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W. J. SPIRO

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FOLDING UMBRELLA

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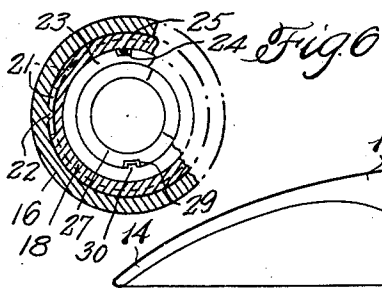


Fig. 1.

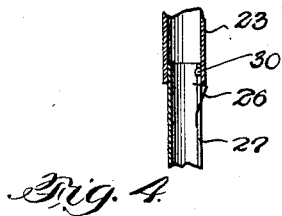
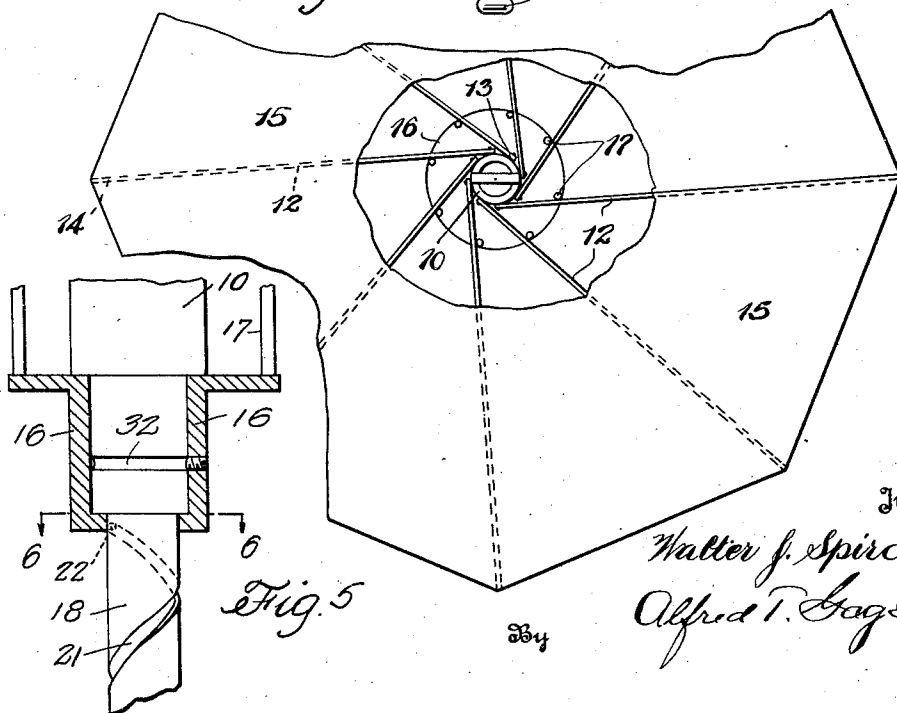
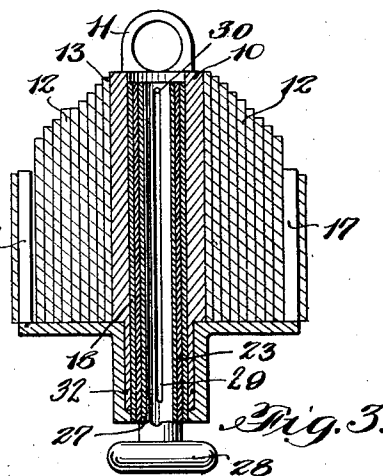
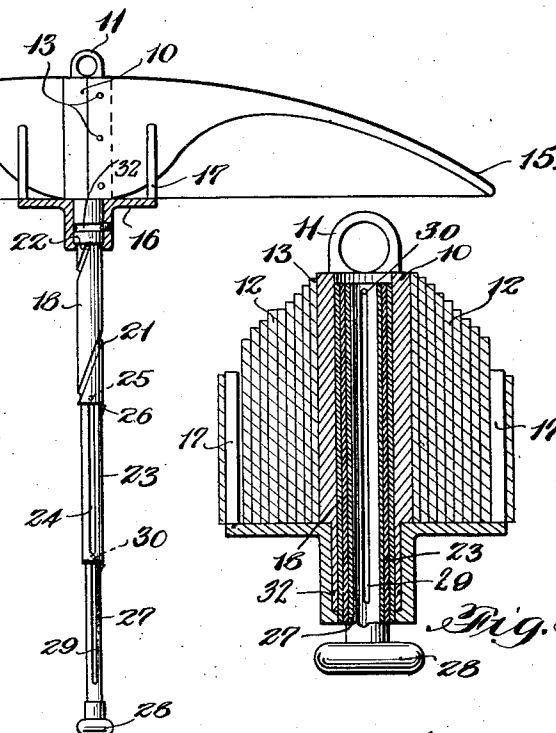


Fig. 2.



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FOLDING UMBRELLA

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This invention relates to a folding umbrella, and particularly to a construction wherein the ribs and staff are adapted to be collapsed to occupy the minimum of space which permits the most convenient transportation of the folded umbrella.

The invention has for an object to provide a novel and improved means for collapsing the ribs supporting the usual covering by rolling the ribs upon a central drum member, and this involves the use of laterally bendable ribs secured at their inner ends to said member.

Another object of the invention is to provide a staff composed of telescoping sections, the upper one of which is arranged to impart a rotary movement to a fork disposed intermediate the ribs to transmit thereto a lateral winding movement upon the drum.

