

H. MILLER.

UMBRELLA.

APPLICATION FILED MAY 3, 1911.

1,026,820.

Patented May 21, 1912.

2 SHEETS-SHEET 1.

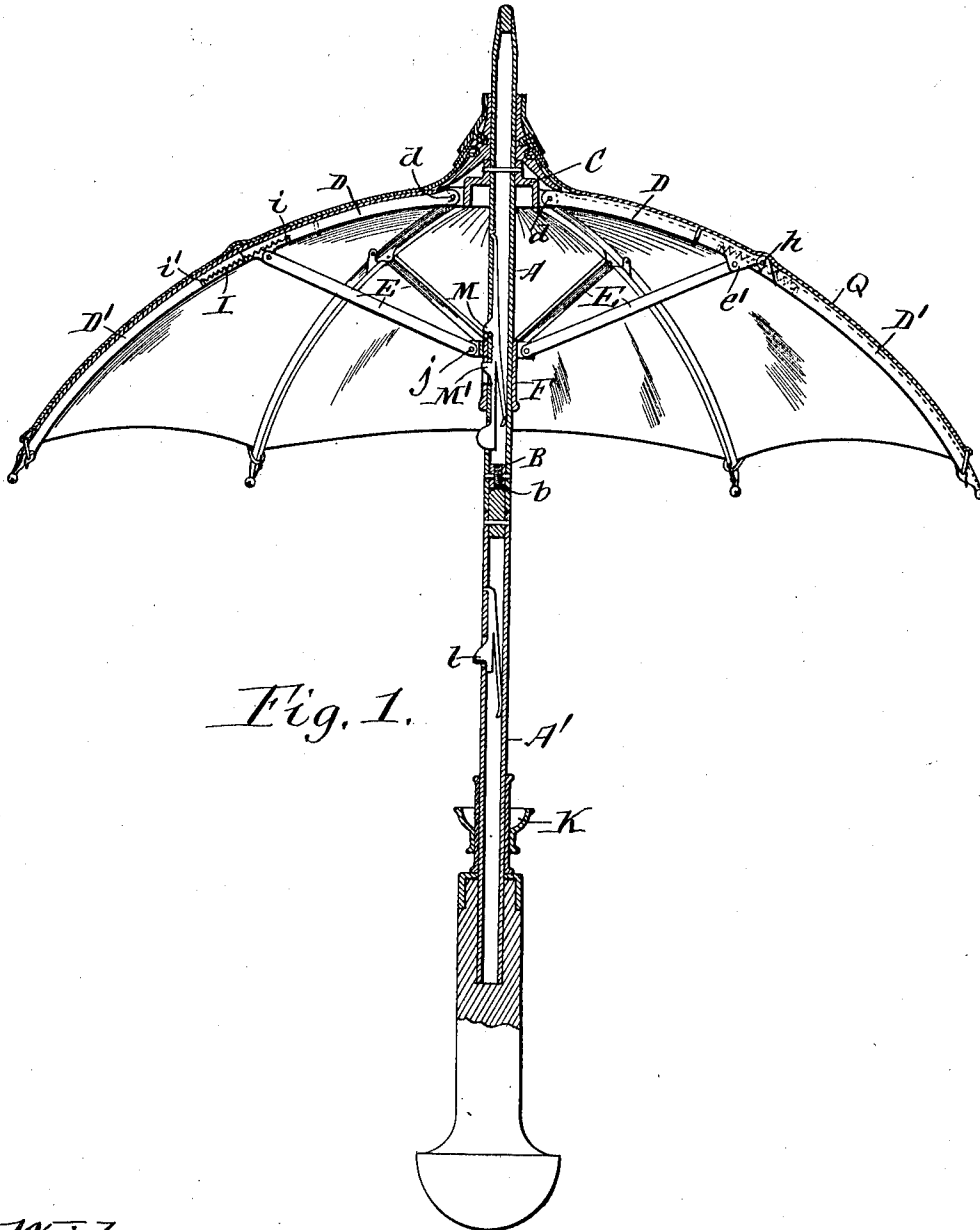


Fig. 1.

