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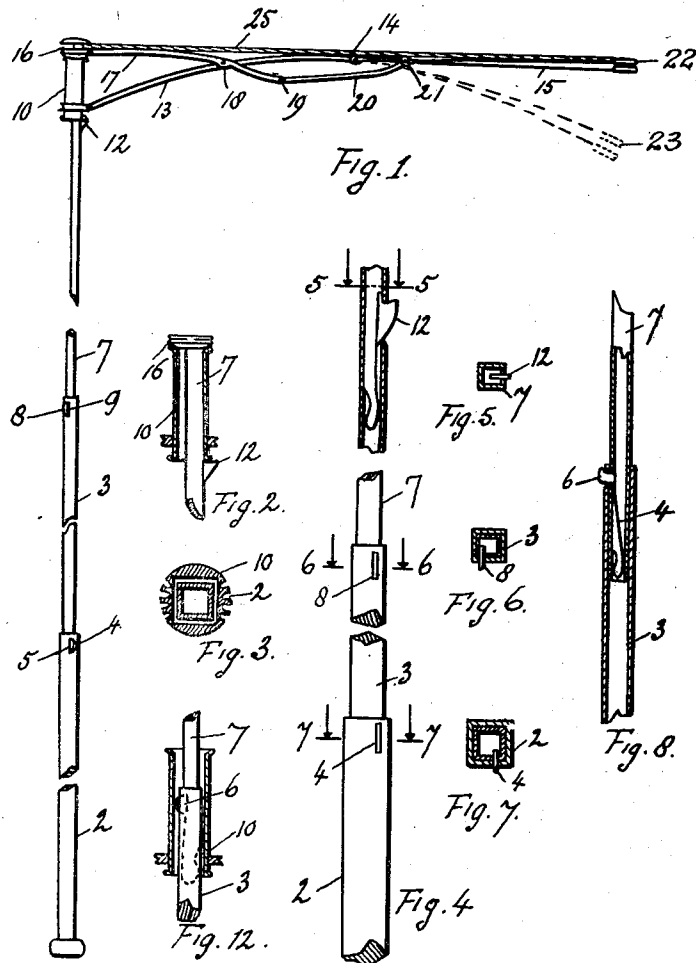
W. BOUMA

2,076,525

UMBRELLA

Filed Aug. 24, 1932

2 Sheets-Sheet 1



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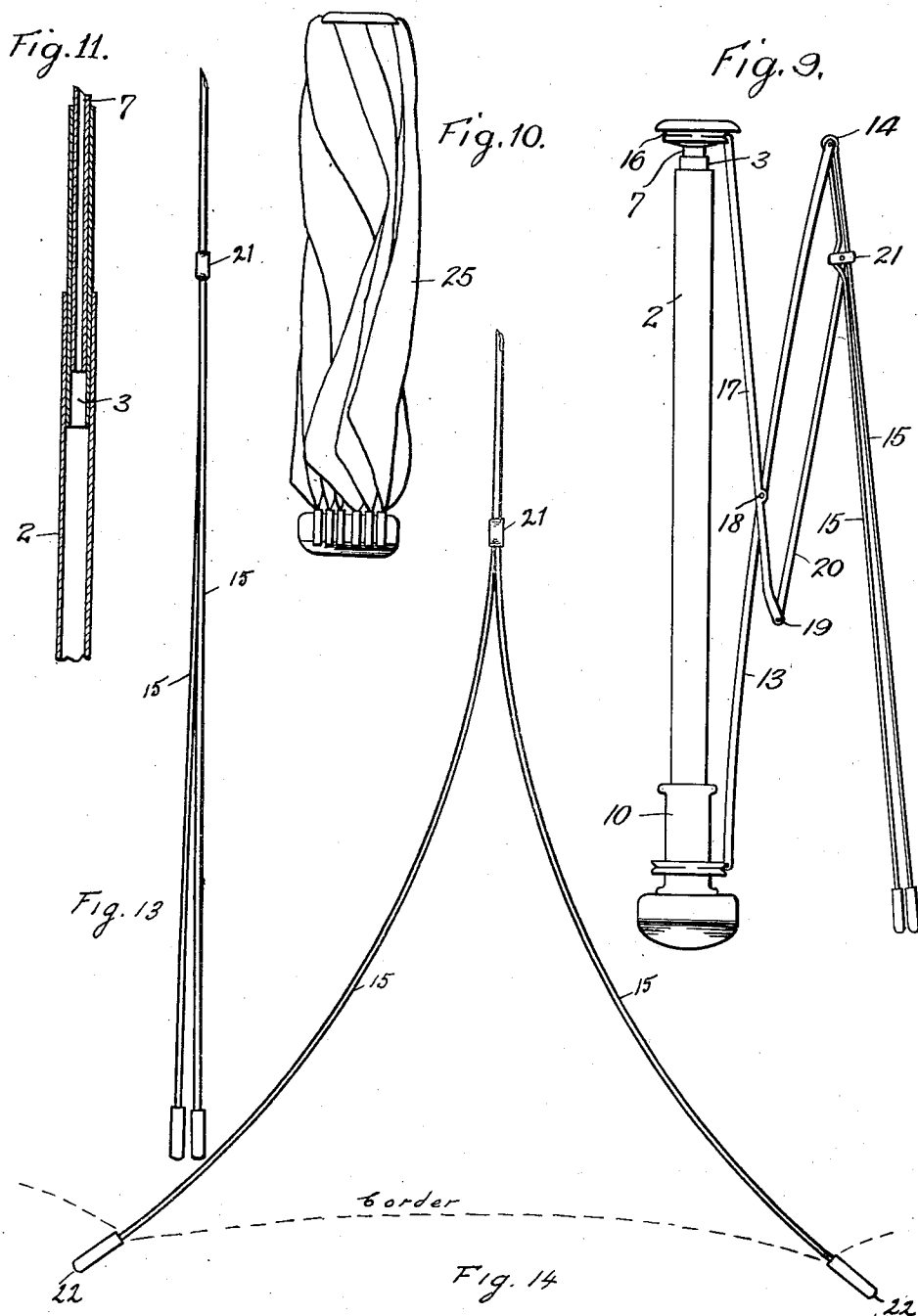
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UNITED STATES PATENT OFFICE

