A. BEATY.

UMBRELLA.

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1,411,560. Patented Apr. 4, 1922.

Fig. 1.

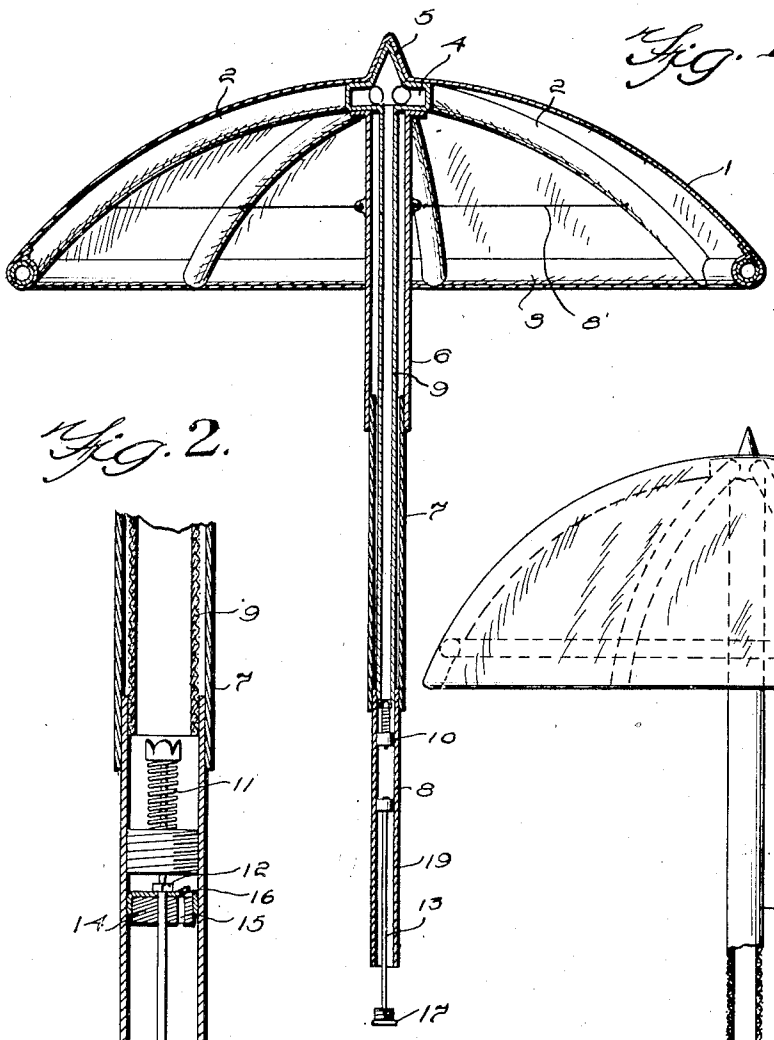


Fig. 2.

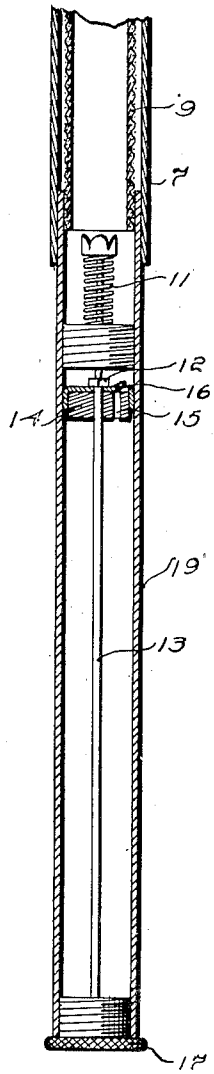


Fig. 3.

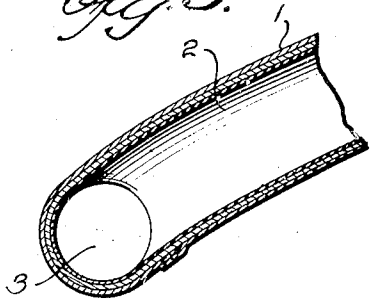


Fig. 4.

