

(No Model.)

2 Sheets—Sheet 1.

R. H. HATZFELD.
FOLDING UMBRELLA.

No. 529,170.

Patented Nov. 13, 1894.

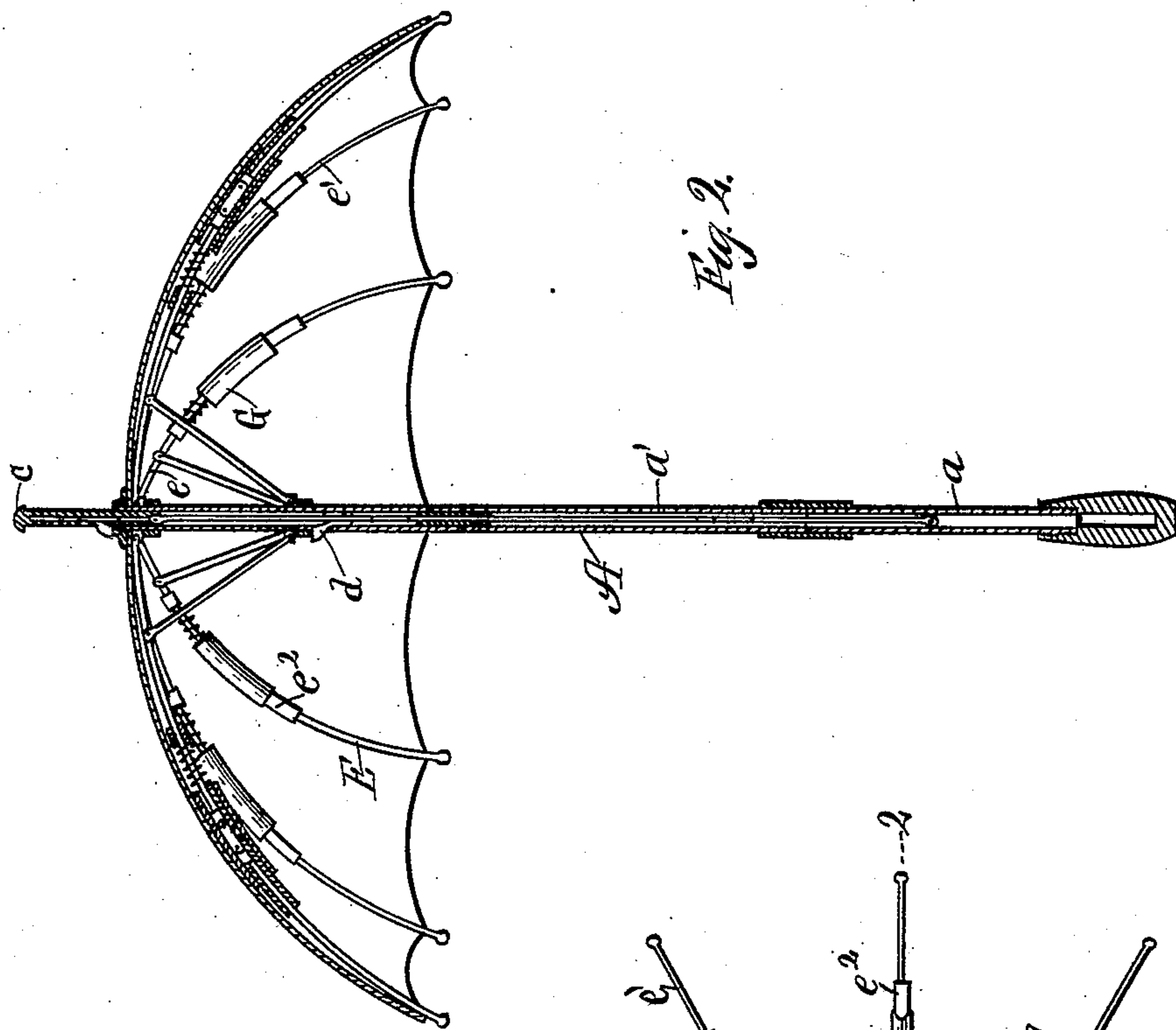
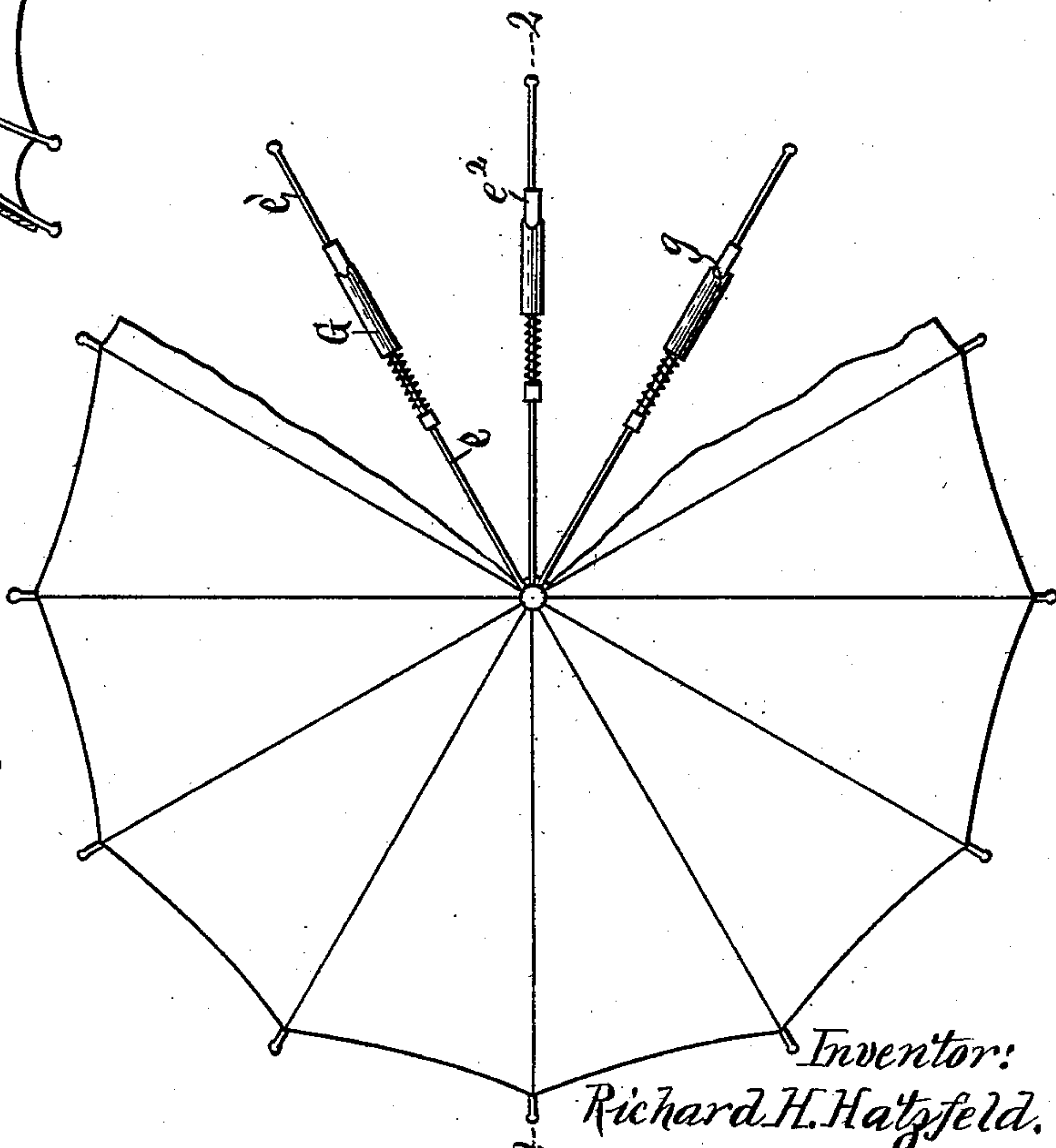


