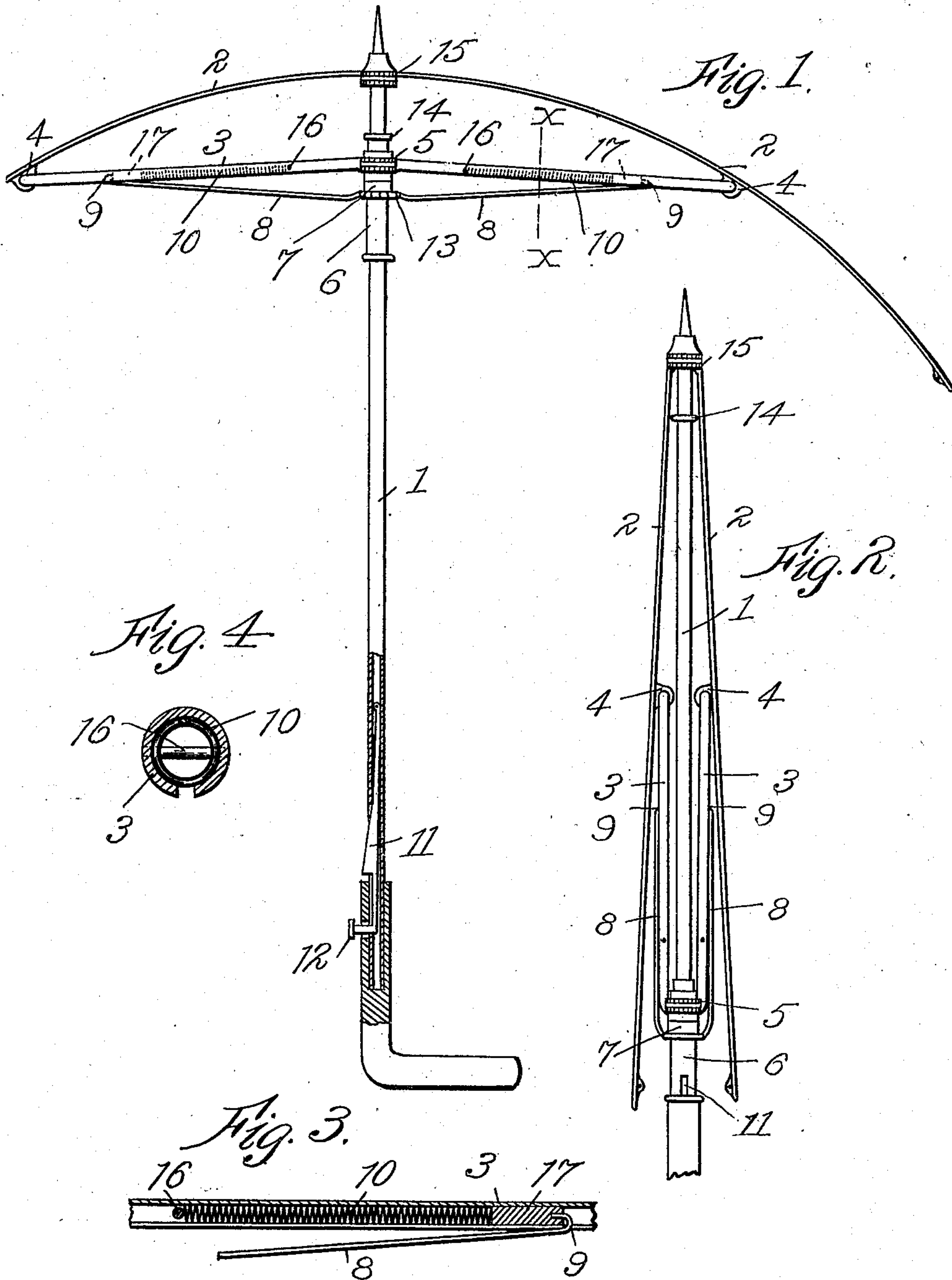


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UMBRELLA.

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924,530.

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# UNITED STATES PATENT OFFICE.

