

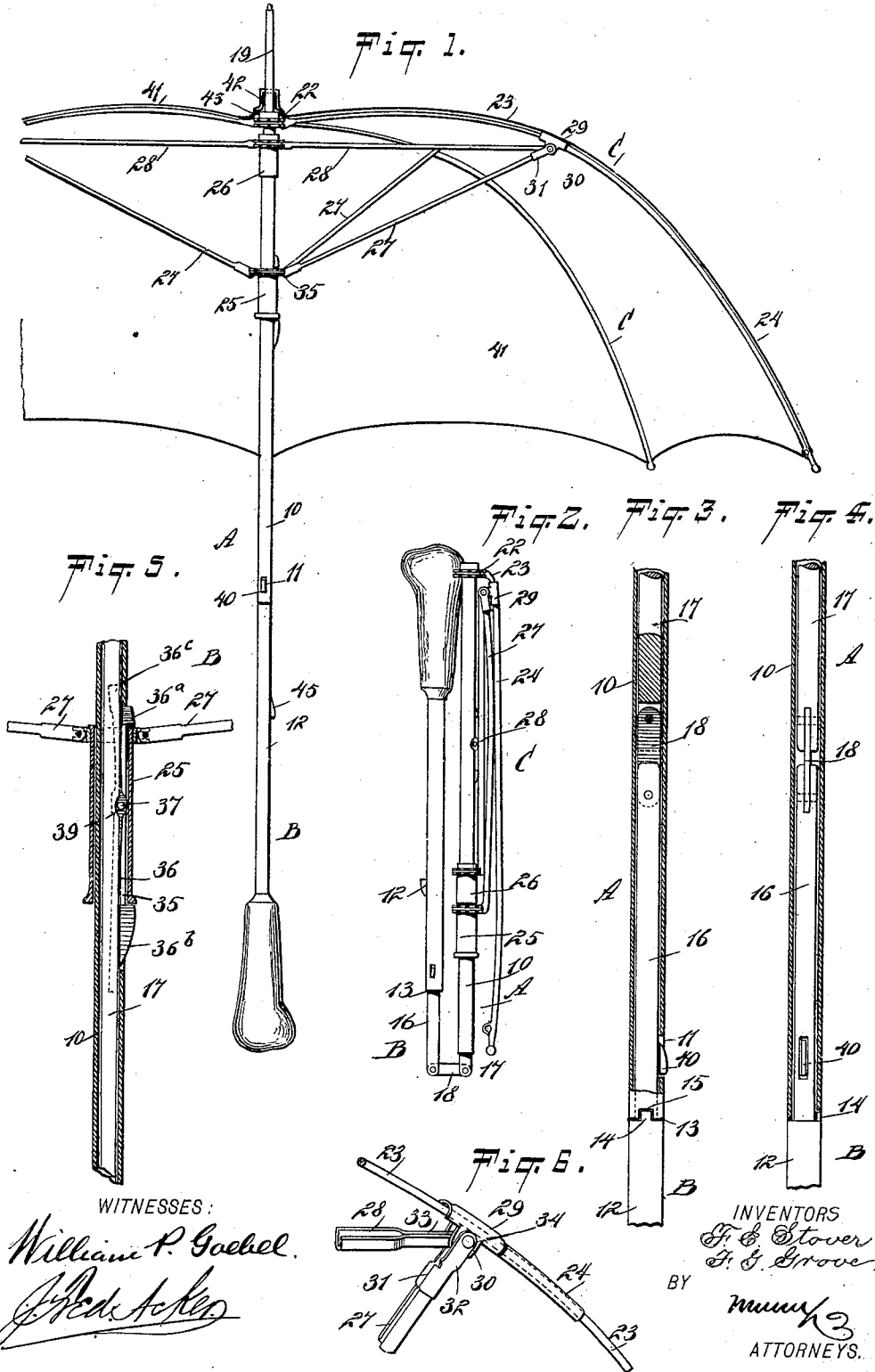
(No Model.)

2 Sheets—Sheet 1.

F. E. STOVER & F. G. GROVE.  
FOLDING UMBRELLA.

No. 606,099.

Patented June 21, 1898.



