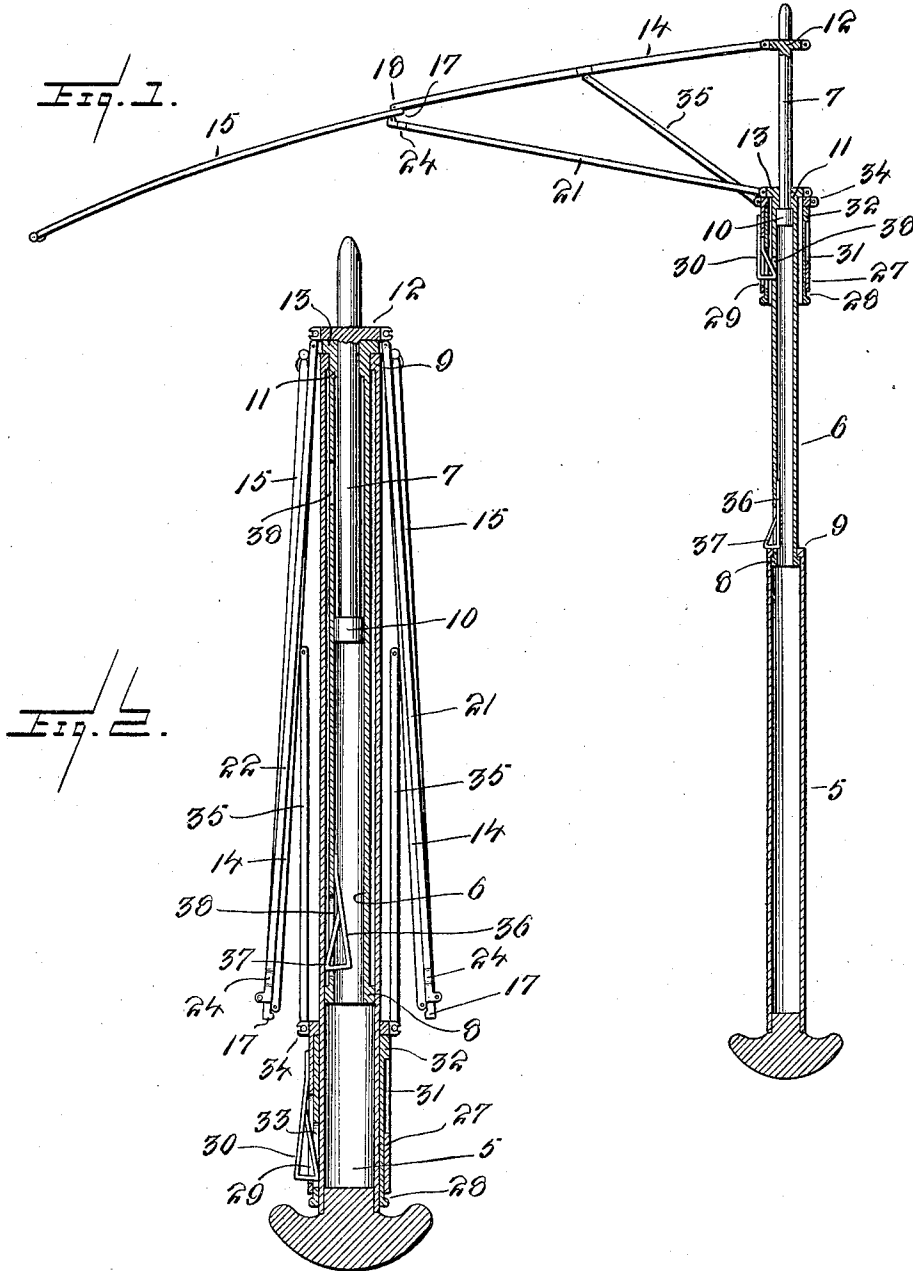


W. G. HOFFMAN.
FOLDING UMBRELLA.
APPLICATION FILED JULY 5, 1910.

1,049,360.

Patented Jan. 7, 1913.