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## UMBRELLA.

No. 924,530.

Specification of Letters Patent.

Patented June 8, 1909.

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*To all whom it may concern:*

Be it known that I, JOSEPH BEAUDRY, a subject of the King of England, and a resident of Montreal, Dominion of Canada, have  
5 invented certain new and useful Improvements in Umbrellas, of which the following is a full and clear specification, illustrated in the accompanying drawings.

My invention relates to automatically  
10 opening umbrellas which will operate upon releasing the catch near the handle, and in particular my invention relates to improvements over the structure of such an umbrella shown and described by me in my application, Ser. No. 433,485, filed May 18,  
15 1908.

In the accompanying drawings, in which these particular improvements are illustrated, Figure 1 is a side view of the opened  
20 umbrella frame. Fig. 2 is a side view of the closed umbrella frame. Fig. 3 is a detail view of a part of the structure and the mechanism for opening the umbrella, in the relative position as shown in Fig. 1 in larger  
25 scale in longitudinal section, and Fig. 4 is a cross section through the stretcher on the line X—X of Fig. 1 in larger scale.

In Fig. 1, 1 is the umbrella stick, 2 are the ribs and 3 the stretchers pivoted at 4 to the  
30 ribs 2, and at 5 to the runner 6 mounted on stick 1. At a suitable distance below pivot points 5 of stretchers 3, which distance will vary according to the size of the umbrella, is fixed to runner 6 a sleeve 7. To this sleeve  
35 are pivoted rods 8, preferably one for each stretcher and in line therewith, which rods extend a suitable distance toward pivot points 4 of the stretchers 3, and are formed at their free ends into a hook 9 shown in detail in Fig. 3, the purpose of which will be  
40 explained hereinafter. As will be seen from Fig. 4, stretchers 3 are made of so called split tubing with the slot facing the umbrella handle. Within each stretcher 3 is disposed  
45 a compression spring 10 which abuts with its inner end against a pin 16 fastened in stretcher 3. Against the outer end of each spring bears a plunger 17, to the free end of which hook 9 of the corresponding rod 8 is fastened. The simplest way of doing this is  
50 by making this plunger hollow and having the end of the hook 9 extending into this hollow space as shown in detail in Fig. 3. Spring 10 is of such dimension that when the  
55 umbrella is opened, as shown in Fig. 1, it is expanded substantially to its full length, but

it is however still under slight tension sufficient to hold rods 8 stretched.

In order to save space, instead of rods 8, wires of sufficient stiffness may be used, such  
60 as for instance piano wire, which are then held stretched by the tension of the spring when the umbrella is open. When the umbrella is closed, as shown in Fig. 2, so that runner 6 is engaged by catch 11, it will be  
65 seen that owing to the distance at which stretchers 3 and rods or wires 8 are pivoted to runner 6, the hook-shaped end 9 of each wire 8 will slide in the slotted stretcher 3 toward pivot point 5 of its stretcher, so that  
70 thereby spring 10 will be compressed. When catch 11 is released by pressing the button 12, spring 10 of each stretcher will exert its tendency to expand and thereby move hook  
75 9 of each rod toward pivot point 4 of its stretcher, which will cause runner 6 to fly up and open the umbrella. A stop 14 is provided on stick 1 close enough to the pivot  
80 point 15 of ribs 2, so that stretchers 3, forming a toggle joint, will tend to keep the umbrella open under the tension of ribs 2.

While I have shown the connection between rods 8 and springs 10 through the intermediate plunger member 17 as the preferred form, it is obvious that the opening  
85 mechanism will operate in the same manner when hooks 9 are directly hooked into spring 10, and that a structure of this kind would not constitute a departure of my invention. Moreover it is obvious that I may omit  
90 springs 10 in some of the stretchers 3 and correspondingly omit rods or wires 8, and provide such springs and rods only on a suitable number of oppositely corresponding  
95 stretchers, sufficient to cause the opening of the umbrella.

