

Feb. 25, 1930.

N. HOROWITZ

1,748,347

COLLAPSIBLE UMBRELLA

Filed Aug. 20, 1928

2 Sheets-Sheet 1

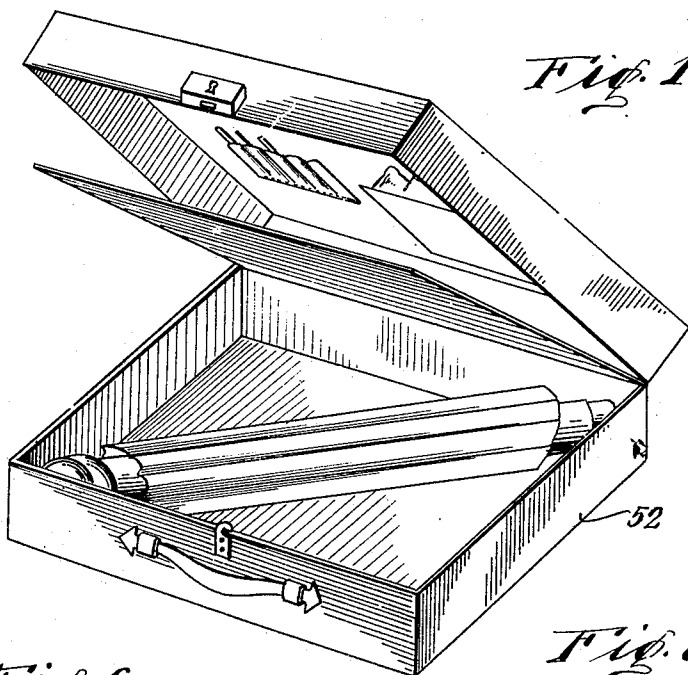


Fig. 1

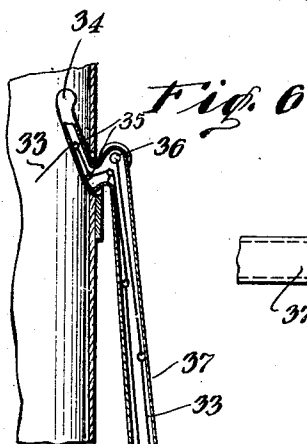


Fig. 6

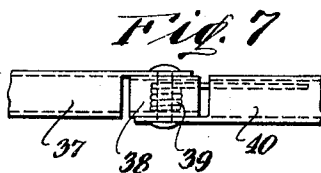


Fig. 7

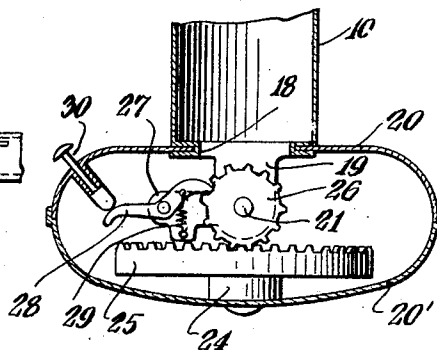


Fig. 8

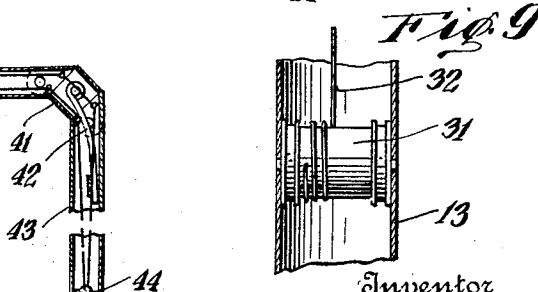


Fig. 9

Inventor
Nathan Horowitz
By *His Attorney*
Marin Rabin

Feb. 25, 1930.