2 SHEETS-SHEET 1.



Witnesses
E. R. Ruppert
John A. Macey

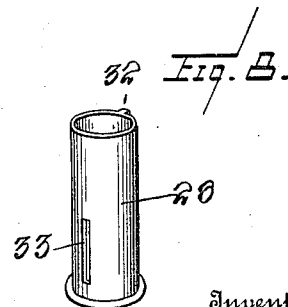
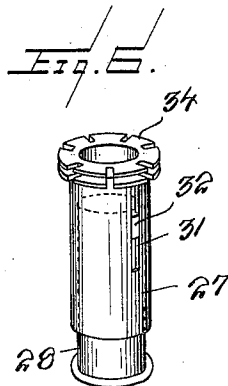
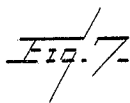
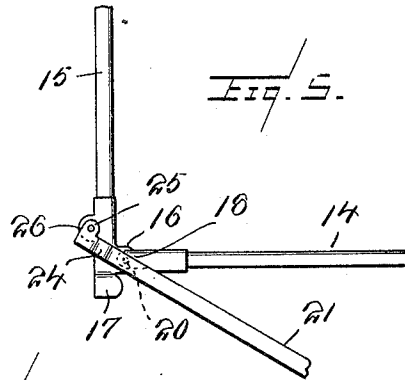
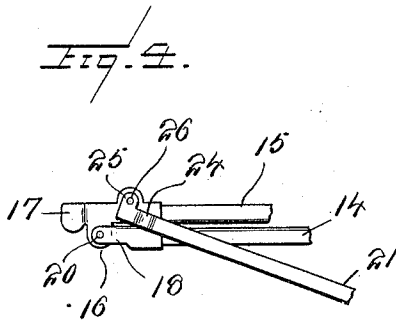
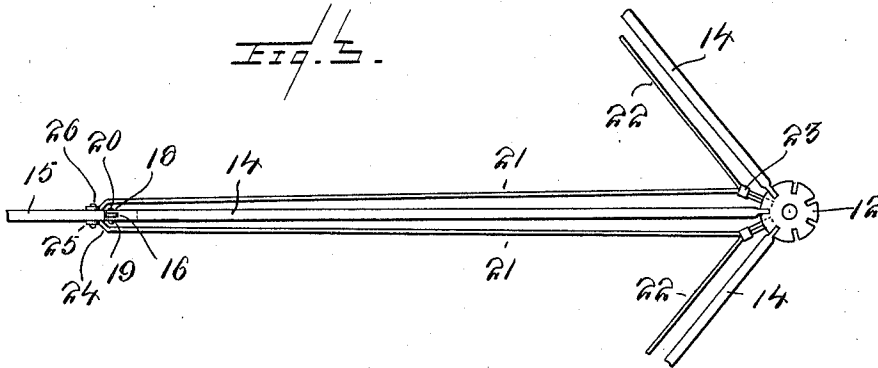
Inventor
Wilmot G. Hoffman
By Victor J. Evans
Attorney

W. G. HOFFMAN.
FOLDING UMBRELLA.
APPLICATION FILED JULY 5, 1910.

1,049,360.

Patented Jan. 7, 1913.

2 SHEETS—SHEET 2.



Witnesses
E. R. Ruppert.
J. H. Anderson

Inventor
Wilmot G. Hoffman
By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

WILMOT G. HOFFMAN, OF SAN FRANCISCO, CALIFORNIA.

FOLDING UMBRELLA.

1,049,360.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed July 5, 1910. Serial No. 570,469.

To all whom it may concern:

Be it known that I, WILMOT G. HOFFMAN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Folding Umbrellas, of which the following is a specification.

This invention relates to improvements in folding umbrellas and has for its object the provision of a folding umbrella including telescoping stick sections, folding rib sections and a connection between one of the stick sections and one of the rib sections operating to fold and unfold the ribs and canopy when the stick is collapsed and extended.

Another object is the provision of telescoping stick sections held in extended position by means of springs, and a runner on the stick sections adapted to release the springs upon folding movement of the frame.

With these and other objects in view, which will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claim; it being understood that various changes in form, proportion, size, and minor details of the device may be made, within the scope of the appended claim, without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, forming part of the specification;—Figure 1 is a longitudinal section of the stick and runner also showing one of the ribs in side elevation and the connections between the rib, runner and one of the stick sections. Fig. 2 is a similar view of the stick in collapsed position also showing the ribs folded. Fig. 3 is an end view of the stick also showing in plan fragments of certain ribs and the connection between the stick and said ribs. Fig. 4 is a detail side elevation of the connected end portions of the ribs also showing the operating means for folding and unfolding the ribs and further showing the ribs in folded position. Fig. 5 is a similar view with the parts partly folded. Fig. 6 is a detail perspective of the runner. Fig. 7 is a similar view of the female section of the

runner. Fig. 8 is a similar view of the male section of the runner.

