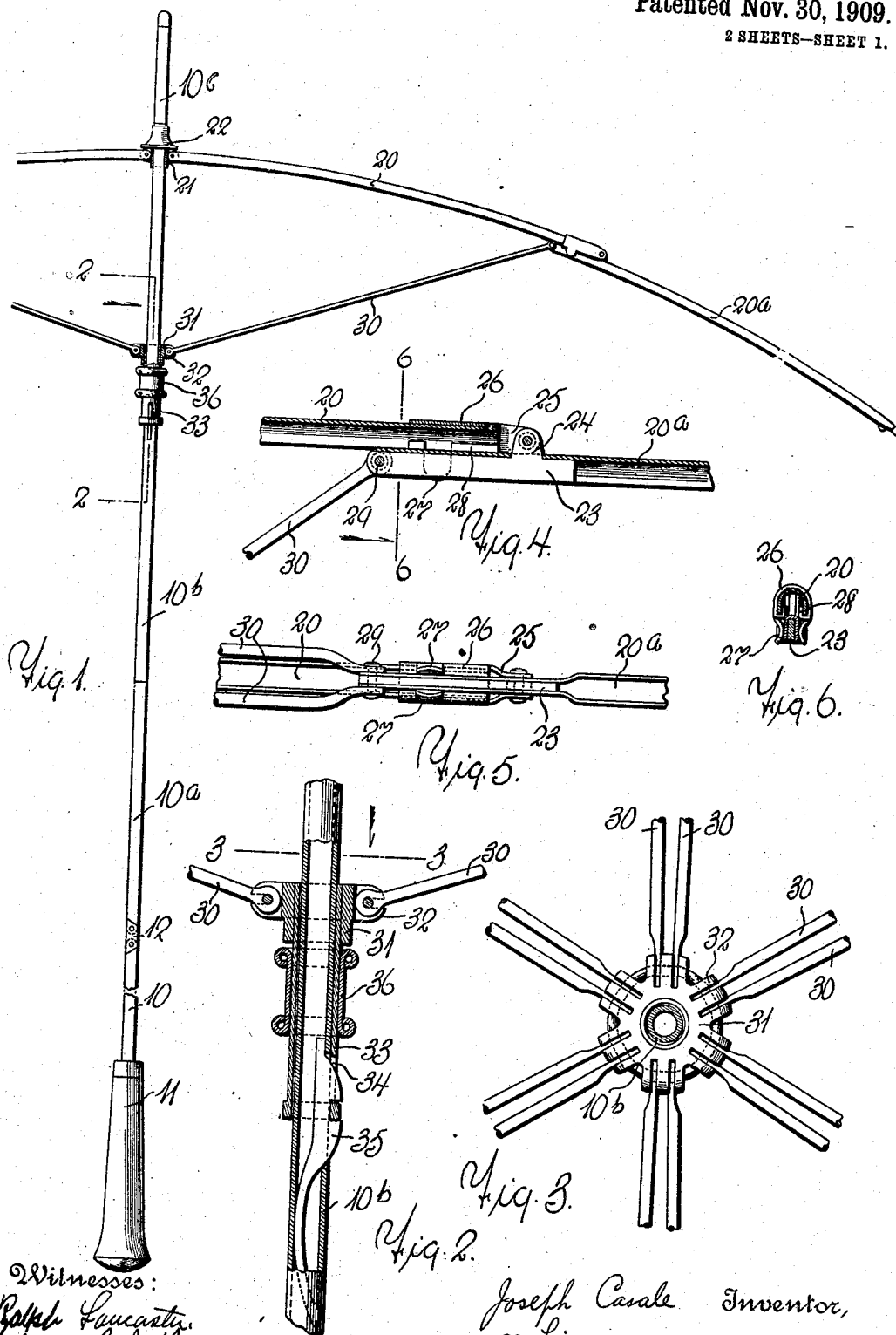


J. CASALE.
FOLDING UMBRELLA.
APPLICATION FILED JAN. 9, 1909.

941,615.

Patented Nov. 30, 1909.
2 SHEETS—SHEET 1.



Witnesses:
Ralph Lancaster,
Frank L. Duth.