WITNESSES:  
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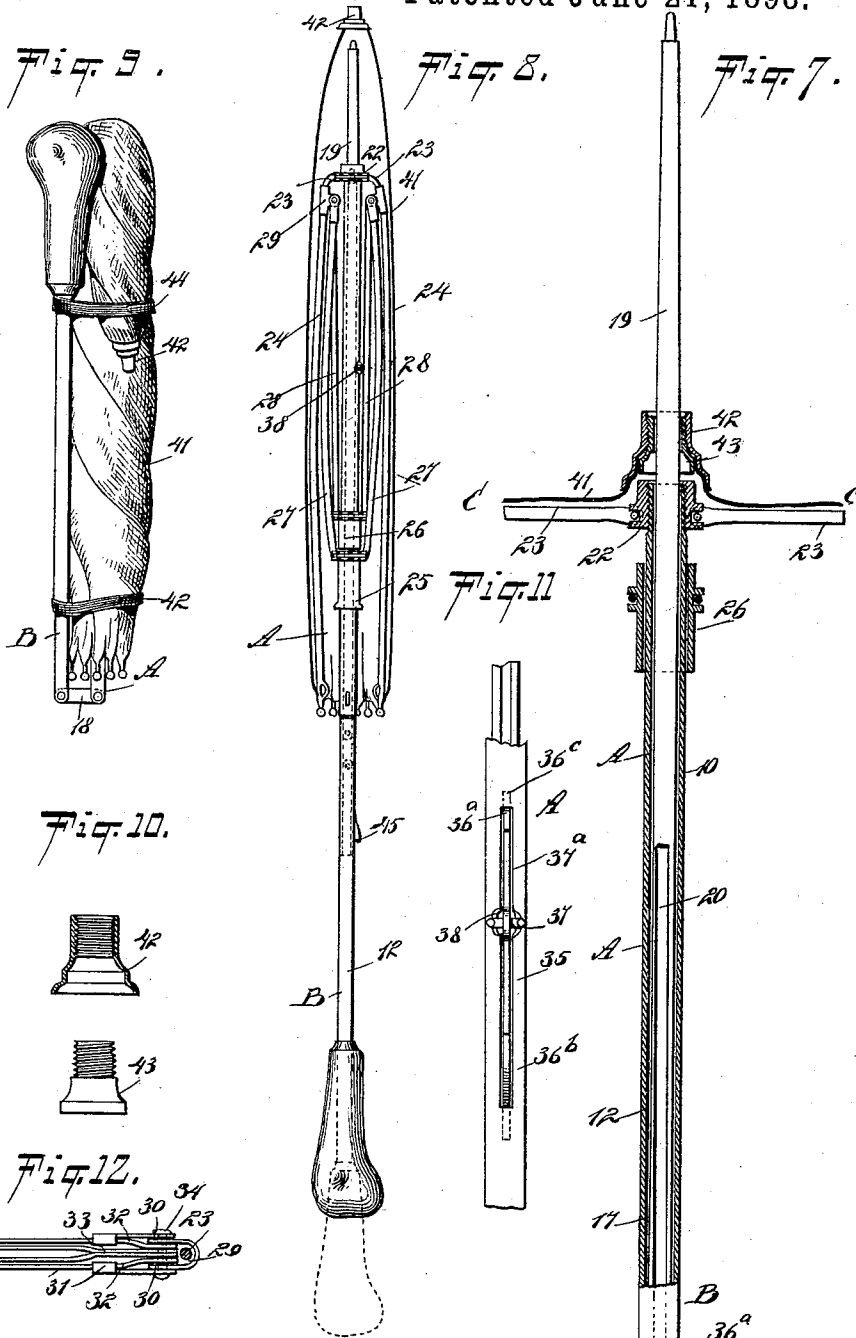
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2 Sheets—Sheet 2.

# F. E. STOVER & F. G. GROVE. FOLDING UMBRELLA.

No. 606,099.

Patented June 21, 1898.



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# UNITED STATES PATENT OFFICE.

FRANK E. STOVER AND FRANK G. GROVE, OF LURAY, VIRGINIA.

## FOLDING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 606,099, dated June 21, 1898.

Application filed June 21, 1897. Serial No. 641,664. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK E. STOVER and FRANK G. GROVE, of Luray, in the county of Page and State of Virginia, have invented a new and useful Improvement in Folding Umbrellas, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in folding or collapsible umbrellas of that class which are provided with ribs made in sections adapted to slide on each other, rendering it possible to fold the umbrella in such a manner as to occupy but half its normal length.

The object of the invention is to provide a novel connection between auxiliary stretchers, the ordinary stretchers, and the ribs of the umbrella, the connection being so made that the umbrella-frame will be rendered exceedingly strong without adding materially to the cost of manufacture and without adding to the weight of the frame.