Fig. 1.



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(No Model.)

2 Sheets—Sheet 2.

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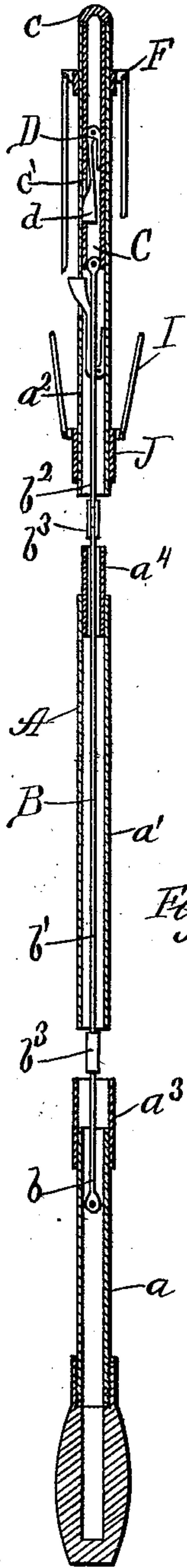


Fig. 3.

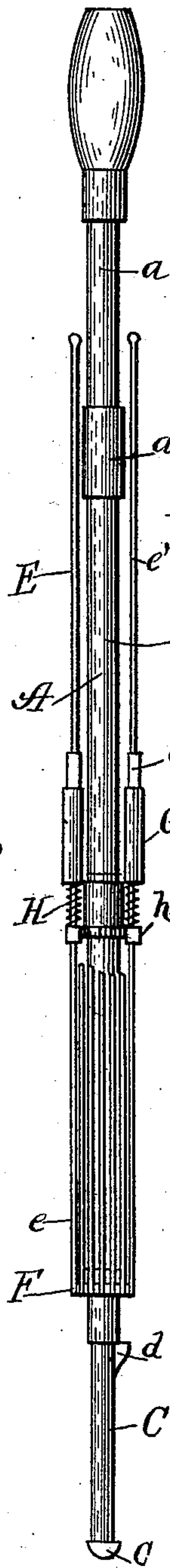


Fig. 4.

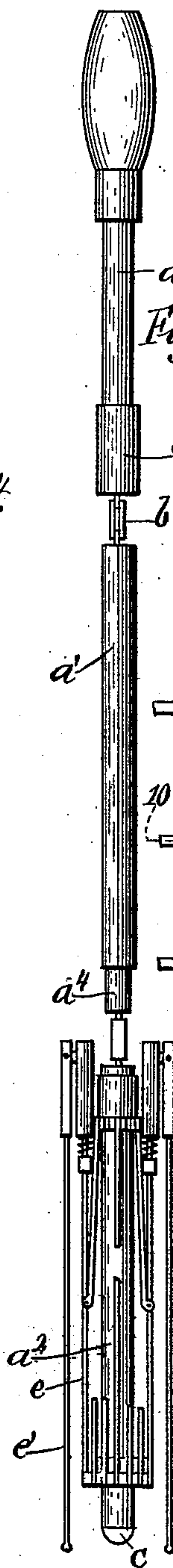


Fig. 5.

