(No Model.)

2 Sheets—Sheet 1.

E. E. MALLORY.

UMBRELLA OR PARASOL.

No. 568,093.

Patented Sept. 22, 1896.

Fig. 2.

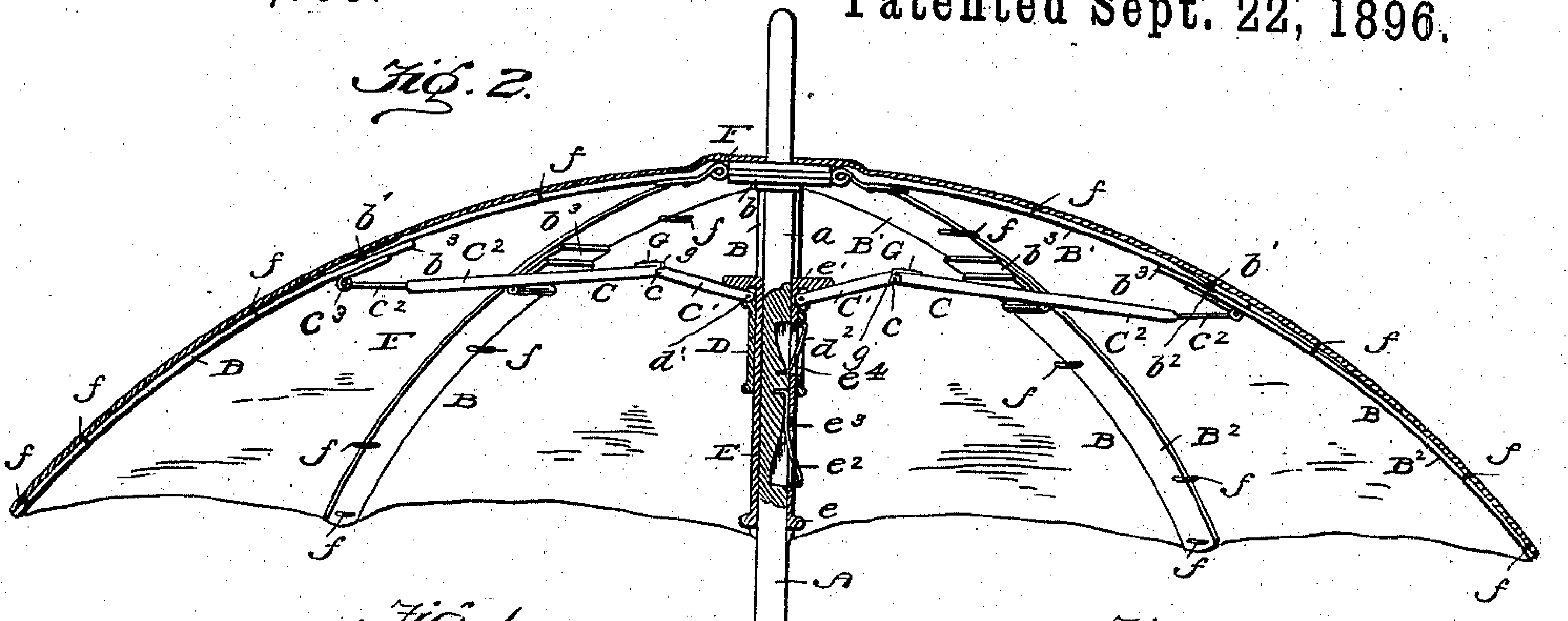
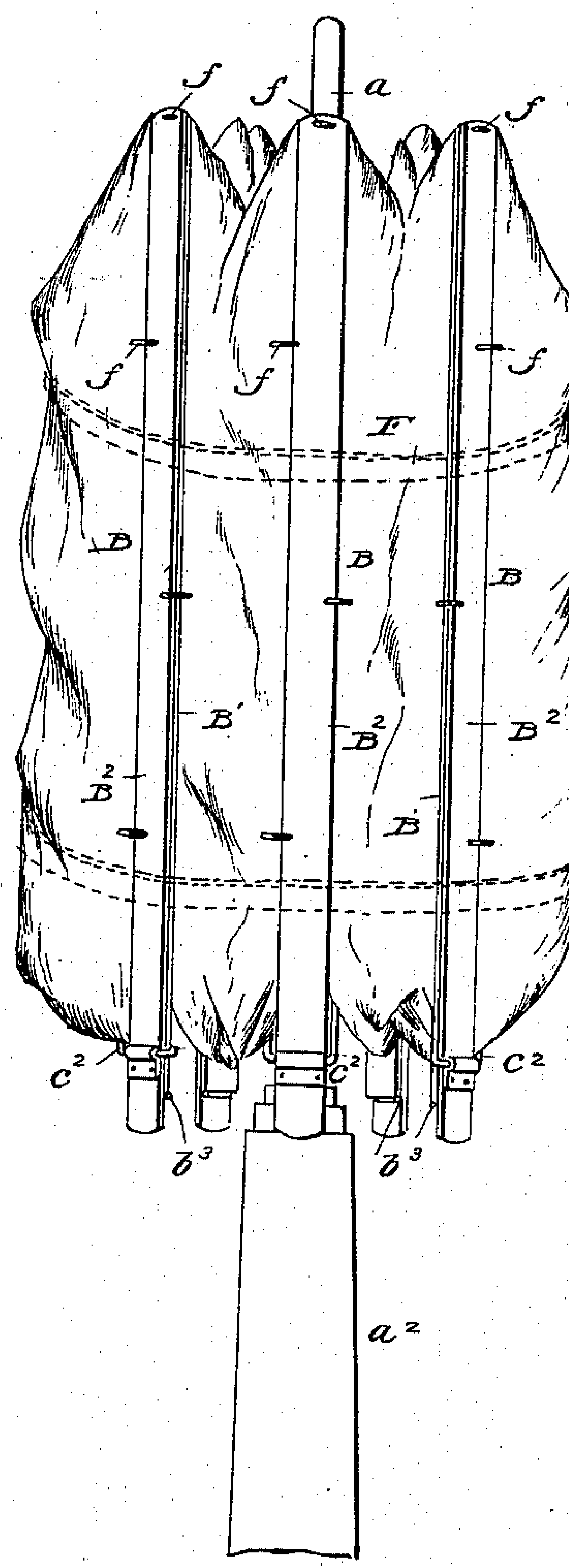


