieces to maintain the ribs substantially equidistant from each other.

The diameter of the coils 20 is such that they fit in the recess or groove 17 and retain the ribs on the crown. The umbrella cover 21 is preferably formed of a very inexpensive waterproof paper, the said cover being preferably composed of sectors or segments having overlapping edges 23. These overlapping edges preferably are located at

the ribs, and I prefer to secure them to the ribs by means of fastening devices 24 preferably formed of wire and having two points 25 which extend through the cover and form hooks 26 passing around the rib in opposite directions.

In order to make this connection more secure I prefer to provide a reinforcing piece 27 of stout paper or similar material on the outer side, and through this the fastener passes.

Instead of simply overlapping the edges as shown in Fig. 5, I may form them with a double overlap edge 28 such as indicated in Fig. 9. This makes a very secure connection, and the edge acts as its own reinforcement when attached by fastening devices to the rib 19.

The runner 29 is preferably in the form of a sleeve and comprises a wire bent to form a relatively large ring 30, which is formed integral with a sleeve in the form of a coil 31, said coil 31 tending to assume a slightly smaller diameter than the stick 15 at the point where the runner lies when the umbrella has been opened. The end of the coil forms an extension 32, and one end of the ring 30 has an opposite extension 33 arranged so that when extensions 32 and 33 are pressed toward each other the coil 31 will be slightly expanded. This mode of operation is facilitated by the fact that a shank 34 is formed at the upper end of the coil 31, and this shank abuts against an opposite shank 35 connecting the extension 33 with the ring 30.

The stretchers 36 are preferably formed of stout wire and attached to the ribs at the usual point by means of eyes 37 formed integrally in the ribs. These stretchers have eyes 38 at their inner ends passing around ring 30. In order to hold the stretchers 36 spaced equidistant on the ring 30 I prefer to provide a collar. This collar may have the form indicated in Fig. 7, or that indicated in Fig. 10. As illustrated in Figs. 7 and 8 the collar is simply in the form of a flat band bent into a ring 39 and having openings 40 through which the eyes 38 are attached. The ends of the ring 39 abut against the shanks 34 and 35. Instead of forming the collar as shown I may form it as indicated in Figs. 10 and 11. In this case the collar is formed from a blank or plate 41 of considerable width and having transverse equidistant slots 42 so that the blank can be folded on its longitudinal axis about the ring 30, the edges being brought together so that the collar is secured to the ring, but leaving a plurality of gaps 43 around the ring equidistant from each other formed by the slots 42, and at which the eyes of the stretchers may be attached.

In order to enable the runner to stay in a

position to hold the umbrella open I prefer to provide the stick 15 with a slight enlargement 44 at the proper point. It should be understood that the coil 31 is resilient and is very slightly larger than the body of the stick, so that when it is shoved up onto the enlargement 44 it will jam and grip the stick securely. This enlargement 44 is of sufficiently large diameter to cause it to grip the sleeve circumferentially and jam in the sleeve, but it need not be of greatly larger diameter than the stick, and it is preferably produced by causing a slight swelling at this point, which may be effected by driving laterally into the stick a pin 45. This pin has a slight wedging effect, which expands the stick, and at the same time the head of the pin is left projecting so as to form a stop to prevent the runner from being forced past the enlargement.

Referring again to the cover 21 in order to facilitate the attachment of the upper portion of the cover to the crown I prefer to form the cover with a central opening 46 adjacent the crown, but this opening is closed by means of a center 47, preferably formed of a material such as fabric, which may be conveniently attached to the stick by means of a ferrule 48 and which extends over the upper edge of the cover around the opening and is secured to the cover by an adhesive preferably waterproof. The use of fabric at this point materially increases the efficiency of the umbrella, but does not greatly increase the cost, as it would if the entire cover was formed of this material. It also enables the umbrella to roll up neatly and without tending to tear the cover near the crown.

In order to strengthen the umbrella around the edges of the cover, and in order to facilitate the attachment of the cover to the ribs at this point, I prefer to provide the edge of the cover with a reinforcement or binding which may be in the form of a cord or band. As illustrated in Fig. 6 this reinforcement is in the form of a cord 49, which passes continuously around the cover, said cover being folded around the cord. At the points where the ribs 19 lie I prefer to provide eyelets 50 around the outer side of which the cord 49 passes, and these eyelets are preferably placed at the overlapping edges 23 of the segments of the cover. I prefer to reinforce the edge of the cover by folded clips 50^a, folded edge 50^b being applied to the edge of the cover so that the eyelet passes through both flaps of the clip as well as the cover.

Instead of using the cord 49 I may employ a reinforcement at this point in the form of a tape 51 illustrated in Fig. 12, and the eyelet 52 is then applied through the tape and through the overlapping edges 23.