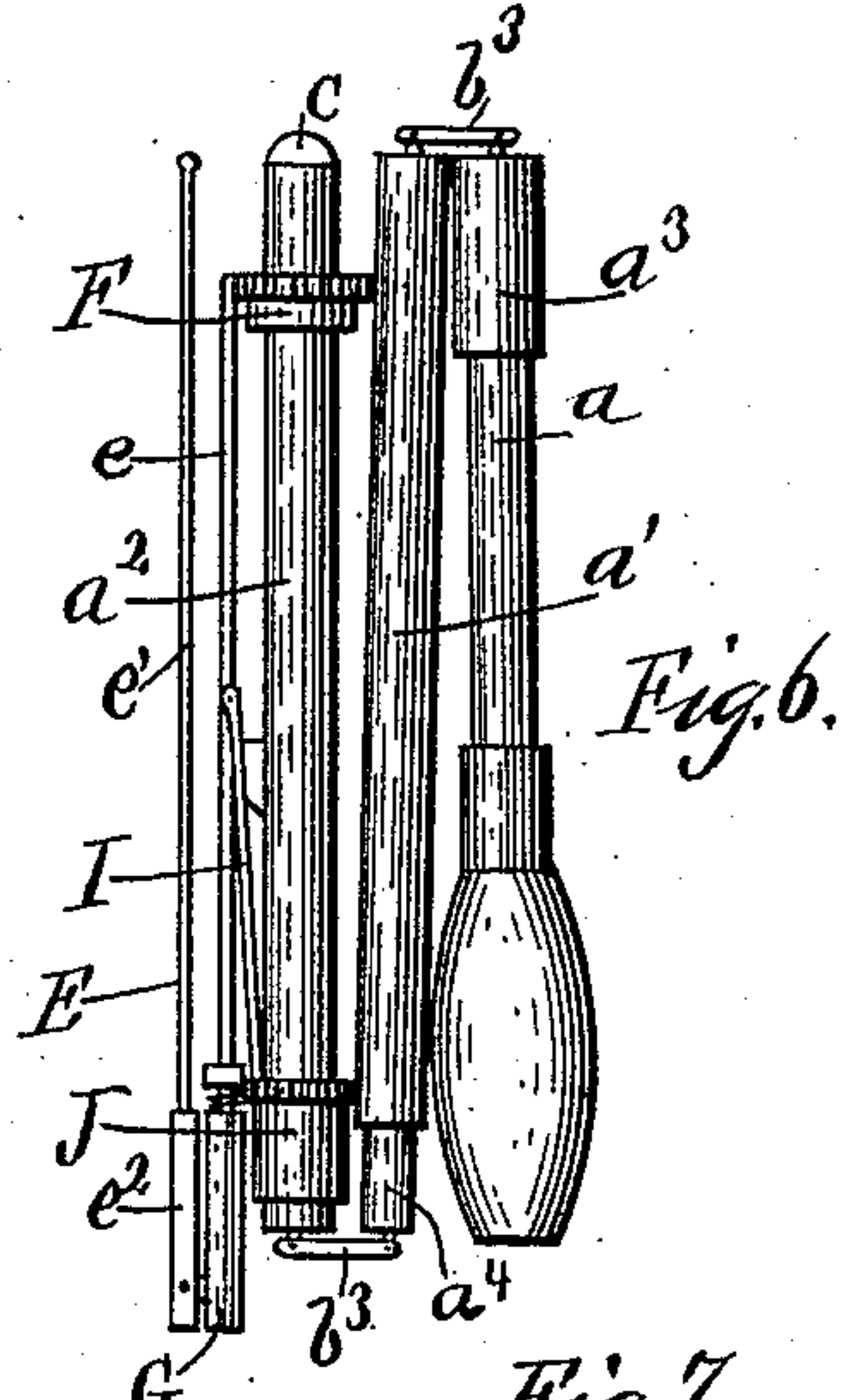


Fig. 6.



Fig. 7.

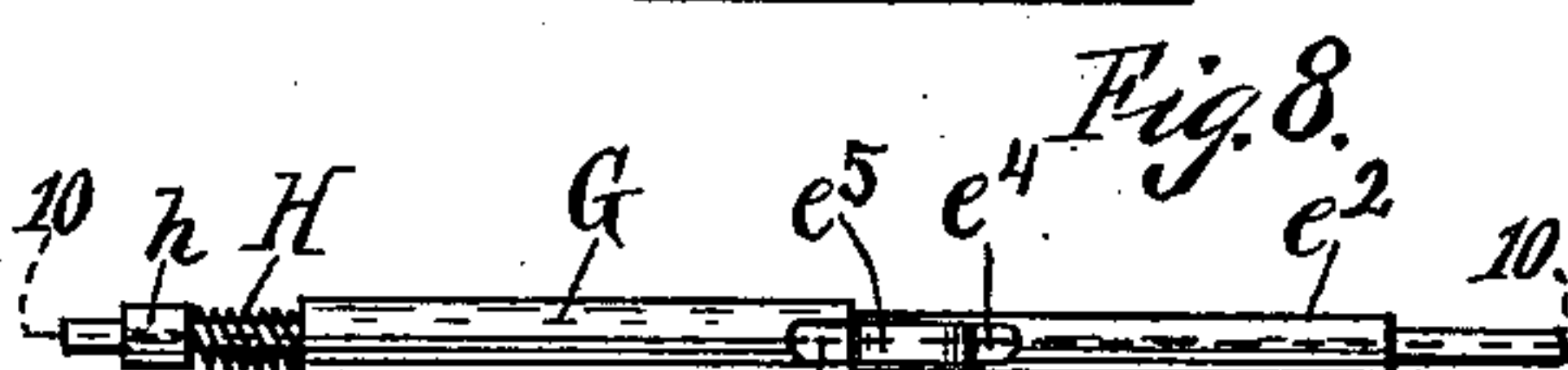


Fig. 8.