N. HOROWITZ

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Fig. 2

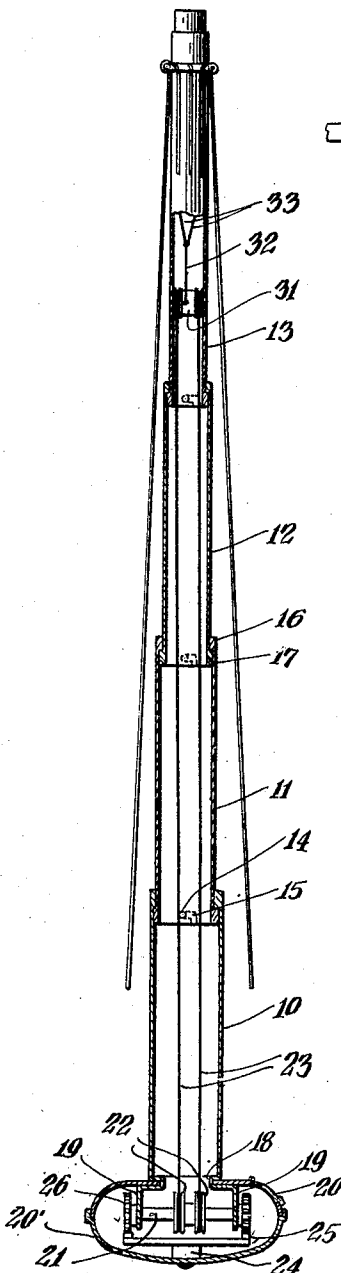


Fig. 3

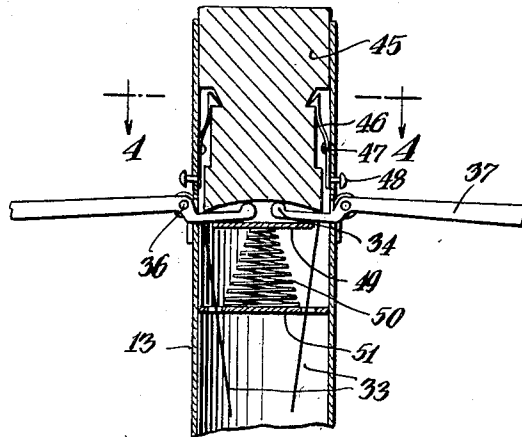


Fig. 4

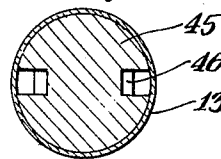
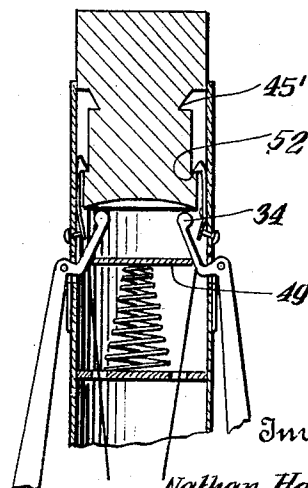


Fig. 5



Inventor

By His Attorney

Nathan Horowitz

Marvin Klein

UNITED STATES PATENT OFFICE

NATHAN HOROWITZ, OF BRONX, NEW YORK, ASSIGNOR OF ONE-HALF TO HENRY HOROWITZ, OF BRONX, NEW YORK

COLLAPSIBLE UMBRELLA

Application filed August 20, 1928. Serial No. 300,665.

This invention relates to umbrellas and more particularly to umbrellas adapted to collapse so that they may be conveniently carried when not in use.

While traveling, it is often desirable to include an umbrella in the equipage, but on account of the awkward shape of the usual umbrella, it is inconvenient to do so.

It is therefore an object of this invention to provide an umbrella which may be collapsed so that it will occupy an inappreciable space when not in use.

It is a further object of the invention to provide a collapsible umbrella which may be readily placed in condition for use.

These and other objects are attained by the novel construction, combination and arrangement of parts, hereinafter described and shown in the accompanying drawings, constituting a material part of this disclosure, and in which:—

Figure 1 is a perspective view showing a collapsed umbrella positioned in a bag.

Figure 2 is a longitudinal sectional view of the umbrella.

Figure 3 is a cross-sectional view of the upper section of the umbrella when in use.

Figure 4 is a view taken on line 4—4 of Figure 3.

Figure 5 is a sectional view similar to Figure 3 showing the upper section of the umbrella when in a collapsed condition.

Figure 6 is a sectional view similar to Figure 2, showing one of the collapsible ribs used in the umbrella.

Figure 7 is a plan view of a joint used in the ribs.

Figure 8 is a sectional view of the handle of the umbrella, showing actuating mechanism contained therein.

Figure 9 is an enlarged view of a winding drum included in the actuating mechanism.

Referring to Figure 2, the center post of the umbrella is collapsible and comprises a plurality of telescoping sections 10, 11, 12 and 13, each section having a pin 14 adapted to be moved in angular slot 15 in an adjacent section to hold them in an extended position. To facilitate the manipulation of the pin and slot connection between the sections, each is

provided with a flange 16 interlocking with a similar flange 17 on the adjacent section.