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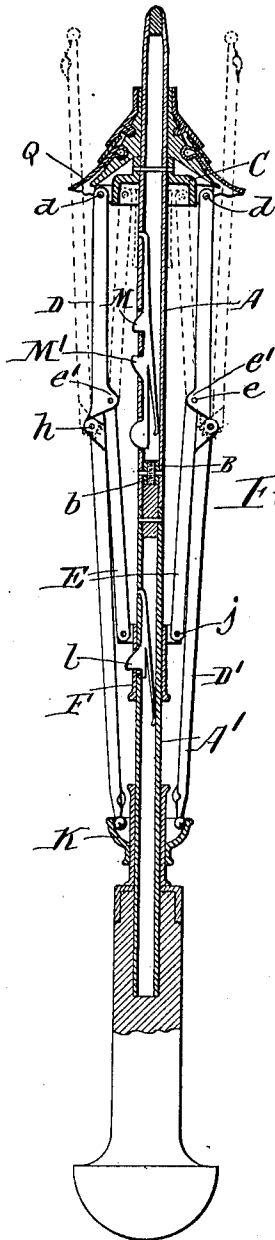


Fig. 2.

Fig. 3.

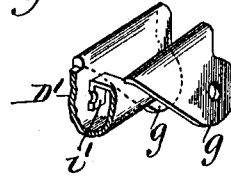


Fig. 4.

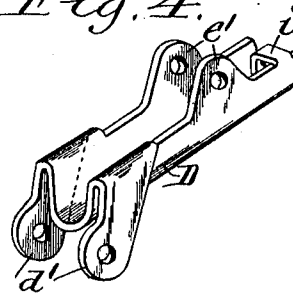


Fig. 5.

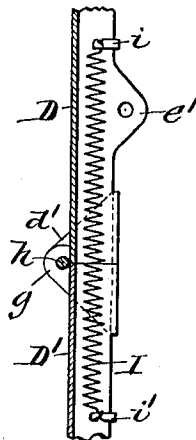
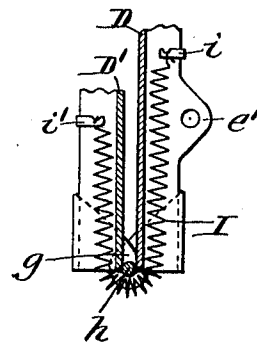


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY MILLER, OF WASHINGTON, PENNSYLVANIA.

UMBRELLA.

1,026,820.

Specification of Letters Patent.

Patented May 21, 1912.

Original application filed January 3, 1910, Serial No. 536,130. Divided and this application filed May 3, 1911. Serial No. 624,713.

To all whom it may concern:

Be it known that I, HENRY MILLER, a citizen of the United States, residing at Washington, in the county of Washington and State of Pennsylvania, have invented new and useful Improvements in Umbrellas, of which the following is a specification.

This invention relates to an umbrella which can be opened and closed like those now in general use but which can also be collapsed or knocked down into a smaller compass than that which it occupies in its ordinary folded condition, so as to render the same more compact and permit of stowing the same in a smaller space for transportation and other purposes.

It is the object of this invention to provide an improved construction of folding ribs for umbrellas of this character.

This application is a sub-division of an application for patent filed by myself January 3, 1910, Serial No. 536,130.

In the accompanying drawings consisting of 2 sheets: Figure 1 is a sectional elevation of an improved umbrella embodying my invention and showing the same unfolded for use. Fig. 2 is a sectional elevation of my improved umbrella showing the same folded in the ordinary manner. Figs. 3 and 4 are fragmentary perspective views of the adjacent ends of the sections of one of the ribs. Fig. 5 is a fragmentary longitudinal section showing the spring joint between the two sections of a rib in a straightened position. Fig. 6 is a similar view of these parts showing the same in a folded position.

Similar letters of reference indicate corresponding parts throughout the several views.

The stick, staff or rod of the umbrella is preferably constructed of two metal tubular sections A, A' detachably connected by a screw threaded stem b on the upper end of the lower section and engaging with a screw threaded socket B in the lower end of the upper section. When the umbrella is to be shortened for storage or transportation, the sections of the stick are disconnected and placed side by side.

C represents the head of the umbrella, D, D' the ribs pivoted on the head, E the braces or stretchers pivotally connected at

their outer ends with the ribs, and F the tubular runner which slides lengthwise on the stick and to which the inner ends of the braces or stretchers are pivoted.