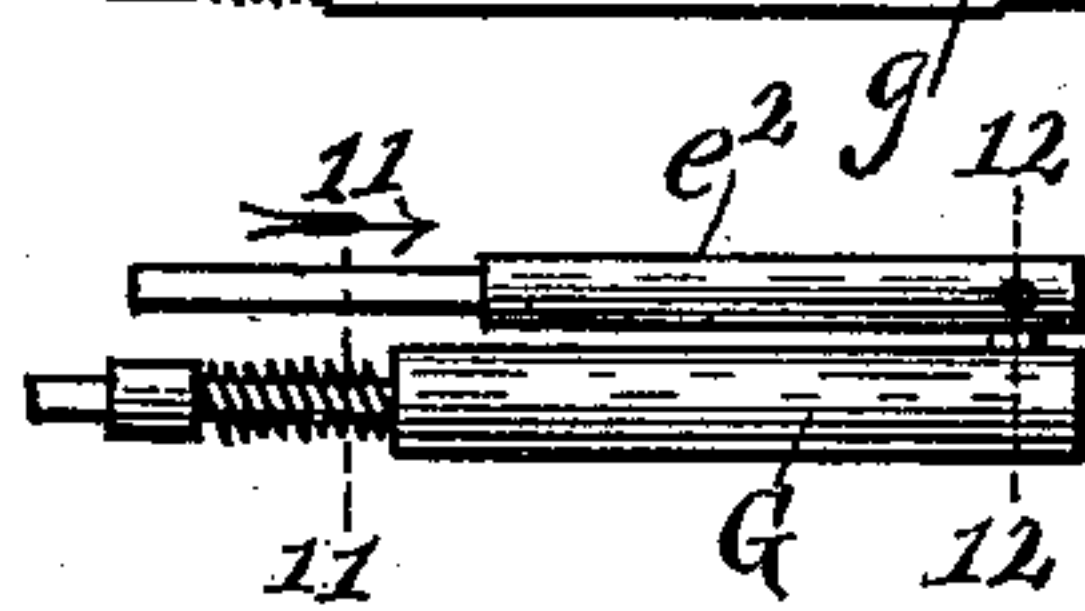


Fig. 9.