Fig. 1.



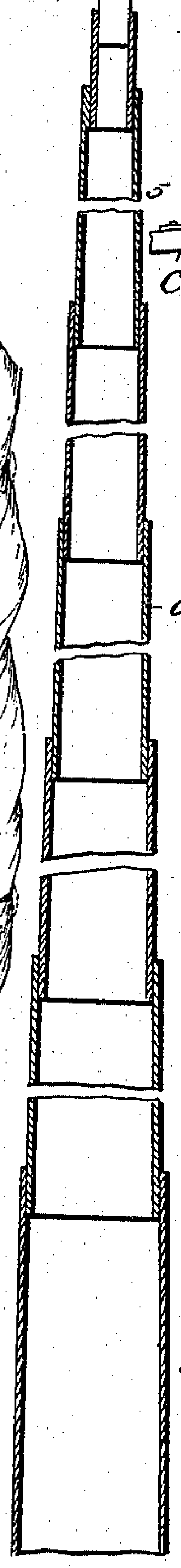
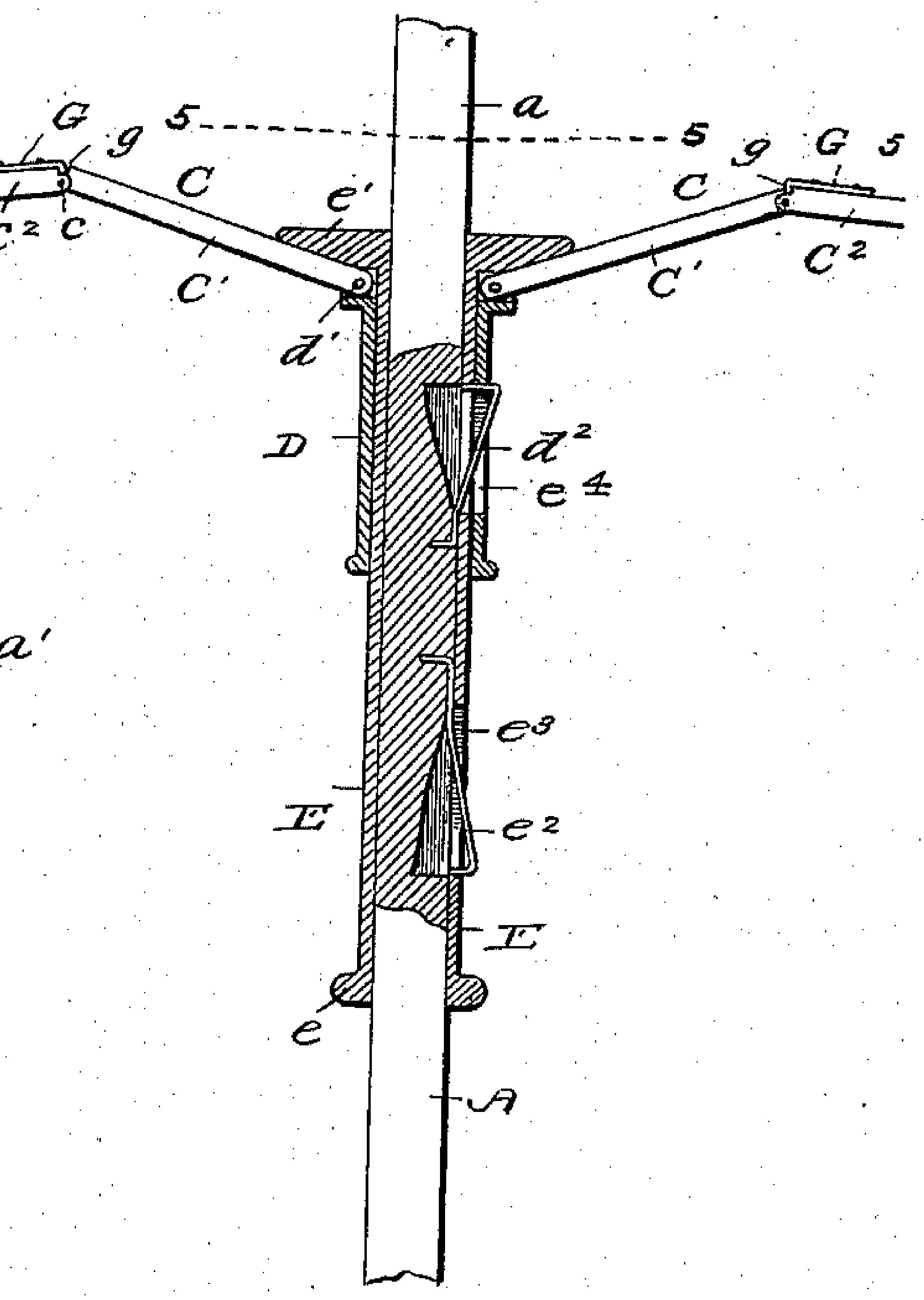


Fig. 4.



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By Edson Bros.
— Atty's.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 6

