

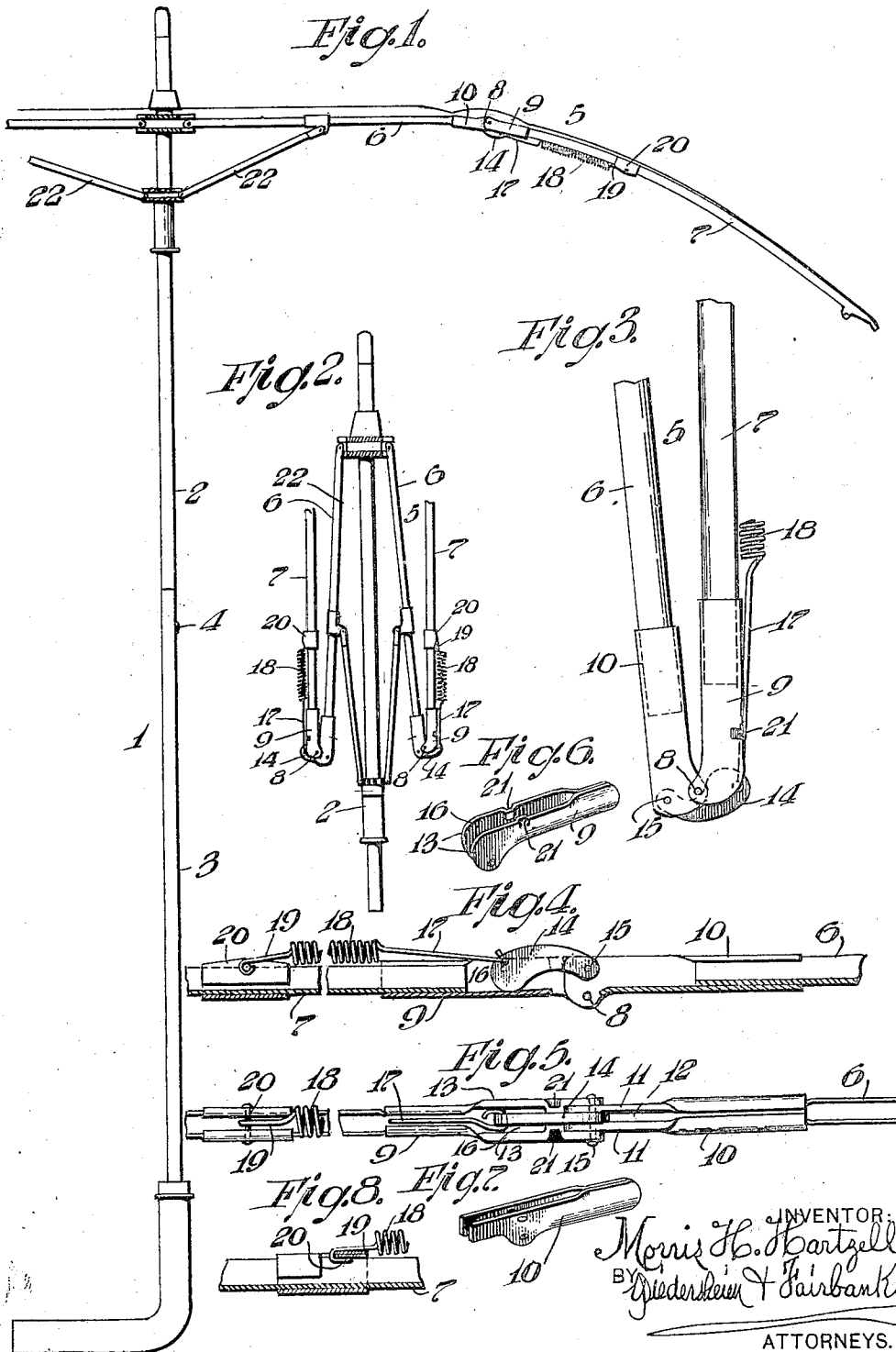
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M. H. HARTZELL

FOLDING UMBRELLA

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UNITED STATES PATENT OFFICE.

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FOLDING UMBRELLA.

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To all whom it may concern:

Be it known that I, MORRIS H. HARTZELL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Folding Umbrella, of which the following is a specification.

My invention relates to an umbrella or parasol that may be folded, and consists in forming the ribs thereof in sections, and novel mechanism at the joints of the latter whereby said joints are strong in their nature and serve to prevent the sections from twisting or torsion at said joints, and serve also to guide the folding sections in their folding and unfolding motions on the sections that are pivotally connected with the notched collar on the upper end of the stick.