What I claim is:

1. In an umbrella, the combination with a stick, ribs pivotally connected to said stick,  
100 a runner slidably mounted upon said stick, stretchers pivotally connected to the ribs and the runner, compression springs mounted on a plurality of the stretchers, rods, at their inner ends pivoted to the runner at a point  
105 nearer the umbrella handle than the pivoted attachment of the stretchers to said runner, and at their outer ends operatively connected to the outer ends of the compression springs.

2. In an umbrella, the combination with a stick, ribs pivotally connected to said stick,  
110 a runner slidably mounted upon said stick, stretchers pivotally connected to the ribs and



the runner, compression springs mounted on a plurality of stretchers and guided thereby, rods, at their inner ends pivoted to the runner at a point nearer the umbrella handle, than the pivoted attachment of the stretchers to said runner, and at their outer ends operatively connected to the outer ends of the compression springs.

3. In an umbrella, the combination with a stick, ribs pivotally connected to said stick, a runner slidably mounted upon said stick, hollow, tubular, slotted stretchers pivotally connected to the ribs and the runner, compression springs mounted in the tubular space of a plurality of stretchers, rods, at their inner ends pivoted to the runner at a point nearer the umbrella handle than the pivoted attachment of the stretchers to said runner, and at their outer ends operatively connected to the outer ends of the compression springs through the slots in said stretchers.

4. In an umbrella, the combination with a stick, ribs attached to said stick, stretchers and a runner slidably mounted on said stick, said stretchers consisting of split tubing pivoted at one end to said ribs and at the other end to said runner, a compression spring for each of a plurality of oppositely disposed stretchers, disposed within said stretcher, a stop within said stretcher at a distance from the pivot point of the stretcher on the rib forming an abutment for the inner end of said spring, a radially extending rod for each spring pivoted at its inner end to said runner at a distance from the pivot point of its stretcher in the direction of the umbrella handle, and having its outer end protruding through the slot into its stretcher and suitably connected to the outer end of said spring, said radially extending rods tending to compress their springs when the umbrella is closed.

5. In an umbrella the combination with a stick, ribs attached to said stick, stretchers and a runner slidably mounted on said stick, said stretchers consisting of split tubing pivoted at one end to said ribs and at the other end to said runner, a compression spring for each of a plurality of oppositely disposed stretchers, disposed within said stretcher, a stop within said stretcher at a distance from the pivot point of the stretcher on the rib forming an abutment for the inner end of said spring, a radially extending rod for each spring pivoted at its

inner end to said runner at a distance from the pivot point of its stretcher in the direction of the umbrella handle, and having its outer end hook-shaped and protruding through the slit into its stretcher, a plunger at the outer end of each spring receiving the hook of said rod, said radially extending rods tending to compress their springs when the umbrella is closed.

6. In an umbrella the combination with a stick, ribs attached to said stick, stretchers and a runner slidably mounted on said stick, said stretchers consisting of split tubing pivoted at one end to said ribs and at the other end to said runner, a compression spring for each of said stretchers, disposed within the stretcher, a stop within said stretcher at a distance from the pivot point of the stretcher on the rib forming an abutment for the inner end of said spring, a radially extending rod for each spring pivoted at its inner end to said runner at a distance from the pivot point of its stretcher in the direction of the umbrella handle, and having its outer end protruding through the slot into its stretcher and connected to the outer end of said spring, said radially extending rods tending to compress their springs when the umbrella is closed.

7. In an umbrella the combination with a stick, ribs attached to said stick, stretchers and a runner slidably mounted on said stick, said stretchers consisting of split tubing pivoted at one end to said ribs and at the other end to said runner, a compression spring for each of said stretchers, disposed within the stretcher, a stop within said stretcher at a distance from the pivot point of the stretcher on the rib forming an abutment for the inner end of said spring, a radially extending rod for each spring pivoted at its inner end to said runner at a distance from the pivot point of its stretcher in the direction of the umbrella handle, and having its outer end hook-shaped and protruding through the slit into its stretcher, a plunger at the outer end of each spring to receive the hook of said rod, said radially extending rods tending to compress their springs when the umbrella is closed.

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