A further object of the invention is to provide a means whereby the stick will be telescopically made and that section carrying the ferrule-tip be drawn within the outer section to such an extent as to free the ferrule-tip entirely from engagement with the cover, enabling a portion of the cover to be folded over upon itself, thereby materially lessening the length of the folded article.

Another object of the invention is to provide means for materially strengthening the frame and thoroughly stretching the cover through the medium of auxiliary stretchers, and at the same time to provide means whereby the main and auxiliary stretchers, together with the ribs, may be compactly folded together, one of said parts virtually receiving an adjacent part.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a vertical section through the umbrella opened. Fig. 2 is a side elevation showing the stick folded and a rib and an auxiliary stretcher and a main stretcher con-

nected with the same. Fig. 3 is a vertical section through a portion of the stick. Fig. 4 is also a vertical section through a portion of the stick, the section being taken at a right angle to that shown in Fig. 3. Fig. 5 is a vertical section through the stick, illustrating the upper latch in side elevation. Fig. 6 is a perspective view of that portion of a rib at which the stretchers are connected. Fig. 7 is a vertical section through the upper portion of the stick, the crown and runner for the auxiliary stretchers, and the ferrule for the cover. Fig. 8 is a skeleton view illustrating in positive lines the position of the umbrella after it has been closed and the ribs telescoped and showing in dotted lines the position of the inner section of the stick just prior to folding said stick. Fig. 9 is a side elevation of the umbrella folded. Fig. 10 represents detail views of the male and female thimbles for the cover. Fig. 11 is a side elevation of a portion of the upper section of the stick, showing the construction of the upper latch; and Fig. 12 is a detail view of the double-fork connection between the ribs and the stretchers.

The stick of the umbrella is telescopic, and consists of an outer section A and what may be termed an "inner" section B, which is also a handle-section. The outer section A consists of a tube 10, having an opening 11 near its bottom to admit of the outward passage of the lower or locking latch, and the said tube is provided with the usual upper opening for the outward passage of the upper retaining-latch. The inner section B of the stick may be made solid or it may be made tubular, and comprises a lower section 12, to which the handle is secured. This section 12 at its upper end is provided with a shoulder 13 and lugs 14, which extend from the shoulder, being adapted to enter corresponding recesses 15 in the lower end of the outer section A, as shown in Fig. 3.

A reduced member 16 extends upward from the shoulder 13, as shown in Fig. 2, and this reduced member 16 is connected by a link 18 with an upper section 17 of practically the same diameter as the reduced member 16. Both the section 17 and the member 16 are free to slide in the outer section A of the stick, and the ferrule-tip 19 forms a part of the upper portion 17 of the inner or sliding

section of the stick. This upper member of the inner or sliding section is provided with a longitudinal slot 20, and the movement of this upper member of the sliding section of the stick is limited by the upper latch of the stick.

The crown 22, to which the ribs C are secured in the usual or in any approved manner, is preferably screwed upon or otherwise secured to the upper end of the outer or tubular section A of the stick, as is also best shown in Fig. 7. The ribs are made telescopic, and while both members of the ribs may be paragon the upper member 23 is preferably round in cross-section or solid, the lower member 24 being paragon. One member is free to slide upon the other. The usual runner 25 is held to slide upon the stick, as is also an auxiliary runner 26, which is above the ordinary or main runner, and the ordinary or main runner is attached to stretchers 27, while the auxiliary or upper runner 26 is attached to shorter stretchers 28.

At the upper end of the lower member of each rib a fixed sleeve 29 is located, conforming to the contour of the said member, as shown in Figs. 6 and 12, and each sleeve 29 has an inwardly-extending ear 30 at each of its sides. A fixed sleeve 31 is also secured upon the outer end of each of the main stretchers 27, conforming thereto, both stretchers being preferably of paragon construction. The sleeve 31 is divided at its outer end, and each division of the sleeve is in the nature of a fork, consisting of two opposing members 32. The ears 30 of the rib-sleeve 29 pass between the members of the forks, and the outer ends of the auxiliary stretchers 28 are flattened, as shown at 33 in Figs. 6 and 12, and are carried between the ears of the rib-sleeve, and a pivot-pin 34 is passed through the forks of the main stretchers, through the ears of the rib-sleeve, and through the outer end of the auxiliary stretcher within the rib-sleeve. In this manner each rib is connected with a main and with an auxiliary stretcher through the medium of one pivot-pin. The auxiliary stretchers at their outer ends are capable of binding against the upper members 23 of the ribs, serving to prevent one section of a rib moving in or upon the other section when the umbrella is opened.