Each of the ribs comprises inner and outer sections D, D' each of which is constructed of sheet metal so that it is U-shaped or channel-shaped in cross section and arranged with its convex side facing upwardly or outwardly. Each of the inner rib sections has its inner end pivoted by a wire d on the periphery of the head while its outer end is provided with two integral perforated pivot ears d' which are bent reversely from the longitudinal edges of this rib section so that they project beyond the crown of this rib section on the opposite or convex side thereof and have their openings arranged in line with the outer end of this rib section. The inner end of each outer rib section is provided with two integral perforated pivot ears g which are bent reversely from the longitudinal edges of this rib section so that they project beyond the crown of this rib section on the opposite or convex side thereof and have their openings in line with the inner end of this section. The opposing ends of the sections of each rib abut in the unfolded position of the rib and their ears overlap one another and are pivotally connected by a transverse pin or rivet h, as shown in Figs. 1 and 2.

The sections of each rib are yieldingly held in a straightened position in line with each other by means of a spiral spring I arranged lengthwise within the hollow or concave side of the opposing end portions thereof and connected at its opposite ends to said rib sections preferably by means of lugs i, i' each of which is formed integrally on one longitudinal edge of each section and receives the end of the spring I. In the normal position of the sections of each rib the spring I extends straight across the joint between the same, as shown in Figs. 1 and 5, but when folding the sections of a rib upwardly and inwardly upon collapsing the umbrella, as shown by dotted lines in Fig. 2, the spring I is doubled around the pivot pin h, as shown in Fig. 6. The ribs may be held in this doubled position by any suitable fastening or retaining means. When this fastening means is removed the resili-

ence of the spring I automatically returns the rib sections into their straightened position relatively to each other.

Each of the braces or stretchers E is preferably constructed of sheet metal in the form of a channel or U-shaped cross section and has its outer end pivotally connected by means of a transverse pin *e* with a pair of perforated pivot ears *e*¹ on the longitudinal edges of one of the inner rib sections adjacent to the pivotal connection between the same and the companion outer rib section. The inner end of each brace is pivoted to the runner F by a pin *j*.

When opening and closing the umbrella in the ordinary use of the same the runner is moved downwardly to the central part of the lower section of the stick, as shown in full lines in Fig. 2 for folding the umbrella, or upwardly to the central part of the upper stick section for unfolding the umbrella, as shown in Fig. 1. When, however, the umbrella is to be collapsed and shortened the runner is moved upwardly to the upper part of the upper stick section. Preparatory to thus shifting the braces in this upper folded position the outer sections of the ribs are turned upwardly against the resilience of their springs I, as shown by dotted lines in Fig. 2, and after the ribs and braces have been folded into this position the lower section of the stick is removed and placed alongside of the upper parts of the umbrella so as to render the whole more compact.

When the umbrella is closed in the ordinary manner the ribs may be held close to the stick by means of the holding sleeve K slidable on the lower section of the stick and adapted to embrace the tips of the ribs, as shown in Fig. 2.

In its lowermost position the runner is held against upward movement by a stop

or catch 1 and for holding the runner in its central position, catches M, M¹ are provided on the stick.

Q represents the cover of the umbrella which may be constructed of any suitable flexible material and which is preferably detachably secured to the ribs and the stick so that it may be conveniently renewed when worn out or removed for cleaning, repairing or storing.

I claim as my invention:

1. A folding umbrella comprising a stick, a head secured to the stick, and ribs pivoted on said head and each constructed of sheet metal sections, each section having a channel on one side and a crown on the opposite side and having a pair of pivot ears bent reversely from the longitudinal edges of the channel beyond the crown on the opposite side thereof, the pivot ears of said sections overlapping each other and being pivotally connected.

2. A folding umbrella comprising a stick, a head secured to the stick, ribs pivoted on said head and each constructed of sheet metal sections, each section having a channel on one side and a crown on the opposite side and having a pair of pivot ears bent reversely from the longitudinal edges of the channel beyond the crown on the opposite side thereof, the pivot ears of said sections overlapping each other and being pivotally connected, and each rib having an inwardly bent lug, and a spring arranged lengthwise of said rib sections and across the joint between the same and connected at its opposite ends with said lugs.

Witness my hand this 29th day of April, 1911.

HENRY MILLER.

Witnesses:

BLANCHARD G. HUGHES,
MARY P. FLEMING.