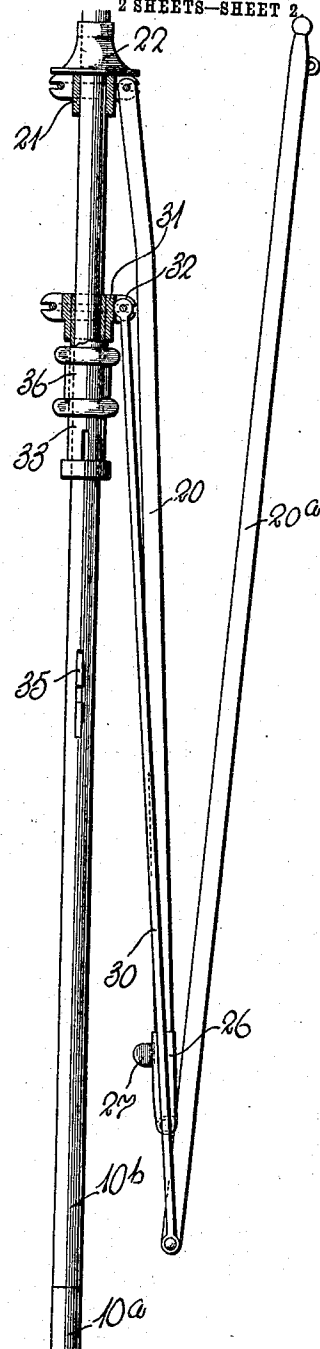
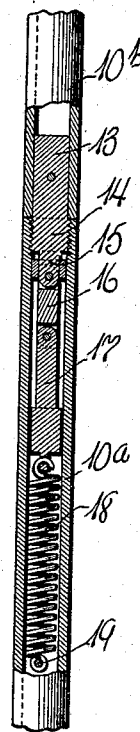
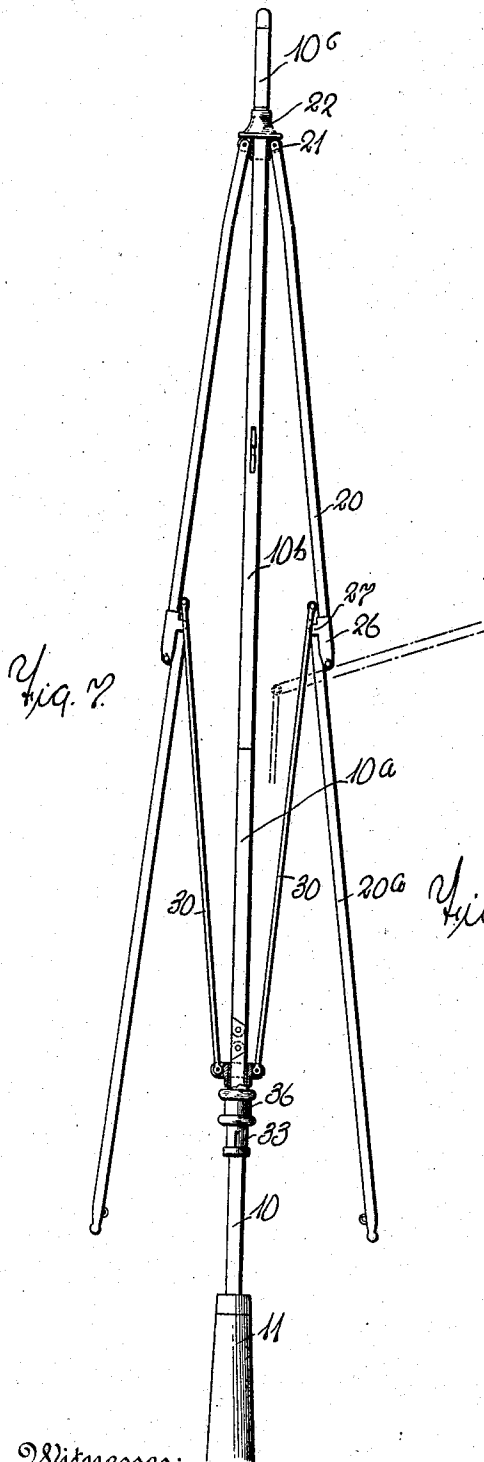
Joseph Casale Inventor,
By his Attorney,
W. B. Hutchinson.