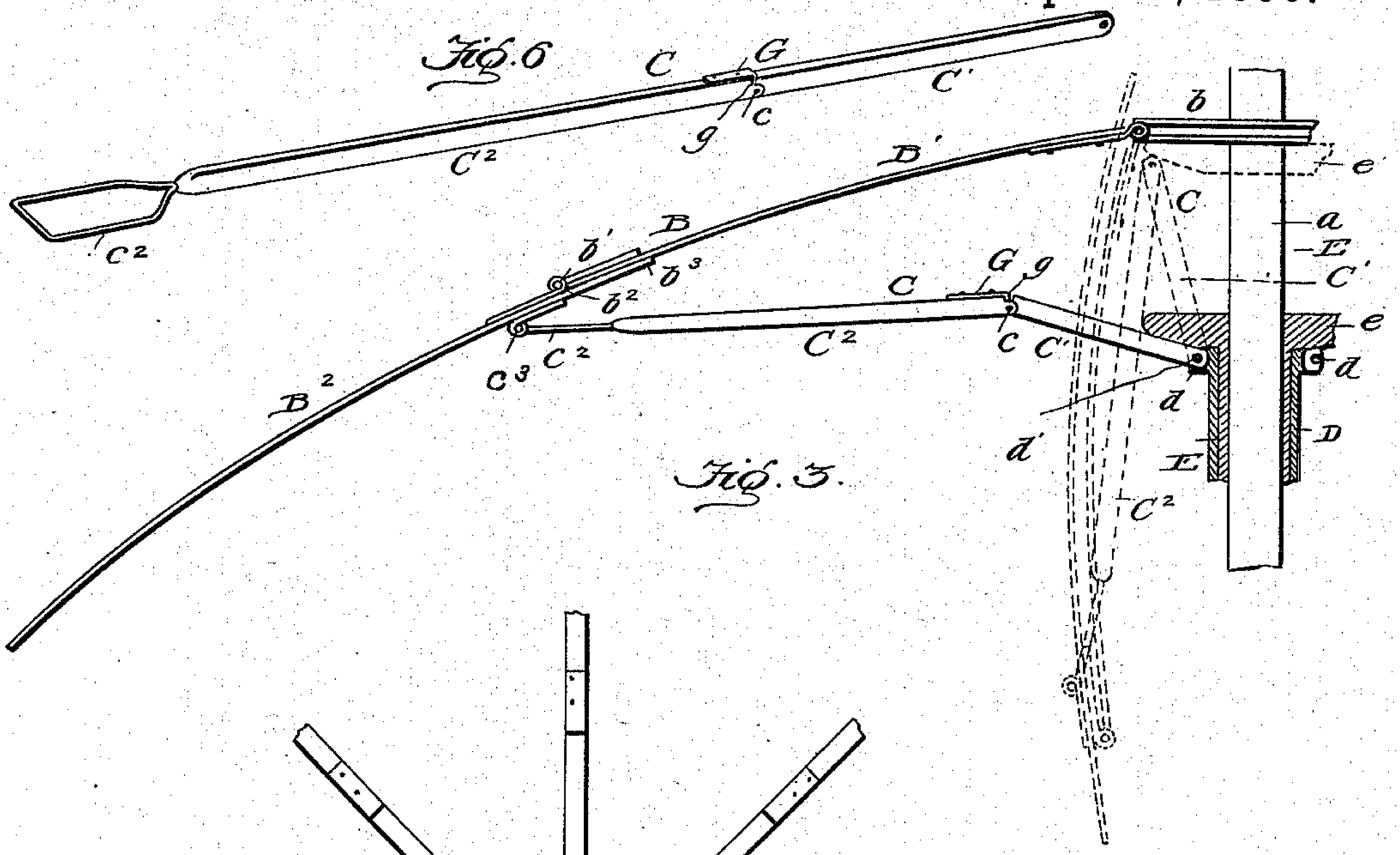


Fig. 3.

