July 28, 1936. C. HUBER 2,049,380

INFLATABLE UMBRELLA

Filed March 2, 1936

Fig. 4.

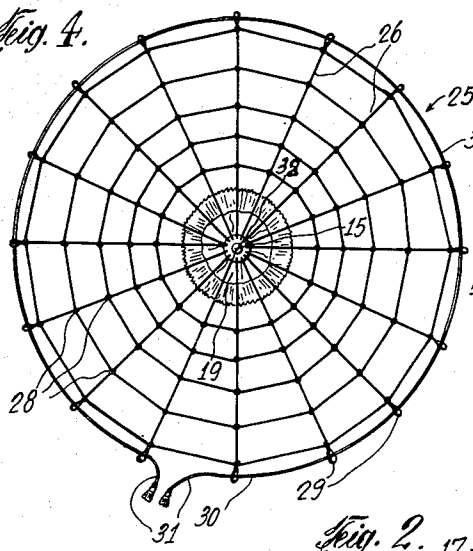


Fig. 1.

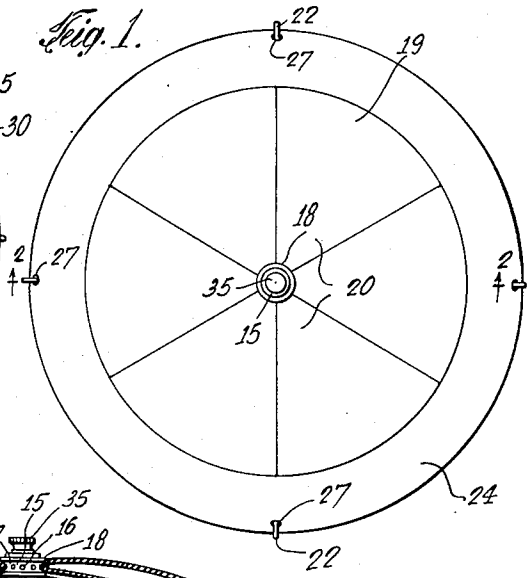


Fig. 2.

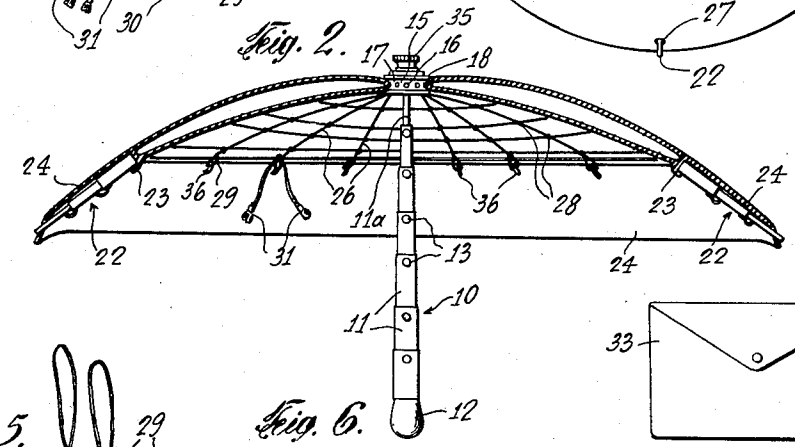


Fig. 7.

Fig. 5.

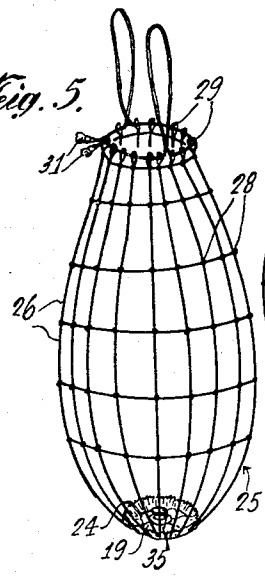


Fig. 6.