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2 SHEETS—SHEET 2



Witnesses:
Ralph Lancaster.
Frank L. Smith.

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UNITED STATES PATENT OFFICE.

JOSEPH CASALE, OF NEW YORK, N. Y., ASSIGNOR TO CASALE POCKET UMBRELLA COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FOLDING UMBRELLA.

941,615.

Specification of Letters Patent.

Patented Nov. 30, 1909.

Application filed January 9, 1909. Serial No. 471,397.

To all whom it may concern:

Be it known that I, JOSEPH CASALE, of the city, county, and State of New York, have invented a new and useful Improvement in Folding Umbrellas, of which the following is a full, clear, and exact description.

My invention relates to improvements in folding umbrellas, and the object of my invention is to produce a folding umbrella which is more simple than folding umbrellas usually are, and especially to construct the ribs of the umbrella and connect them with the runner and stick in such a way that the ribs will automatically and easily fold upon themselves when the runner is moved in one direction, and then move to closer position when the runner is moved to another position, and which also will open readily in the ordinary way when desired.

A further object of my invention is to produce an umbrella in which the ribs fold snugly against the stick and in which the whole frame assumes a very compact shape, and further to construct the parts so that when extended for use the umbrella will be sufficiently stiff and strong.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a broken sectional elevation of an umbrella frame showing my improvements. Fig. 2 is an enlarged detail section on the line 2—2 of Fig. 1. Fig. 3 is a broken sectional plan on the line 3—3 of Fig. 2, showing especially the connection between the ribs and runner. Fig. 4 is a detail sectional elevation of one of the rib joints and its connection with the brace. Fig. 5 is an inverted plan of the structure shown in Fig. 4. Fig. 6 is a cross section on the line 6—6 of Fig. 4. Fig. 7 is a broken elevation partly in section showing the frame in a partially closed position. Fig. 8 is a sectional view showing a preferred form of making one of the stick joints, and Fig. 9 is a detail view partly in section, showing the relation of the parts

when the folding operation has been carried a step farther than is illustrated in Fig. 7.

The umbrella has a series of folding stick sections 10, 10^a, 10^b and 10^c, which can be connected together in any usual way, and of which there can be any necessary number. The lower section has a handle 11, and the lower and next sections are connected by a stiff folding joint 12 which can be of any usual kind, and can be reinforced in any preferred way. The sections 10^a and 10^b connect together preferably by a joint such as is shown in Fig. 8, and the connection between the parts 10^b and 10^c can be a similar one. This particular form of joint is not essential, and other forms can be substituted, but as shown this joint has a plug 13 which is fast in the section 10^b and has a screw threaded projecting portion 14 adapted to screw into a correspondingly threaded part of the section 10^a. The reduced end 15 of the plug is pivotally connected by a link 16 with the reduced end of a piston 17 which slides in the part 10^b and is held in place by a light spring 18 secured to the piston and also secured as shown at 19 to the part 10^a. It will be seen that the part 10^a can be unscrewed from the plug 13 and the section 10^a and 10^b can then be pulled apart until the link 16 is exposed, after which the sections can be doubled over one on the other.

The umbrella is provided with ribs made of sections 20 and 20^a, which are of the usual cross sectional shape, that is of an inverted U shape, and the inner sections are pivoted in the customary manner to the ring 21 which is fast on the stick just below the crown 22.

The main features of the invention lie in the connections between the rib sections and between these sections and the umbrella stick. In the inner end of each section 20^a of the rib is a tongue 23 which fits snugly so as to strengthen the rib section, and it has a lug 24 projecting upward and outward through a corresponding hole in the section 20^a. This lug 24 is clasped by two ears 25 of the clip 26, and the ears are pivoted to the lug as shown. The clip 26 fits snugly over the outer end of the rib section 20, and

it has guide flanges 27 which project downward and overlap the inner ends of the sections 20^a. The clip 26 has the ears or flanges 27 cut out of its sides, and the remaining portions of the lower side edges are doubled over the lower edges of the rib section 20 as shown clearly at 28 in Fig. 6, so as to make a strong connection.