Similar numerals of reference are employed to designate corresponding parts throughout.

The stick is shown to include in its construction three sections designated by the numerals 5, 6 and 7. The section 5 will subsequently be termed the handle section, the section 6, the intermediate section, and the section 7, the ferrule section. The handle section 5 is hollow and is somewhat greater in length than the intermediate section 6, which telescopes into the handle section. The intermediate section 6 is also hollow and receives the ferrule section 7. The inner end of the intermediate section 6 is provided with a lateral circular flange 8, which abuts against a circular flange 9 formed on the interior and at the inner end of the handle section 5, the flanges 8 and 9 cooperating to limit the outward movement of the intermediate section. The inner end of the ferrule section 7 is provided with an enlarged circular head 10 and the outer end portion of the bore of the intermediate section is chocked as shown at 11, the chocked portion of the bore corresponding approximately to the diameter of the major portion of the ferrule section 7 and of less diameter than the head 10 at the inner end of the said ferrule section. The said head 10 and chocked portion 11 cooperate to limit the outward movement of the said ferrule section. The outer end of the ferrule section 7 is provided with the usual notched ring 12, and the outer end of the intermediate section is provided with a similar notched ring 13.

As shown the ribs each include two sections. What will subsequently be termed the inner of these sections is designated by the numeral 14 and has one end pivoted to the notched ring 12. What will subsequently be termed the outer rib section is designated by the numeral 15, and adjacent to one end is provided with a laterally extending lug 16, the portion beyond said lug being compressed so as to form a tongue 17 of a size to enter the space between the sides of the inner rib section, it being understood that the latter is U-shaped in cross section. The outer end portion of the inner rib section 14 is divided longitudinally to provide spaced lugs 18 and 19, the space therebetween receiving the lug 16 at the inner end portion of the outer rib section 15. The

lugs 16, 18 and 19 are provided with alining openings to receive a pivot pin 20. When it is understood that the rib sections 14 and 15 are approximately the same in length, it will be manifest when the parts are in position as shown in Fig. 1, that is when the outer rib section forms a continuation of the inner rib section, that the outer rib section may be folded over and parallel with the inner rib section, as shown in Fig. 2. It will be further observed when the outer rib section is in extended or unfolded position that the tongue 17 will limit the movement of said section in one direction.

By reference now to Figs. 1, 2 and 3 it will be seen that connection between the outer end of the intermediate stick section 6 and the outer rib sections is established by means of a plurality of operating rods. The operating rods are preferably of metal and each comprises two sections designated by the numerals 21 and 22. The sections 21 and 22 are united at one end thereof by means of a collar 23. The united ends of the sections will subsequently be termed the inner end of the operating rod and these united ends are pivoted to the notched ring 13 at the outer end of the intermediate stick section 6. The portions of the sections 21 and 22 of the operating rod, beyond the collar 23 diverge and extend substantially parallel with two adjacent inner sections of the ribs, as shown in Fig. 3, the outer ends of the sections terminating in inwardly directed offsets 24, the said offsets terminating in forwardly extending portions 25 which bear on the adjacent sides of two outer sections of the ribs and at points slightly beyond the pivotal point of the rib sections. The forwardly extending portions 25 are connected to the outer rib sections by means of pivot pins 26 as clearly shown in Fig. 3. With this construction it will be manifest that movement of the intermediate stick section 6 will impart movement to the outer rib sections.