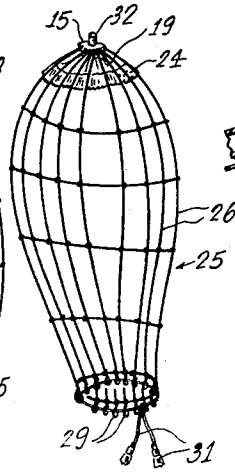
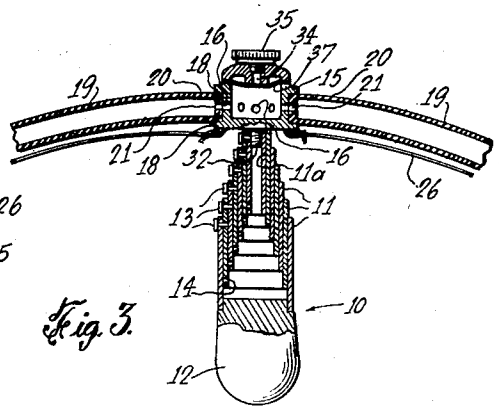


Fig. 3.



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2,049,380

INFLATABLE UMBRELLA

Charlotte Huber, New York, N. Y.

Application March 2, 1936, Serial No. 66,581

3 Claims. (Cl. 135—20)

One object of this invention is the provision of a collapsible inflatable rubber umbrella or parasol, so constructed that it may be reduced to a small compact mass when not in use, and may be readily extended and inflated when about to be used.

Another object of the invention is the provision of a net-like interior bracing for the umbrella, which may be used as a carryall bag when the umbrella is collapsed.

A further object of the invention is the provision of a collapsible and detachable post or handle for the umbrella.

The above and other objects will become apparent in the description below, in which characters of reference refer to like-named parts in the accompanying drawing.

Referring briefly to the drawing:

Figure 1 is a plan view of the inflated umbrella.

Figure 2 is a cross-sectional view taken on the line 2—2 of Figure 1.

Figure 3 is an enlarged central cross-sectional view through the umbrella post and a portion of the inflatable central portion.

Figure 4 is a bottom plan view of the extended net showing the collapsed umbrella at the center thereof.

Figure 5 is a perspective view of the collapsed umbrella carried at the bottom and outside of the net, the latter being gathered in the manner of a bag.

Figure 6 is an inverted view similar to Figure 5 with the collapsed umbrella inside the net.

Figure 7 is a view illustrating a small container in which the entire collapsed umbrella may be carried.

Referring in detail to the drawing, the numeral 10 indicates the umbrella post which is formed of a plurality of telescopic sections 11, the lowermost of which is provided with a handle 12. Screws or the like 13 are provided on the telescopic handle sections 11 and are adapted to register in recesses 14 so that these sections may be locked in either extended or retracted position.

A hollow drum 15 is provided with a plurality of peripheral openings 16 whose outer extremities lie in a peripheral groove 17 formed by upper and lower peripheral flanges or lips 18. A plurality of rounded complementary rubber bag-like sections 19, downwardly arcuate in cross section, each having the outline in plan view when inflated, of a sector of a circular area, have their tip ends 20 lying within the groove 17 between the lips 18. One or more openings 21 are provided in the tip end 20 of each section 19 in alignment with one or more of the openings 16 in the groove 17, and these tip ends 20 are locked between the lips 18 in any desirable manner, as, for instance, by vulcanizing.

At diametrically opposite points in the periphery of the assembled sections 19 telescopic extensible or retractable ribs 22 are provided. The inner ends of these ribs are secured to the outer edge of the section 19 in any desirable manner such, for instance, as locking the overlapping edges 23 of the sections 19 against the inner sections of the ribs 22. Friction springs 22*a* are provided to prevent sliding together of the extended ribs 22. A web 24 formed of a single sheet of rubber, is provided, as an extension from the outer edges of the sections 19, and this web encircles the ribs 22, the outer ends of the latter projecting through openings 27 in the web 24.