In either case I prefer to attach the cover to the ribs by means of the eyelets and by bending the outer extremity of the rib outwardly and upwardly so as to form an eye 5 53 engaging the eyelet. This construction results in placing the eyelet in the plane of the adjacent portion of the cover and this reduces the strain on the cover in a way that is particularly desirable in a cover of frangi- 10 ble material such as paper.

The reinforcement pieces 27 may be placed inside the cover and between the cover and the rib.

When the umbrella is rolled up folds or 15 creases 55^a are formed in the paper cover. These creases weaken the cover, but the tape 51 prevents any tendency of the material to tear by relieving it of strain when the umbrella is open.

In order to hold the umbrella in its folded condition, as shown in Fig. 2, I prefer to provide a fastener consisting simply of a paper button 54 having a cord 55. When the umbrella is folded and rolled up this 25 cord is simply passed taut around the umbrella and several turns of its end are taken around the button. By using this cord there is no strain on the parts of the umbrella, as the cord can be made tight or loose as desired. 30

It is understood that the embodiment of the invention described above is only one of the many forms or embodiments the invention may take, and I do not wish to be limited in the practice of the invention, nor in my claims, to the particular embodiment set forth. 35

What I claim and desire to secure by Letters Patent is:

1. In an umbrella, the combination of a stick, a crown on said stick having a circumferential socket groove on its outer side, a plurality of ribs extending radially from said crown, each of said ribs having a coil 45 the side whereof bears against the bottom of said socket groove and rocks therein so as to operate as a pivot for its corresponding rib when the ribs are raised or lowered, means for retaining said coils in said groove, and 50 means for maintaining said ribs substantially equidistant from each other circumferentially around the stick.

2. In an umbrella, the combination of a stick, a crown on said stick having a circumferential socket groove on its outer side, 55 a plurality of ribs extending radially from said crown, each of said ribs having a coil the side whereof bears against the bottom of said socket groove and rocks therein so as to 60 operate as a pivot for its corresponding rib when the ribs are raised or lowered, a ring passing continuously through said coils and securing the same in said groove, and means for maintaining said ribs substantially equi-

distant from each other circumferentially 65 around the stick.

3. In an umbrella, the combination of a stick, a crown on said stick having a circumferential socket groove on its outer side, 70 a plurality of ribs extending radially from said crown, each of said ribs having a helical coil formed integral therewith, each of said helical coils bearing against the bottom of said socket groove and rocking therein so as to operate as a pivot for its corresponding rib when the ribs are raised or 75 lowered, said coils being of arcuate form, extending along the groove between said ribs and operating to hold said ribs equidistant from each other circumferentially 80 around the stick, and means for retaining said coils in said groove.

4. In an umbrella, in combination, a runner comprising a ring, a plurality of stretchers engaging said ring, and a collar adjacent 85 to said ring and engaging said stretchers for holding said stretchers spaced substantially equidistant on said ring.

5. In an umbrella, in combination, a runner comprising a ring and a coil adapted to 90 receive the umbrella stick, a plurality of stretchers having eyes engaging said ring and a collar adjacent to said ring and engaging said stretchers to hold the same spaced substantially equidistant on said ring, 95 said coil and said ring having extensions adapted to be pressed together to expand said coil.

6. In an umbrella, in combination, a stick, a plurality of ribs connected with said stick, 100 a plurality of stretchers connected with said ribs, a runner to slide on said stick and connected with said stretchers, said stick having an enlargement at the position of said runner when the umbrella is raised to engage 105 said runner frictionally circumferentially and thereby hold said runner against movement, and means at said enlargement for preventing the movement of said runner beyond said enlargement, said means comprising 110 a pin driven laterally into said stick and expanding said stick to produce said enlargement.

7. In an umbrella, the combination of a stick, a plurality of ribs connected therewith, 115 a cover of frangible water-proof paper attached to said ribs and having a central opening adjacent said stick, and a center of cloth fabric attached to said stick, filling said opening and attached to said frangible 120 water-proof cover whereby when said cover is rolled around said stick and ribs the twists in the cover adjacent the stick are formed in the said cloth fabric.

8. In an umbrella, in combination, a stick, 125 a plurality of ribs connected thereto, a cover of frangible material covering said ribs, a plurality of eyelets secured in said cover ad-

5 jacent the edge and lying in the plane of the adjacent part of the cover with the flat sides of said eyelets lying against the outer sides of said ribs, said ribs having outwardly bent ends forming eyes engaging said eyelets.

In testimony whereof I have hereunto set

my hand in presence of two subscribing witnesses.

FRANK W. HOWARD.

Witnesses:

F. D. AMMEN,

LENA ELFMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."