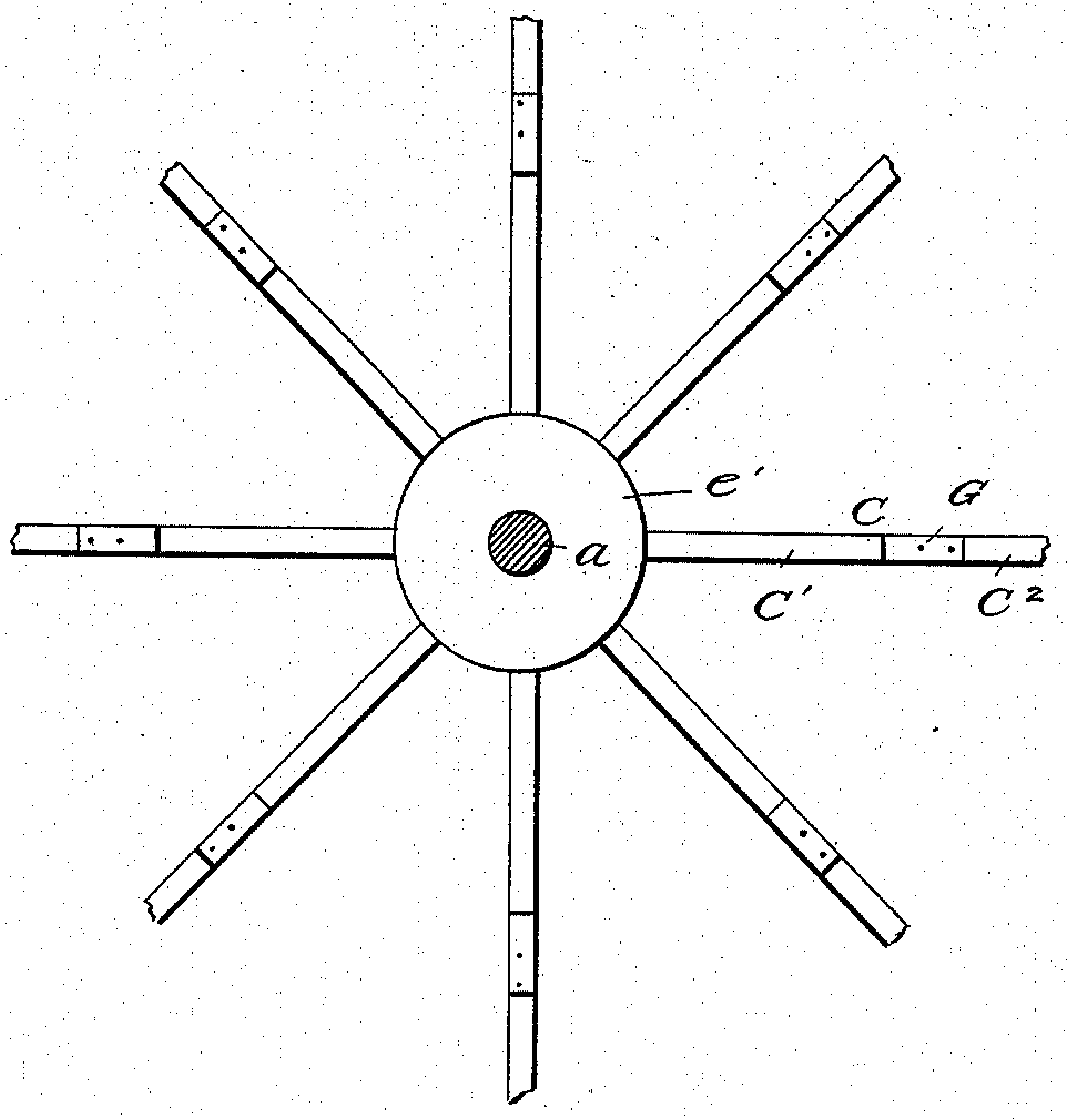


Fig. 5.

Fig. 7.