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UMBRELLA

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11 Claims. (Cl. 135—25)

My invention relates to umbrellas, more especially to collapsible umbrellas of the type wherein a handle is provided with a plurality of sections adapted to telescope one into the other.

5 It has for its object to provide several collapsible handle parts, square shaped, whereby they are prevented from relative rotation and a square shaped runner to open or to close the umbrella.

10 It has for a further object to provide a collapsible umbrella, with cover or fabric direct contacting on the surface of the curved top ribs, with an extremely practical construction and one that when extended will be superior to the
15 usual size because the curved spreaders are built or constructed high and close to the top and cover, giving more comfort, convenience and beauty, and further to provide the spreading main-ribs, a runner touching the top notch, and
20 when the umbrella is extended it will withstand the usage and will be beneficial and serviceable to the user.

In one single movement, the umbrella can be shut up compactly and carried in a small hand-
25 bag, purse or pocket.

A further object of this invention is to provide at each single set of ribs two outer main ribs, running parallel when the umbrella is closed, but spreading outwardly of the top, the
30 outer ends each of them in opposite direction when the umbrella is extended, giving by a similar construction and a reduced quantity of rib-sets, the same convenience and shelter, also more beauty, a reduced weight and a more perfect folding cover when the umbrella is collapsed,
35 also more inexpensive to manufacture.

These and such other objects as may hereinafter appear are attained by the novel construction of the herewith illustrative embodiment, it
40 being understood that modification, adaptation and variation may be resorted to within the spirit, scope and principle of the invention as it is more directly claimed hereinafter, and which consists of the disclosure and the substantial
45 equivalent thereof.

Figure 1 is a vertical section and elevation of the umbrella structure.

Figure 2 is a sectional detail of the runner in
50 outer position.

Figure 3 is a bottom plan of the notch with apertures on the runner on a part of the handle.

Figure 4 is a side elevation of the handle parts.

Figure 5 is a cross-section on line 5—5 on Fig-
55 ure 4, through the post.

Figure 6 is a cross-section on line 6—6 at the post latch Figure 4.

Figure 7 is a cross-section on line 7—7 of Figure 4 at the tube latch.

Figure 8 is a detail sectional view of handle-
5 sections and their latch.

Figure 9 is an elevation showing the skeleton structure and handle in collapsed position.

Figure 10 is an elevation of the completely
10 collapsed and furled umbrella.

Figure 11 is a longitudinal section of handle-
section.

Figure 12 is a section showing repressive action of the runner.

Figure 13 is a section showing the double-
15 main ribs in the condition when the umbrella is in collapsed position.

Figure 14 is a section showing the double-main ribs spreading outwardly and outer ends side-
20 wardly when the umbrella is in open condition.

The umbrella staff as here shown includes a main or lower handle tube 2, in which is snugly slidable, an intermediate tube 3 having a spring
25 latch 4 adapted to snap out into a slot 5 near the upper end of the handle 2; the latch having an outer rounded nose 6.

The tube 3 telescopically receives a post or outer section 7 in which is mounted a spring
30 latch 8 similar to latch 4 and operative to snap into a slot 9 near the upper end of the tube 3, the latches serving to hold the handle parts in extended relation.

Slidably fitting over the handle tube is a tubular runner 10 to run over and depress the latches
35 4 and 8 as the runner is retracted so as to release the sections for telescoping. When the runner is in outermost position it is retained by a spring-latch 12 in the top post 1. Preferably the several latches are out of line so that
40 as the sections telescope the latches can snap out into their respective slots 5 and 9 only.

The runner 10 is provided with an annular series of main rods or spreaders 13, whose outer
45 ends are pivoted at 14 to double main umbrella ribs or reeds 15 of suitable length, more or less equal to the length of the handle 2. On the top of the post 7 is a cap or crown-notch 16 from which pivotally radiate a series of arms
50 17, each pivoted at 18 intermediately of and on the spreaders 13 and are pivotally connected at 21, to the double main ribs 15 at points outwardly the pivots 14.