The lower section 10 has a grooved portion 18 and a down-turned flange 19. A sheet metal handle 20 is held in the groove 18 and the lower part 20' of the handle is rotatable on the upper part 20. Journalled in flange 19 is a shaft 21 to which are fixed a pair of drums 22 having elastic cords 23 wound around them. Fixed to the lower part 20' of the handle is a stud 24 upon which is mounted a rack 25 in engagement with pinions 26 fixed to shaft 21. A bracket 27 carried by the upper handle part 20 has pivoted thereon a pawl 28, which is normally held in engagement with one of the pinions 26 by the spring 29 and adapted to be disengaged from the pinion by a plunger 30 slidably mounted in member 20. (See Figure 8.)

The elastic cords 23 pass up through the telescoping sections and is also wound about the drum 31 journalled in section 13. Also wound about drum 31 is a wire 32 which is connected to wires 33, the latter being connected to the ribs of the umbrella, there being a wire 33 for each rib.

Wire 33 passes through an aperture in the inwardly projecting arm 34 of a rib which is pivoted at 36 and the wire is guided through the hollow rib by eyes 35 and passes through section 37 of the rib, the section 37 being connected to section 40 by a joint 38. A spring 39 fixed to the joint and bearing against section 40, tends to move the latter counter-clockwise into a position against section 37.

Section 40 is connected to section 43 by a joint 41 and a spring 42, similar to spring 39, tends to move section 43 clockwise against section 40.

The wire 33 passes through the sections 40 and 43 and is looped about an eye 44 in section 43, from whence it passes back up through the sections and is then fixed to the pivot 36.

A block 45 which serves as a tip and closure for telescoping section 13 may be held in a pushed in position by the engagement of the hook on the end of leaf spring 46 in the notch 45'. The spring 46 is fixed to section 13 at 47 and a small plunger 48 passing through an aperture in the section 13 is adapted to engage

an end of the spring to disengage the latter from the notch 45'. When in a pushed in position, the lower end of the block 45 engages the inner ends of arms 34 and holds the rib sections 37 in a substantially horizontal position. The arms 34 lie between the bottom of block 45 and a metal plate 49 which is normally forced upwardly by a compression spring 50, the latter resting on a plate 51 fixed to the wall of section 13.

In operation, when it is desired to use the umbrella, the telescoping sections are fixed to each other as shown in Figure 2, and the lower handle part 20' is rotated to cause the rack 25 to rotate the pinions 26, the plunger 30 being depressed to disengage the pawl 28 from the pinions. Rotation of the pinions cause shaft 21 to be rotated to wind cords 23 about the drums 22 and cause drum 31 to rotate to wind wire 32 thereon, thus pulling on wires 33 and straightening out the hollow ribs against the action of the springs 39 and 42. When the ribs have been straightened out, the block 45 is pushed in so that its lower surface bears against the arms 34, to hold the latter in a horizontal position, and the spring latch 46 snaps into notch 45' to hold the block in the pushed in position. The umbrella is now in condition for use.

When it is desired to collapse the umbrella, plungers 48 are depressed to release the block 45, and the ribs automatically collapse. The telescoping sections are then placed one within the other and the umbrella may then be conveniently carried in a bag 52.

The foregoing disclosure is to be regarded as descriptive and illustrative only and not as restrictive or limitative of the invention, of which obviously an embodiment may be constructed, including many modifications, without departing from the general scope herein indicated and denoted in the appended claims.

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

1. A collapsible umbrella, comprising a center post consisting of a plurality of telescoping sections, a plurality of hollow folding ribs, wires passing through the ribs and having one end fixed thereto, and means carried by the center post to pull on the wires, whereby the ribs assume substantially horizontal positions.

2. A collapsible umbrella, comprising a center post consisting of a plurality of telescoping sections, a plurality of hollow folding ribs, a wire passing through each rib and having one end fixed thereto, means carried by the center post to pull on the wires, whereby the ribs assume substantially horizontal positions, a block adapted to bear against the inner ends of the ribs to hold them in the horizontal position, and means to hold the block

in engagement with said inner ends of the ribs.

3. In a collapsible umbrella, comprising a center post consisting of a plurality of telescoping sections, a hollow folding rib, a wire passing through the rib and having one end fixed to the rib, a drum upon which the other end of the wire may be wound, said drum being journaled in one of the telescoping sections, a handle fixed to the center post, and rack and pinion means carried by the handle to wind the cord on the drum, whereby the rib assumes a substantially horizontal position.

In witness whereof I have affixed my signature.

NATHAN HOROWITZ.