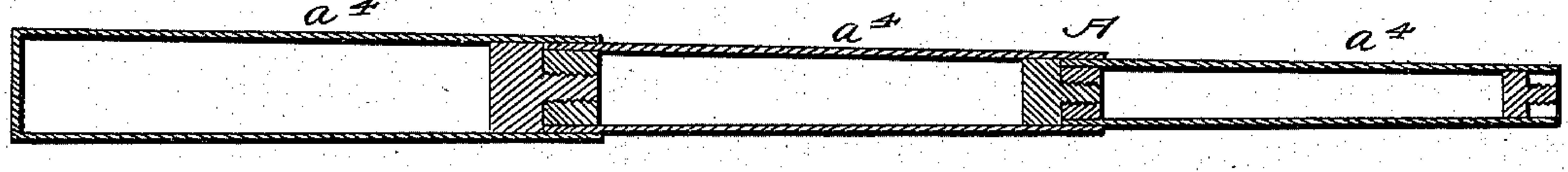
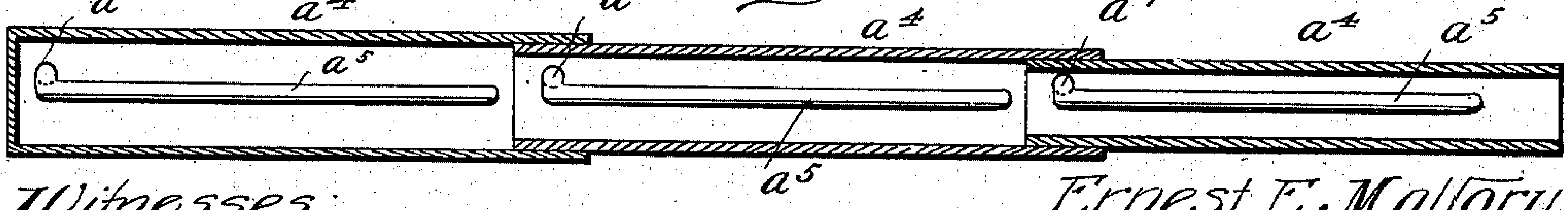


Fig. 8.



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UNITED STATES PATENT OFFICE.

ERNEST E. MALLORY, OF WEST UNITY, OHIO.

UMBRELLA OR PARASOL.

SPECIFICATION forming part of Letters Patent No. 568,093, dated September 22, 1896.

Application filed June 16, 1896. Serial No. 595,785. (No model.)

To all whom it may concern:

Be it known that I, ERNEST E. MALLORY, a citizen of the United States, residing at West Unity, in the county of Williams and State of Ohio, have invented certain new and useful Improvements in Umbrellas or Parasols; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in folding umbrellas, in which I construct the ribs, stretchers, and staff in a way to fold compactly together and in a space less than half the compass of ordinary umbrellas for the purpose of carrying the new umbrella in a satchel, basket, knapsack, or on a bicycle or any other place desired.

With these ends in view my invention consists of the combination, in a folding umbrella, of a sectional extensible staff having a crown-piece, ribs pivoted to said crown-piece and each made in sections, of which the outer sections are hinged to the inner sections by joints which adapt said outer sections to fold outwardly and upwardly on the inner rib-sections, a runner, sectional stretchers connected to the ribs and the runner and each stretcher having its lengths connected by an upwardly-opening joint, and means for locking the series of jointed stretchers in their opened positions.

My invention further consists in the provision of an elongated sleeve or thimble acting in conjunction with the usual runner and the sectional stretchers, so as to lock the latter rigidly in their opened positions; also in a novel form of block-hinge joint between the members of the folding stretchers, which joint limits the opening movement of the stretcher-sections and insures prompt folding of the sectional stretchers when the locking-thimble is raised; also in a peculiar construction of the jointed sectional ribs whereby the ribs when opened are held in proper position for service; and the invention finally consists in the novel combination of devices and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a view of my umbrella or parasol in its folded condition. Fig. 2 is a sectional elevation through the umbrella when opened. Fig. 3 is a detail enlarged view of one of the ribs and its associated stretcher, the full lines representing the rib when opened for use and the dotted lines showing the rib when folded. Fig. 4 is an enlarged detail sectional view through the inner ends of the stretchers, the runner, and the slidable locking-thimble. Fig. 5 is a transverse sectional view on the plane indicated by the dotted line 5 5 of Fig. 4, looking in the direction indicated by the arrow. Fig. 6 is a detail perspective view of one of the stretchers. Figs. 7 and 8 are detail views of different types of the extensible staff or rod.

Like letters of reference denote corresponding parts in all the figures of the drawings.

A designates the staff or rod; B, the ribs, which are pivoted, in the usual or any preferred way, to the crown-piece *b*; C, the sectional stretchers; D, the ordinary runner to which the inner ends of the stretchers are pivoted, and E is the slidable locking-sleeve.