The upper or retaining latch 35 is of peculiar construction, as shown in Figs. 5 and 11. The latch is provided at its exposed portion with a recess 36, adapted to receive the main runner 25 between heads 36<sup>a</sup> and 36<sup>b</sup>, beveled in opposite directions. The latch is pivoted by means of a pivot-pin 37, located at or about its center and fitting in a transverse recess 38, made in the outer tubular section 10 of the stick, being also adapted to fit into a shallower recess 39 in the upper portion of the handle or inner section of the stick, the recess 39 extending across the longitudinal slot 20. The said latch 35 is provided with an extension 36<sup>c</sup>, which is carried upwardly and outwardly be-

yond its upper head 36<sup>a</sup> and is adapted to engage with the inner face of the outer tubular section 10, and the entire latch extends within the slot 20 of the said upper portion of the handle-section of the stick. When the main runner is between the heads of the latch, as shown in Fig. 5, the pivot-pin 37 is pressed inward and is made to enter the transverse recess 39 in the inner or handle section of the stick, preventing this section from being drawn from the outer or upper tubular section 10, as shown in Fig. 5. When, however, the main runner has been carried down the stick, the inner or handle section may be withdrawn from the tubular section 10 of said stick, as the pivot-pin may at that time be forced outward. The upper end of the extension 36<sup>c</sup> of the latch serves to limit the downward movement of the inner or handle section of the stick, and the said inner or handle section cannot be entirely removed from the outer or main section until the latch 35 has been taken from its place.

It will be understood that the retaining-latch 35 extends through a suitable slot 37<sup>a</sup> in the outer section of the stick, as shown in Fig. 11. The lock-latch 40, which extends through the opening 11 in the outer section A of the stick, may be of any approved construction and is carried by the inner or sliding section of the stick, and this latch is intended to assist in holding the two stick-sections together and does not interfere with the movement of the runners.

The cover 41 is attached to the lower members of the ribs in the usual manner, and at its top the cover is received between two ferrules 42 and 43, one of these ferrules being adapted to be screwed into the other or held therein by frictional contact, clamping the cover between them. The ferrules 42 and 43 are free to slide upon the ferrule-tip of the stick and are in no manner connected therewith.

In operation when it is desired to raise the umbrella, supposing the sections of the stick to be in alinement, so as to present practically a solid stick, the two runners are carried upward, but the auxiliary runner 26 is carried over the upper latch 35 first. Then the lower or main runner is drawn downward, and the upper or auxiliary runner being on a fixed point the tendency of the main runner and its ribs when drawn downward will be to stretch the cover and fix the ribs in suitable position to enable the auxiliary runner to be carried upward close to the crown, as shown in Fig. 1, whereupon the auxiliary stretchers will cause the ribs to assume and maintain their proper bow shape and the sections of the ribs will be effectually prevented from slipping, especially when the main runner is carried upward to an engagement with the upper latch 35. When the umbrella is to be simply closed, the auxiliary runner remains near the crown and the main runner only is manipulated in the usual manner; but when

the umbrella is to be folded its auxiliary runner is first drawn downward below the dead-center and the main runner is then disengaged from the latch 35, whereupon both runners will travel down the stick. The umbrella may now be folded to take the least possible space. The folding is accomplished by carrying the two runners upward, causing the members of the ribs to telescope, and the lower latch is pressed inward. The sliding section of the stick is then drawn downward as far as the length of the slot 20 will permit, which will cause the ferrule-tip to be drawn well down into the outer tubular section A of the stick and will expose the link connection between the two members of the sliding section of the stick, as shown in dotted lines in Fig. 8 and in full lines in Fig. 9. This manipulation of the stick having been carried out the upper portion of the cover will be perfectly free and may be twisted or folded in a smooth manner upon itself, as shown in Fig. 9, whereupon the handle member 12 of the sliding section of the stick is carried against the side of the umbrella-covering and held thereto by straps 44 or their equivalents. (Also shown in Fig. 9.) The usual lower latch 45 is employed to hold the main runner in place when the umbrella is used in the ordinary manner.