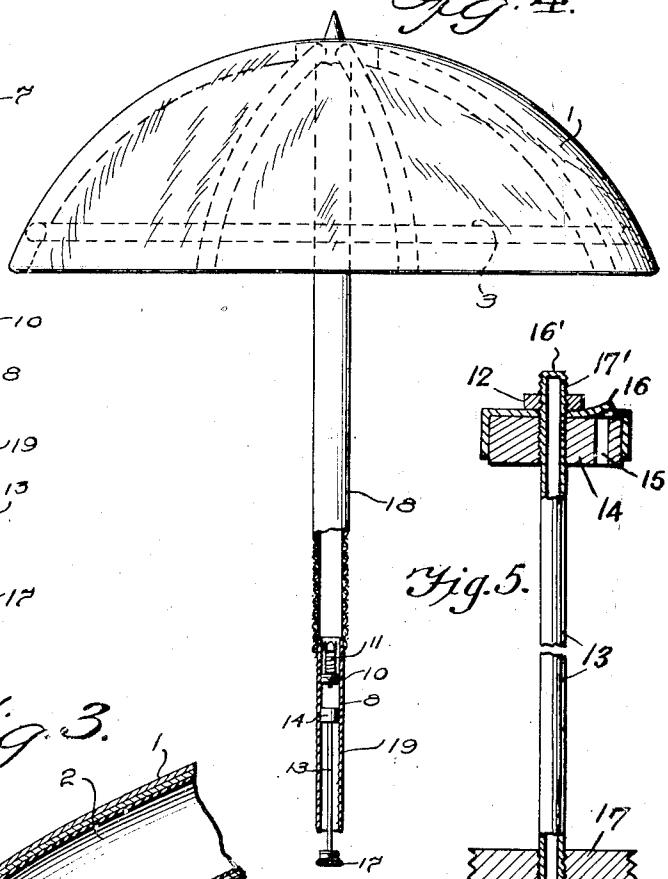


Fig. 5.

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UMBRELLA.

1,411,560. Specification of Letters Patent. Patented Apr. 4, 1922.

Application filed September 30, 1920. Serial No. 413,825.

To all whom it may concern:

Be it known that I, ARTHUR BEATY, a citizen of the United States, residing at San Gabriel, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Umbrellas, of which the following is a specification.

This invention relates to umbrellas and comprises an inflatable umbrella having a plurality of air tubes in place of the usual ribs, a hollow telescoping handle, and a pump arranged in the handle for inflating the tubes.

In the present invention, I have produced an umbrella that may be readily collapsed by deflating the air tubes forming the ribs and telescoping the handle. The invention comprises means for inflating the ribs when the umbrella is to be used, including a pump arranged in the handle of the umbrella.

The invention is also applicable for use on parachutes wherein the extensible portion of a parachute is provided with air tubes arranged therein and a valve for inflating the tubes when the parachute is to be used.

Referring to the drawings:

Figure 1 represents a vertical sectional view of one form of the invention.

Figure 2 is a detail view of the pump and valve.

Figure 3 is a detail sectional view of the inflatable ribs.

Figure 4 is a side elevation, partly in section, of a modified form of the invention.

Figure 5 is a detail view of the lower end of the umbrella handle shown in Figures 1 to 4.