The umbrella covering or fabric 25 extends
55 from the outer ends 22 of the double ribs 15 up

to the crown notch 16 to which it is properly attached.

In operation after the runner 10 is forcibly pushed outwardly along the handle 2 it thrusts the set of spreaders bodily outward with the post 7 and the collapsed arms 17 until the tube 3 is drawn from the handle 2 and until the runner 10 passes onto post 7 whereupon the resistance of outward movement by the latch 8 causes the runner 10 to slide along the post 7 with the result that the spreaders 13 are opened or expanded to spread the ribs 15 on their pivots 14 while the parallel links 20 are actuated by their arms 17. As the runner passes over the latch 12 it completely opens the skeleton and the runner is held in position against its latch 12 and notch 16, the double spring ribs or reeds 15 unclosely and the outer ends 22 separate, actuated by the stretching of outer edge of the cover.

The several handle parts are made of square tubing so they are prevented from relative rotation.

When it is desired to collapse the umbrella it is only necessary to pull the slide 10 to overcome its sustaining latch 12 and thereby draw it in so that the slide 10 will successively depress the handle latches 8 and 4 enabling the sections to collapse to the position shown in Figure 9 and thereby allowing the fabric 25 to be furled about the collapsed skeleton as in Figure 10. During the collapsing movement the fabric connected on the arms 17 near the pivots 18 will be taken up around the crown.

It will be seen that the runner in one stroke outward will open up the ribs and cover and extend the handle at the same time, and on reverse stroke will collapse the handle and cover.

It is understood that the word umbrella as herein used is intended also to include parasol structures.

What is claimed is:

1. In an umbrella in combination with the covering; runner-controlled ribs engaging said covering to unfold it in outspreading disposition circumferentially, means movable to V shape actuated by said ribs at the peripheral edge of the covering for automatically stretching the peripheral portions between the several ribs circumferentially.

2. An umbrella consisting of a staff, a covering secured to the staff, a runner, a series of circumferentially-separated ribs, and a series of pairs of flexible ribs associated with the several preceding ribs being pivotally connected at their inner ends to the previous ribs and having their outer free ends connected to the peripheral edge of the covering, said pairs of ribs effective when the covering is outspread and unfolded to stretch the peripheral edge thereof circumferentially.

3. In an umbrella, the combination with the covering of a circumferential series of ribs, each rib having a terminal pair of laterally separable reeds, the reeds being separately secured to the peripheral outer edge of the covering whereby when the ribs open they unfold the covering in outspreading disposition and cause the reeds to stretch the portions of the covering between the ribs circumferentially.

4. In an umbrella, the combination with the covering of a radial series of ribs associated with the covering and a pair of laterally and resiliently separable reeds controlled by each rib

and each having its outer end connected to a separate arcuate portion of the covering whereby as the ribs open to spread out the covering the reeds open to spread out and to stretch taut the arcuate portions of covering.

5. In an umbrella, a series of radial ribs, a pair of normally closed reeds carried by the outer ends of the several ribs and projecting forwardly thereof, a covering terminally secured to said reeds, said ribs when partially opened by said runner stretching all the outer edge portions of the covering except the portions between the reeds, and said reeds opening fully to stretch the portions of the covering between the reeds as the ribs fully open.

6. In an umbrella, in combination with the ribs and the covering thereof additional rib means projecting forwardly of said first ribs and engaging the outer edge of the covering scissors-like for automatically stretching the circumferential edge of the covering in a plane at right angles to any and all of the ribs as they open out to unfold the umbrella.

7. In an umbrella, in combination with the ribs and covering thereof, supplementing rib means projecting divergently in advance of and being actuated by said ribs severally for engaging the peripheral edge of the covering whereby, as the latter opens fully the portions of the covering spanning the first ribs are stretched automatically.

8. In an umbrella, ribs of lesser length than the radial spread of the covering thereof, and means actuated by each rib secured to circumferentially spaced points of the peripheral edge of the covering for automatically stretching the edge between said points as the umbrella is completely unfolded.

9. An umbrella having a covering, ribs engaging said covering short of its outer edge for unfolding said covering, and laterally-opening and closing ribs actuated by each of the first ribs, and designed to engage the covering along its outer edge for stretching the circumferential portions of the covering between the first ribs as the covering is disposed in fully open outstretched manner.

10. In an umbrella having a central stem with a collar slidable therealong and a flexible sheet-top, ribs for raising and lowering the top by the sliding movement of the collar, each rib comprising a lazy tongs structure movable in a vertical plane and including pivotally connected rods one of them pivotally connected with the stem adjacent its upper end and another of said ribs being pivotally connected with the collar; and a pair of fingers pivotally connected with the outer end of said structure to swing between parallel and relatively angular positions in a plane at right angles to the plane in which the ribs move toward top-raised position, the outer ends of said fingers being connected with the top adjacent its outer edge.

11. An umbrella having means for unfolding its covering in outstretched manner and ribs movable to V-shape connected to the said means whereby the entire outer edge of said covering may be, as it is unfolded, subjected to a circumferential pull to stretch said covering radially taut.

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