The braces 30 of the umbrella are arranged in pairs and each pair is pivoted as shown at 29 to the inner end of one of the rib sections 20^a, and at its inner end the said pair of braces is pivoted between the ears 32 of the ring 31 which is fast on the runner 33. This arrangement in pairs of the braces 30 gives great strength to the braces, and it also enables them to straddle the rib sections 20 as shown in Fig. 9 so that the umbrella can be compactly folded.

The runner 33 can be of any usual kind, and it is cut away in the customary manner as shown at 34 to receive the catch 35 which is as usual secured within the umbrella stick. A slip ring 36 moves on the runner and can be moved down over the catch 35 to force the latter in and cause it to release the runner.

It will be seen that by connecting the braces 30 to the inner ends of the rib sections 20^a and pivoting these sections to the inner sections 20 at a point outside the pivots 29, I get a lever action which causes the sections 20—20^a to be quickly moved, and in two directions. For instance, when the umbrella is to be folded, the runner 33 is pulled down, and this causes the ribs 20—20^a to swing inward to the position shown in Fig. 7. A little further movement of the runner, however, causes the rib sections to separate slightly at their inner ends, swinging on the pivot through the lug 24 first to the position shown by dotted lines in Fig. 7, and then the continued movement causes the outer sections 20^a to swing up opposite the inner sections 20. The runner is then pushed up to the position shown in Fig. 9, and the rib sections 20 and 20^a will first separate and then swing together, while the inner sections 20 will swing in between the braces 30. The lower part of the stick can then be folded up against the folded ribs and the upper part of the stick, and the whole umbrella is in correct shape. When the umbrella is to be opened the runner is pulled down and the weight of the cloth or cover will cause the outer sections 20^a to swing into position for use.

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

1. In a folding umbrella, a stick, a runner on the stick, ribs pivoted to the stick, each rib being made up of sections foldable one upon the other, braces, each of which com-

prises parallel and slightly separated members, pivoted to the runner and between which members of the ribs are foldable.

2. In a folding umbrella, a stick, a runner on the stick, ribs pivoted to the stick, each rib being made up of inner and outer sections foldable one upon the other, braces each comprising parallel and separated members having their ends secured to the runner and to a rib, the inner section of a rib being straddled by the members of a brace when folded.

3. In a folding umbrella, the combination of the stick and runner thereon, of inner rib sections pivoted to the stick, clips on the outer end of the rib sections, said clips being pivoted to the outer rib sections in a way to permit the outer ends of the outer sections to overlap the inner rib sections, and braces pivoted to the inner ends of the outer rib sections and to the runner, each of said braces comprising two separated members adapted to straddle a portion of rib when folded.

4. The combination with the stick and runner, of ribs each made of sections, the inner sections being pivoted to the stick, strengthening tongues in the inner ends of the outer rib sections, said tongues having lugs projecting through the backs of the said outer rib sections, a pivotal connection between the said lugs and the inner rib sections, and a runner pivoted to the inner ends of the outer rib sections and also to the runner.

5. The combination with the stick and runner, of the ribs pivoted to the stick, each rib being made up of overlapping sections, clips secured to the outer ends of the inner rib sections, said clips having guides which straddle the inner ends of the outer rib sections and have their lower side edges doubled over the edge of the inner sections of the ribs, and the outer ends of the clips being also pivoted to the outer rib sections, and braces pivoted to the inner ends of the outer rib sections and also to the runner.

6. The combination with the umbrella stick and runner, of ribs pivoted to the stick, each rib being made up of overlapping sections, a strengthening tongue secured in the inner end of each outer rib section, said tongue having a lug projecting through the back of said rib section, clips fastened to the outer ends of the inner rib sections and pivoted to the aforesaid lug, and braces pivoted to the inner ends of the outer rib sections and to the runner.

7. In a folding umbrella, the combination with the umbrella stick and the ribs folding against the stick, of braces pivotally connecting the ribs and stick, the said braces each comprising parallel members straddling the ribs as the latter fold against the stick.

8. In a folding umbrella, the combination

of the inner and outer rib sections adapted to fold one upon the other, the outer section having a tongue therein with a lug projecting through the back of said section, and the
5 inner section having a clip thereon, said clip being pivoted to the aforesaid lug and having projecting flanges to straddle the inner

end of the outer section, said clip having its edges doubled over the edges of the inner rib section.

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