Referring to the drawings, the reference numeral 1 designates, generally, the cover or top of an umbrella. In place of the usual rib sections, I provide a plurality of tubes 2. These tubes may be formed of fabric provided with suitable means to prevent leakage of air, such as the rubber coated fabric used in the manufacture of automobile tires. A circular tube 3 may be arranged at the lower edge of the umbrella and connected to the tubes 2. The inner ends of the tubes 2 communicate with an air chamber 4 and, as shown, this chamber may be provided with a collapsible, projecting rod 5 for the purpose of producing an appearance similar to the ordinary umbrella. The handle is made in a plurality of sections 6, 7, and 8, to permit collapsing of the handle. Any suitable means may be employed for holding the various sections in extended position. As shown, a plurality of wires or cords 8′ are secured to the upper section of the handle at one end, and the opposite ends are secured to the tubes forming the ribs intermediate their ends. The provision of these wires or cords tend to strengthen the umbrella and maintain the handle in proper position when extended and inflated. A callapsible tube 9, preferably made of the same material used in the construction of the ribs extends through the handle into the lower section 8. An ordinary bicycle valve 10 is arranged at the end of this tube, provided with the usual spring 11 to maintain it in closed position and with the projecting stem 12 to permit opening of the valve. The lower section 8 of the handle serves as a pump cylinder and is provided with a hollow upstanding rod 13, having a plunger 14 arranged on the inner end. The plunger is provided with a port 15 having a flap valve 16 whereby air may be compressed and driven into the tube 9 when the plunger is moved inwardly, the flap valve preventing passage of air outwardly through the plunger. A cap 17 is arranged in the lower end of the section 8, the cap having screw-threaded engagement with the walls of this section. Referring to Figure 5 of the drawings, the cap is provided with an opening 15′ communicating with the interior of rod 13. As shown, the upper end of the rod is closed as at 16′ and the rod is provided with an opening 17′ adjacent this end and arranged above the plunger. To deflate the umbrella, the end 16′ is forced against the valve stem 11 and the air passes through the opening 17′ into the hollow rod 13. When the umbrella is being inflated, the operator holds his finger over the opening 15′ to prevent escape of air.

In operation, the ribs 2 and tube 3 are inflated by the pump plunger 14, compressing the air in the barrel 8 and delivering it through the valve 10, through the fabric tube 9, whence it passes to air chamber 4, and thence to the tubes 2 and 3. The valve is constructed to permit passage of air inwardly when a suitable pressure is established in the barrel 8 and to ordinarily prevent passage in the opposite direction. When the umbrella is to be deflated, the cover 17 is screwed into the barrel 8 to its limit, bringing the inner face of the plunger into engagement with the projecting stem 12 of the valve and opening the valve

against the pressure of the spring 11. The outer face of the member 17 may be provided with suitable openings, not shown, to permit escape of air. After the umbrella has been deflated, the sections 6, 7, and 8 of the handle may be collapsed in any suitable manner.

It is to be understood that the form of my invention herewith shown and described is to be taken as preferred examples of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In a device of the character described, a body portion, inflatable ribs secured thereto, an inflatable tube connecting said ribs, an air chamber communicating with said ribs, a handle formed of telescoping sections of rigid material connected to the body portion, an air tube of rubberized fabric communicating with said air chamber, said tube being arranged in said handle, and a pump arranged in said handle and connected to said tube.

2. In a device of the character described, a body portion, inflatable ribs secured thereto, a telescopic handle connected to the body portion, a collapsible air tube arranged in said handle and communicating with said ribs, a valve arranged in the lower section of said handle adjacent the end of said tube, a plunger arranged beneath said valve and adapted to deliver air through said valve to said tube, said valve being arranged to permit introduction of air and to normally prevent discharge thereof, and means carried by said plunger to open said valve to permit discharge of air.

3. A collapsible umbrella comprising a body portion, collapsible ribs secured thereto, a telescoping handle secured to the body portion, an air tube arranged therein and communicating with said ribs, the lower section of said handle forming a pump cylinder, a piston arranged therein, said piston being provided with a valve to prevent escape of air, a valve arranged at the inner end of said cylinder normally preventing escape of air from the air tube and ribs, a piston rod secured to the piston, said piston rod being provided with a longitudinally extending opening and projecting inwardly beyond the piston, the inner end of the piston rod being adapted to engage said second mentioned valve to permit deflation of the umbrella, and being provided with an opening arranged above the piston to permit escape of air, and a cap secured to said rod and engaging the lower end of the handle.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR BEATY.

Witnesses:

SAMUEL THOMAS BEATY.

ALICE ROBBINS.