A further object of the invention is to present a new compact umbrella structure including a drum having means to hold the same against rotation, laterally bending ribs secured at their inner ends to said drum, a winding device rotatable upon the drum and engaging the ribs, and a sectional staff adapted to be telescoped within the drum.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings—

Figure 1 is an elevation, with parts in section;

Figure 2 is a partial top plan, with the center broken away;

Figure 3 is a vertical section of the collapsed device;

Figure 4 is a detail section of the retaining detent.

Figure 5 is a detail section at the winding drum, and Figure 6 is a section on the line 6—6 of Figure 5.

Like numerals indicate like parts in the several figures of the drawings.

In the application of the invention herein disclosed the numeral 10 designates a drum or head having a hand hold 11. To the periphery of this drum a series of flat laterally bendable ribs 12 are secured at their inner

ends 13 and tapered toward their outer ends 14, and such ribs have secured thereto the usual covering cloth 15. Cooperating with the ribs is a winding member 16 rotatably mounted upon the lower portion of the drum by means of a set screw 31 traveling in an annular groove 32, said member having fingers 17 extended intermediate adjacent ribs to engage and roll them in superimposed relation upon the drum or head when held.

Motion may be transmitted to this winding member by various means, a desirable form being the sleeve section 18 of the staff of substantially the length of the drum and adapted to telescope therein. To prevent rotation of the drum relative to the sleeve, the former is provided with a longitudinal slot or groove 19 to receive a pin 20 on the sleeve, while the outer periphery of the sleeve is formed with a spiral groove 21 engaging a pin or lug 22 upon the fork or winding member. The longitudinal movement of the sleeve section thus produces a rotary travel of the fork for winding the ribs laterally upon the drum.

In order to provide the desired length of the umbrella staff, an additional sleeve section 23 is telescoped within the sleeve 18 and guided by a slot or groove 24 engaging a pin 25 at the inner face of the upper sleeve. This pin may be held at the end of the groove when the parts are distended by any suitable form of detent, such as the spring 26 indicated in Figure 4. A further section 27 of the staff carries a handle 28 and is provided with a groove 29 receiving a pin 30 on the section 23.

The operation of the invention will be apparent from the foregoing description and it will be seen that if it be desired to close the open umbrella shown in Figure 1, the drum would be held by one hand and the upper section telescoped therein by the other hand, which causes the winding member to rotate and folds or rolls the ribs upon the drum and each other so as to compress the ribs into a very small and compact arrangement. The covering cloth being light falls in folds over the wound ribs, and for the purpose of clearer illustration has been omitted in Figure 3. The remaining sections of the staff are then

telescoped within each other and the head so that the collapsed device is only of a height substantially equal to the head or winding drum. This provides a folded umbrella which may be carried in a pocket or small hand bag, and comprises a simple, efficient and economically manufactured construction. The umbrella is opened from its folded condition by a reversal of the operation just described.

The details of the invention have been specifically shown and described, but changes and alterations may be made therein without departing from the spirit of the invention as recited in the following claims.

What I claim is:—

1. In a folding umbrella, a head, a plurality of laterally bendable ribs secured at their inner ends thereto, a staff, and means upon the staff for winding the ribs upon said head.

2. In a folding umbrella, a head having means to retain it against rotation, a plurality of laterally bendable ribs secured at their inner ends to said head, a staff, and rotatable means actuated by the staff for winding the ribs upon the head.

3. In a folding umbrella, a head having means to retain it against rotation, a plurality of laterally bendable ribs secured at their inner ends to said head, a staff, rotatable means upon the staff engaging said ribs, and a longitudinally movable staff section having a spiral groove in engagement with said rotatable means.

4. In a folding umbrella, a head having means to retain it against rotation, a plurality of laterally bendable ribs secured at their inner ends to said head, a staff, a rotatable fork upon the head having fingers intermediate adjacent ribs, and a longitudinally movable staff section having a spiral groove in engagement with said fork.

5. In a folding umbrella, a drum having a hand hold, a fork rotatable upon the lower end of the drum, laterally bendable ribs secured to the drum and engaged by said fork, and a staff section telescoping within the drum and provided with a spiral groove in engagement with a projection on said fork.

6. The construction of folding umbrella defined by claim 5 with means to prevent relative rotation of the drum and staff section telescoping therein.

7. In a folding umbrella, a drum having a hand hold, a plurality of flat laterally bendable ribs secured at their inner ends in spaced relation upon the periphery of said drum, a fork rotatable upon the lower end of the drum and engaging said ribs to wind them in superposed relation upon said drum, and an operating member slidably mounted in the drum and having a spiral groove to engage and rotate said fork.

8. In a folding umbrella, a drum having a

hand hold, a plurality of flat laterally bendable ribs secured at their inner ends in spaced relation upon the periphery of said drum, a fork rotatable upon the lower end of the drum and engaging said ribs to wind them in superposed relation upon said drum, an operating sleeve slidably telescoping in the drum and provided with a spiral groove engaged by a projection on said fork, a staff section telescoping within said sleeve and held against rotation therein, and a section telescoping within the staff section and held against rotation therein, said section being adapted to nest within the drum when telescoped.

9. In a folding umbrella, a drum having a hand hold, a plurality of laterally bendable ribs secured at their inner ends in spaced relation upon the periphery of said drum, means for winding said ribs in superposed relation upon said drum; and a staff composed of a plurality of sections telescoping within each other and the head, each of said sections being of substantially the length of the head, whereby the parts are closely nested when in collapsed relation.

In testimony whereof I affix my signature.

WALTER J. SPIRO.