A net 25 is formed by providing a plurality of radial cords 26 attached to and extending from the bottom of the drum 15. The cords 26 are joined at spaced-apart intervals by a plurality of concentric cords 28. The ends of the cords 26 are provided with loops 29 through which a rope 30 is threaded. A plurality of hooks 36 are provided around the inner periphery of the sections 19 on which the loops 29 of the cords 26 are hooked when the umbrella sections 19 have been inflated. The rope 30 is provided with two ends 31 which may be drawn together and tied into a knot to tighten the rope 30 when the umbrella is in extended and inflated position. The net 25 thus serves as a prop to resist the force of the wind, or any other effort to turn the umbrella inside out, and to maintain the convex form of the umbrella.

The innermost post section 11*a* is provided with an internally threaded end which screws on the screw 32 in the base of the drum 15. The top of the drum 15 is provided with an opening 34 adapted to be closed by a threaded cap 35. The sections 19 are inflated upon removing the cap 35 by placing the lips around the top of the drum 15 and blowing into the same through the opening 34. A membrane valve 37 of standard construction, is provided within the drum 15 to prevent exhaust of the air from the sections 19, the type of valve being that which will permit exhaust of the air upon depression of the membrane through the hole 34 in the same manner as is usual in toy balloons. When the umbrella is not in use, the deflated sections 19 will collapse into a small mass, and the rib members 22 are retracted.

The post sections 11 are retracted and then detached by unscrewing the section 11a from the screw 32.

After the sections 19 have been collapsed, they will shrink to the size shown in Figure 4. Then the periphery of the net 25 is gathered together and formed into a bag, as shown in either Figure 5 or Figure 6. This bag may then be folded together into a small mass and placed, together with the collapsed post 10, in a small container similar to that shown at 33.

Obviously, modifications in form and structure may be made without departing from the spirit and scope of the invention.

I claim:

1. A collapsible umbrella comprising a hollow drum having a peripheral groove, a plurality of complementary convex inflatable bag-like sections of elastic material having reduced ends, said reduced ends being secured in said groove, said drum being provided with openings in said groove, said reduced ends having openings aligned with said groove openings, the outline of said sections in plan view being similar to sectors of a circle, the outer ends of said sections forming a circular periphery, a removable cap on said drum, a post formed of telescopic section secured to said drum, and means for tightening the periphery of said sections to retain said sections in umbrella-shaped form when in inflated condition.

2. A collapsible umbrella comprising a hollow drum having a peripheral groove, a plurality of complementary convex inflatable bag-like sections of elastic material having reduced ends, said reduced ends being secured in said groove, said drum being provided with openings in said groove, said reduced ends having openings aligned with said groove openings, the outline of said sections in plan view being similar to sectors of a circle, the outer edge of said sections forming a circular periphery, a removable cap on said drum, means for tightening the periphery of said sections to retain said sections in umbrella-shaped form when in inflated condition, a web secured to the periphery of said sections, and a plurality of retractable ribs secured to the periphery of said sections supporting said web in extended position.

3. A collapsible umbrella comprising a hollow drum having a peripheral groove, a plurality of complementary convex inflatable bag-like sections of elastic material having reduced ends, said reduced ends being secured in said groove, said drum being provided with openings in said groove, said reduced ends having openings aligned with said groove openings, the outline of said sections in plan view being similar to sectors of a circle, the outer edge of said sections forming a circular periphery, a removable cap on said drum, a post formed of telescopic sections secured to said drum, and means for tightening the periphery of said sections to retain said sections in umbrella-shaped form when in inflated condition, said means comprising a circular net having its center secured to the bottom of said drum, hooks arranged along the inner surface of said sections and having said net secured thereto, a rope loosely secured in the periphery of said net and adapted to be tightened to tauten the periphery of said net to retain said sections in turned down position, said sections when deflated collapsing to a small mass at the center of said net, the periphery of said net being adapted to be gathered together to form a carryall bag.

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