The auxiliary stretchers are virtually tension-stretchers, as they serve to place the ribs and the cover under final tension, and these auxiliary stretchers serve to relieve the upper sections of the ribs from severe strain, which admits of the said portions of the ribs being made exceedingly light. When the umbrella is opened and the sliding section of the stick has been properly carried to place, the pivotal connection between the two members of the sliding section will be so far within the tubular or outer section of the stick as to be thoroughly protected and the stick will have the same strength, if not a greater strength, than the ordinary metal or wood stick. The entire umbrella is simple, durable, and economic in its construction, and when it is not to be folded may be manipulated as an ordinary umbrella, while when it is desired to fold it the operation is exceedingly simple and may be expeditiously and satisfactorily carried out.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a folding umbrella, the combination with a telescoping stick, the sections of which are provided with longitudinal slots, the slot of the inner section being the longer, of a double-headed latch pivoted at about the center of its length in the slots of the sections and provided at its upper end with an extension for limiting the downward movement of the inner section, substantially as described.

2. In an umbrella, the combination, with a telescopic stick, the inner stick-section being provided with a slot and a transverse recess

at its slotted portion and the outer section being provided with a slot corresponding to that of the inner section, and likewise with a transverse recess, of a latch having a double head, the space between the heads being adapted for the reception of a runner, and a pivot-pin for the latch, passed through the same and normally entering the transverse recess or slot in the inner section of the stick.

3. In an umbrella, the combination, with a stick constructed in telescopic sections, the sections being provided with longitudinally-registering slots and the slot in the inner section being longer than that in the outer section, of a latch provided with a head near each end, and an extension beyond the upper head, the latch being adapted to enter the longitudinal slots in the two sections, and a pivot for the latch, capable of entering the transverse slots and recesses in both of the sections, or in one of them only, as and for the purpose specified.

4. In a folding umbrella, a stick comprising a tubular outer section having its lower end notched, and an inner section sliding in the tube and consisting of two sections hinged together by a link, the outer member of the inner section being formed with a shoulder and lugs to enter the notches of the tubular outer section, substantially as described.

5. In a folding umbrella, the combination of a stick formed of telescoping sections provided with longitudinal slots, the slot of the inner section being the longer, the inner section of the stick being formed of two sections connected by a link, ribs carried by the stick, and formed of sections sliding one upon the other, runners on the stick, two sets of stretchers, one set for each runner, the stretchers being pivoted to the runners and to the ribs, and a double-headed latch pivoted in the slots of the stick-sections and provided with an extension for limiting the downward movement of the inner stick-section, substantially as described.

6. A folding umbrella, comprising a stick formed of an inner and outer section, each formed with a longitudinal slot, the slot of the inner section being the longer, the said inner section sliding in the outer section and formed of two members connected together by a link, ribs carried by the outer stick-section and formed of sections sliding one upon the other, runners on the outer stick-section, two sets of stretchers pivoted to the runners and to the lower rib-sections, a latch pivoted in the slots of the stick-sections and serving to lock the lower runner in position and the sections of the stick together when the umbrella is opened, and a cover secured to the lower rib-sections and provided with a central opening in which the upper end of the inner stick-section is free to slide, substantially as described.

7. A folding umbrella, consisting of a stick formed of an inner and outer section, each formed with a longitudinal slot, the slot of the inner section being the longer, the said inner

section sliding in the outer section and formed of two members connected together by a link, ribs secured to the outer stick-section and formed of two sections sliding one upon the other, two runners on the outer stick-section, two sets of stretchers pivoted to the runners and to the lower rib-sections by a common pivot, a double-headed latch pivoted in the slots of the stick-sections and serving to lock the lower runner in position and the sections of the stick together when the umbrella is opened, and a cover secured to the lower rib-sections and provided with a ferrule in which the upper end of the inner stick-section is free to slide, substantially as described.

8. A folding umbrella, consisting of a stick formed of an inner and outer section, each formed with a longitudinal slot, the slot of the inner section being the longer, the said inner section sliding in the outer section and formed of two members connected together by a link, ribs carried by the outer stick-section and formed of sections sliding one upon the other,

runners on the outer stick-section, two sets of stretchers pivoted to the runners and to the lower rib-sections, a double-headed latch pivoted in the slots of the stick-sections and serving to lock the lower runner in position and the stick-sections together when the umbrella is opened, the said latch being provided at one end with an extension for limiting the downward movement of the inner stick-section, and a cover secured to the lower sections of the ribs and to a ferrule in which the upper end of the inner stick-section is free to slide, substantially as herein shown and described.

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