The runner comprises what will subsequently be termed a female section designated by the numeral 27 and a male section designated by the numeral 28. The female section 27 is provided with a longitudinal slot 29 and secured to the outer face of the female section is one end of a spring 30, the opposite end portions of said spring being bent to form a substantially right triangular-shaped head which passes through the slot 29. The female section is further provided at a point diametrically opposite the slot 29 with a similar slot 31, the function of which will presently appear. The male section 28 telescopes into the female section and is provided on its outer surface with a rib 32 which is received by the slot 31, the function of the rib being to limit

the outward movement of the male section. Formed in the male section is a slot 33 which alines with the slot 29 of the female section when the rib 32 is arranged in the slot 31, the slot 33 receiving the head of the spring 30. The slot 33 is formed adjacent to the outer end of the male section and is somewhat less in length than the slot 29 of the female section, and when the parts are in their normal positions and the rib 32 moved to a point adjacent to the outer end of the slot 31 of the female section the head of the spring 30 will extend through the slot 33. When the male section is moved outwardly and the rib 32 moved to the inner end of the slot 31, the end of the slot 33 of the male member will engage with that portion of the head of the spring extending through the slot and move the same outwardly, so that when the male member is moved to the limit of its outward movement the head of the spring 30 will bear on the surface of the male member. The runner is slidably fitted on the stick, being of a size to slidably fit over the largest section 5. The female section 27 is provided at one end with the usual notched ring 34, to which is pivoted the inner ends of the stretchers, designated by the numeral 35. The opposite ends of the stretchers are pivoted to the intermediate portions of the inner rib sections 14.

It will be seen now by reference to Fig. 1 that the intermediate stick section 6 is provided adjacent to its inner end with a spring 36, the said spring having one end secured to the inner end of the section 6 and its opposite end portion being bent into a right triangular-shaped head 37, which extends through a longitudinal slot formed adjacent to the inner end of the said intermediate stick section. The head 37 bears, when the stick section 6 is moved outwardly to its full extent, on the inner end of the handle section 5, and serves to prevent inward movement of the intermediate stick section. It will be observed now by reference to Figs. 1 and 2 that when the runner is moved toward the handle section 5, it being assumed that the stick sections are in extended position, as shown in Fig. 1 that the outer end portion of the male member will engage the head 37 of the spring and move the same inwardly and out of engagement with the end of the handle section 5, thus permitting the stick section 6 to telescope into the section 5.

In order that the runner may be supported in position to hold the rib sections in unfolded position as shown in Fig. 1, a longitudinal recess 38 is formed in the intermediate stick section 6 and adjacent to the outer end thereof, this recess receiving the head of the spring 30 carried by the female section 27.

Having now described the structure the operation will be given. Assuming the umbrella to be raised and the parts in position as shown in Fig. 1 and it is desired to fold the umbrella the first step in the movement is to pull outwardly on the outer end of the male section 28 of the runner. This outward movement of the male section releases the spring 30 from engagement with the intermediate stick section 6, whereupon the runner will move toward the handle section 5. This movement of the runner likewise moves the rib sections to a position substantially parallel with the stick until the outer end of the male section 28 of the runner engages with the head 37 of the spring 36 and effects disengagement between the said spring and handle section 5. The intermediate section 6 now moves into the handle section 5 and at the same time the outer ends of the operating rods are moved outwardly and upwardly, thus moving the outer rib sections 15 outwardly. When the ferrule section 7 is moved into the intermediate section 6 and the latter moved into the handle section 5 the outer rib sections will be moved completely over the inner rib sections, whereupon the parts will assume the position shown in Figs. 2 and 4. It will be manifest that by extending the stick sections that the reverse of the movements just described will take place, thus the umbrella will be unfolded and the parts occupy positions shown in Fig. 1.

From the foregoing, it is evident that I have provided a device which is comparatively simple in structure and inexpensive in manufacture, embodying few parts and these so arranged that the danger of derangement will be reduced to a minimum.

I claim:—

A folding umbrella comprising a telescopic stick including an intermediate section, an inner rib section hingedly mounted on the outer end of the said stick, a runner slidably mounted on the said stick, a notched ring formed integral with the intermediate section of the said stick and adapted to form a stop for said runner, a stretcher having one end thereof hingedly connected to the said inner rib section and the other end thereof hingedly connected to the said runner, an outer rib section having hingedly connected thereto the outer end of the said inner rib section and an operating rod having an end thereof hingedly connected adjacent the inner end of the said outer rib section and adjacent the point of connection of the said outer and inner rib sections, the inner end of the said operating rod being hingedly connected to the said notched ring.

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

WILMOT G. HOFFMAN.

Witnesses:

EDWARD KNEASS,
THOMAS TIPPETT.