The staff A is made in lengths or sections to enable it to be shortened or lengthened as required. The construction of this staff may vary within the skill of the constructor, but in Figs. 2, 7, and 8 I have shown three several ways in which this staff may be made. In Figs. 1 and 2 the staff is shown as consisting of the telescopic sections a' a^2 a^3, which are adapted to be drawn out and to frictionally engage with each other, the upper section a being so attached to or connected with the ribs and stretchers as to form an integral or permanent fixture of the umbrella, while the section a^3 constitutes the butt-end or handle of the staff. The staff may, however, consist of detachable lengths or members a^4, (see Fig. 7,) which are coupled together by interlocking screw-and-socket joints, to render the staff separable in order that it may be shortened within the required limit when the umbrella is collapsed and folded into a small compass, but such separable construction of the staff may not be satisfactory because it takes time to adjust and couple or uncouple the sections. I have illustrated my preferred construction of the staff in Fig. 8. The staff is made of telescopic sections, in each of which there is provided a longitudinal groove a^5, having a lateral offset a^6, the metal being preferably struck up to produce a rib or key a^7. These telescopic members of the staff are adjusted to have the key or rib a^7 of the section enter the groove and offset of an adjacent section, and the sections are thus connected in a way to guide them in their endwise movements when they are extended or collapsed and to lock the sections together when they are extended by turning the sections axially and causing the keys or ribs a^7 to enter the offsets a^6 of the grooves.

The crown-piece *b* is rigidly fastened to the permanent member *a* of the staff, and to it are provided the inner ends of the ribs B. Each rib consists of two members or sections B′ B², which are connected together by an upwardly and outwardly opening (or downwardly and inwardly closing) joint or hinge *b′*, whereby the outer members or sections B² of the ribs are adapted to fold upwardly and against the outside of the umbrella. In the drawings I have illustrated as one embodiment of my invention a peculiar form of lap-joint. The outer end of the inner section B′ of each rib is pivoted to the inner end of the outer section B² at a point in rear of the said inner end of the outer section, as at b^2, thus leaving the inner end b^3 of the outer section free, whereby the free inner end b^3 of the outer section is arranged to lap or extend across the end of the inner section B′ of the rib and to bear or press against the same when the rib is unfolded to bring the sections B′ B² into alinement with each other. The section B² is thus connected to the section B′ to fold upwardly and outwardly, and the outer sections B² of all the ribs are made to fold against the outside of the umbrella, so that the latter will fold upon itself and within half the compass usually taken up by the ordinary collapsible umbrella.

The fabric covering F is fastened to or around the crown *b* in the usual way, but the cover is fastened to the rib-sections B′ B² by elastic loops *f*, which serve to draw the cover taut and close to the ribs when the umbrella is opened or folded.

The stretchers C are attached to the ribs and runner in a peculiar way. Each stretcher consists of two members or sections C′ C², which are joined together by an upwardly-opening hinge *c*, and the inner section C′ is fitted in deep notches or slots *d*, produced in the runner D, to which runner all the inner sections C′ of the series of braces are pivotally connected by the usual wire ring *d′*. The outer sections C² of all the braces have the forked or yoke-shaped ends c^2, and these forks or yokes c^2 are pivotally attached to the outer sections B² of the ribs at points in rear of the joint b^2 between the rib-sections B′ B², the joints between the stretcher-sections C² and the rib-sections B² being indicated by the reference-letters c^3. The arrangement of the ribs and stretchers and the pivotal connection of the parts is such that when the ribs and stretchers are unfolded the pressure of the stretchers against the ribs will serve to hold the outer members B² of the ribs in alinement with the inner rib-sections in order to prevent the ribs from folding or collapsing of their own volition; but in order to prevent the sectional stretchers from collapsing or folding upward when exerting the described pressure on the ribs I have provided a locking device adapted to engage with all of the stretchers, and which serves to positively restrain them from folding under the described conditions.

The locking device consists of the elongated sleeve E, which is fitted externally on the permanent section *a* of the staff and is fitted within the ordinary runner D to which the stretchers are joined. This locking-sleeve is longer than the runner D, so that it passes entirely through the runner, and said sleeve has a finger-flange *e* at its lower end and the conical head *e′* at its upper end. The conical head *e′* of the sleeve lies above the runner at all times, and the conicity of the lower face of the head is such that it bears or presses upon the inner members C′ of all the stretchers in order to keep the stretchers from breaking joints and folding upwardly. The locking-sleeve is held in the desired position on the staff by the ordinary spring-catch e^2, which fits against the lower closed end of the longitudinal slot e^3, provided in the locking-sleeve.