The invention is satisfactorily illustrated in the accompanying drawing, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific details shown and described, as long as they are within the spirit or scope of the claim.

Figure 1 represents a side elevation of a portion of the frame of an umbrella in open condition.

Figure 2 represents a side elevation of a portion of the frame in folded condition.

Figure 3 represents a side elevation of portions of members shown in Figure 2 on an enlarged scale.

Figures 4 and 5 represent longitudinal sections respectively, at a right angle to each other of the foldable joint of the sections of the ribs.

Figures 6 and 7 represent perspective views of detached members of the joint.

Figure 8 represents a section of a portion of a modification.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings.

1 designates the stick of the umbrella, the same being formed of sections 2 and 3, the adjacent ends of which are adapted to be connected as one by the catch 4 which when the umbrella is to be formed in folded condition is adapted to be operated to disconnect said sections to admit them to be folded together in the folded condition of the umbrella.

5 designates the ribs of the umbrella each of the same being formed of sections 6 and

7, the adjacent ends of which are connected as one by the pivot 8 whereby the sections may be continuous in the normal condition of the rib as in Figure 1, or folded as in Figures 2 and 3.

The sections 7 may be termed the folding sections, while the sections 6 may be termed the fixed sections, which latter are connected with the notched collar on the stick as usual. To the adjacent ends of a rib are secured the sleeves 9 and 10 respectively, the same being connected by the pivot 8 as above. Portions of the sides 11 of the pivotal end of the sleeve 10 are brought together forming between them the channel 12 and portions of the sides 13 of the sleeve 9 are spread apart to receive between them the portions of the sides 11 of the sleeve 10, the pivot 8 being passed through said sides 11 and 13 thus forming the axis of said sleeves and consequently the joint of the sections of the rib.

14 designates a radial or swinging arm composed of a plate, a portion of which freely enters the channel 12 of the sleeve 10 and has the end thereof mounted on the sides 11 of said portion by the pivot 15 whereby said arm may turn in said sides and consequently on the sleeve 10, and the opposite portion freely enters the channel 16 in the sleeve 9 between the spread apart sides 13 thereof.

Connected with the end of said arm 14 opposite to its pivot is one end 17 of the coil spring 18, the latter passing the sleeve 9 and extending along the adjacent portion of the section 7 of the rib 5 to which section the other end 19 of said spring is connected by the clip 20, having a pin or bar, as in Figures 4, 5, and 8, or other device thereon for the purpose.

The walls 13 of the collar 9 are intumed as at 21 forming stops for the ends of the sleeve 10 against which said end abuts, see Figure 7.

It will now be seen that said spring 18 now exerts its tension on the radial arm 14 and consequently on the section 7 or the rib which section follows said arm and thus said section 7 forms a continuity of the section 6 in the normal condition of the umbrella, and so the latter may be opened and closed as usual.

The stretchers 22 are connected with the sections 6 of the rib as usual in umbrellas. When the umbrella is to be folded, the umbrella being closed or partly closed, the sec-

tions 7 of the ribs are folded on the sections 6 thereof, the radial arms following the pivoted ends of the sections 7 of the ribs and removing from the channels 16 of the sleeve 9, thus drawing the springs with them and expanding the latter, as shown in Figures 2 and 3, and the lower portion of the covering of the umbrella is turned over said sections, the sections of the stick being also separated and folded and so the umbrella is folded in compact shortened form convenient to be carried, packed in a satchel, suitcase, trunk, etc., wrapped, stored away, etc.

When the umbrella is to be restored to its normal condition, the sections 7 of the rib are drawn outwardly from the sections 6 and thus manipulated as to be unfolded. The springs 18 then contract and so exert their tension or draft on the radial arm and also on said sections 7 when the latter are returned to their normal position closing on the sections 6, and thus restoring the ribs to their normal condition, as in Figure 1. The cover also resumes its normal position on the ribs and so the umbrella may be opened and closed as usual.

It will be seen that the radial arm 14 serves to reinforce the joint of the sectional rib, thus increasing the strength thereof to guide the folding section of the rib on the other section of the rib at the joint of the sections in the folding and unfolding motions of the rib, and to prevent torsion or twisting of said joint.

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

In a folding umbrella, a foldable rib formed of sections, a pivotal joint for said sections, a resilient member connected to one of said sections and adapted to hold said sections as continuities of each other, and a swinging member directly pivoted to the other of the sections of the rib and disconnected from the first-named section and having said resilient member connected therewith.

MORRIS H. HARTZELL.

Witnesses:

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