The runner is held in place, when the umbrella is opened, by a catch d^2, which is fitted in a suitable kerf in the staff-section *a* and is adapted to project through the longitudinal slot e^4 in the sleeve E, so as to engage with the runner D in the usual way, as shown by Fig. 4 of the drawings.

I prefer to construct the joints or hinges between the members C′ C² of each stretcher in a manner to prevent the members from unfolding into alinement with each other, so that the stretcher-sections will readily and quickly fold upward when the locking-sleeve is moved upon the staff. To this end I provide the stop-plate G, one end of which is attached to one section, C², of the stretcher and the other end of said plate terminates in an angular lip or flange *g*, that is adapted to fit between the adjacent ends of the sections C′ C², as shown.

The operation of my umbrella is as follows: To open the umbrella when it is folded compactly, the staff is extended or drawn out, the rib-sections B² and cover are turned down to bring the sections B² in alinement with the rib-sections B′, the runner D is moved upward, and the sleeve E is drawn downward, thus straightening the stretchers and opening out the ribs, the runner and sleeve being engaged by the catches to hold the parts in rigid or locked relations to each other. To close the umbrella, it is only necessary to release the sleeve and runner from their fastenings and slide said parts upwardly on the staff, thus allowing the stretchers and ribs to fold inwardly toward the staff. It is not necessary to fold the umbrella within its most compact dimensions at all times, because the ribs and stretchers may fold against the staff substantially like ordinary umbrellas; but when it is desired to pack the umbrella in a satchel or the like the staff is shortened, the runner and sleeve are forced on the staff nearly or quite up to the crown, and the outer rib-sections B^2 and cover turned up outside of the inner rib-sections B', thus folding the parts in a small compass.

I am aware that changes in the form and proportion of parts and in the details of construction of the parts herein shown and described as the preferred embodiment of my invention may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such modifications as fairly fall within the scope of my invention. As, for example, I may provide elastic loops fastened to each end of the outer rib and adapted to be used when the umbrella is folded short by adjusting or placing the loops around the umbrella, similar to the use of loops or bands on pocket-books.

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

1. In a foldable umbrella, the combination with a staff, and a runner, of the ribs each made in sections which are joined to overlap when unfolded and arranged to have the outer sections fold upwardly and outwardly, the sectional stretchers connected to the runner and to the sectional ribs so as to press against the latter and hold them distended, and a locking device arranged to press downwardly upon the inner sections of the stretchers, as and for the purposes described.

2. In a foldable umbrella, the combination with a staff and a runner, of the jointed ribs, the sectional stretchers jointed to fold upwardly and each stretcher having its members attached, respectively to the runner and one of the ribs, and a slidable sleeve arranged to engage with the sectional stretchers, as and for the purposes described.

3. In a foldable umbrella, the combination with a staff, a runner, and ribs, of the sectional stretchers jointed to fold upwardly, a slidable sleeve having a conical head to press against the stretchers, and a suitable detent for said sleeve, as and for the purposes described.

4. In a foldable umbrella, the combination with a staff, a runner, and ribs, of the stretchers each jointed at an intermediate point of its length and having means which prevent the sections or members from opening into alinement, a slidable headed sleeve arranged to engage with the stretchers, and a detent for said sleeve, as and for the purposes described.

5. The combination with a staff and a runner, of the ribs each jointed at a point intermediate of its length and having said joint so arranged that the adjacent ends of the rib-sections will overlap when the ribs are unfolded, the sectional stretchers having their outer ends pivoted to the ribs to press the joints outwardly and keep the ribs straightened out, and a locking mechanism adapted to engage with the stretchers to prevent them from collapsing, as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

ERNEST E. MALLORY.

Witnesses:

EDWARD GAUDERN,
M. M. BOOTHMAN.