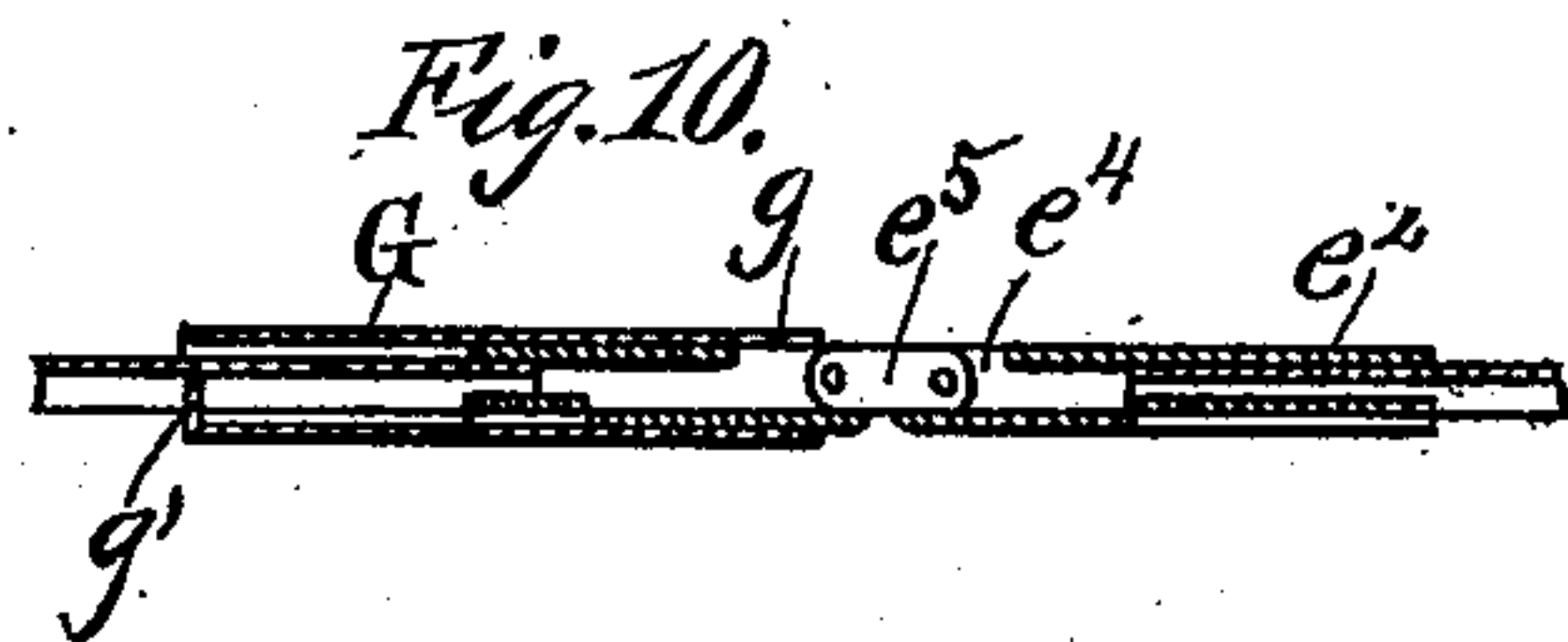


Fig. 10.

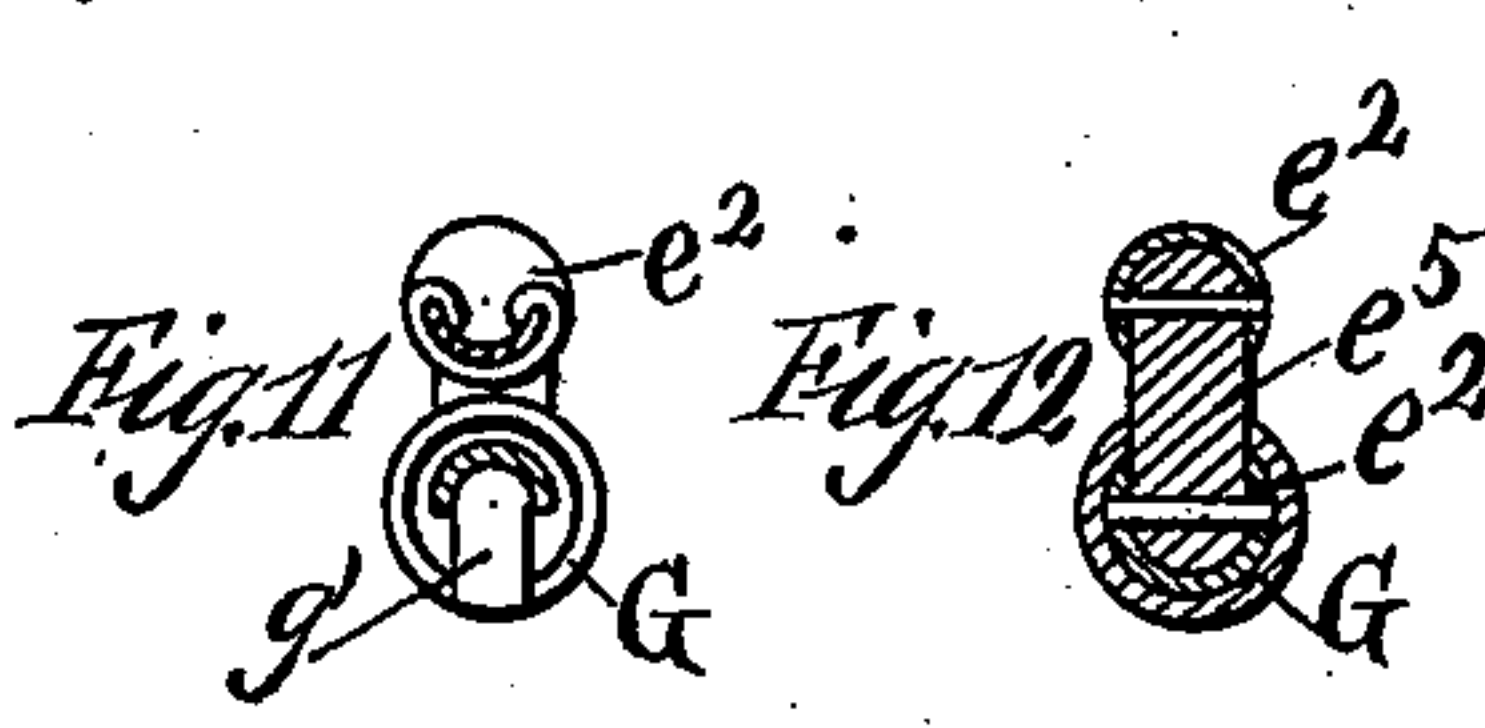


Fig. 11.

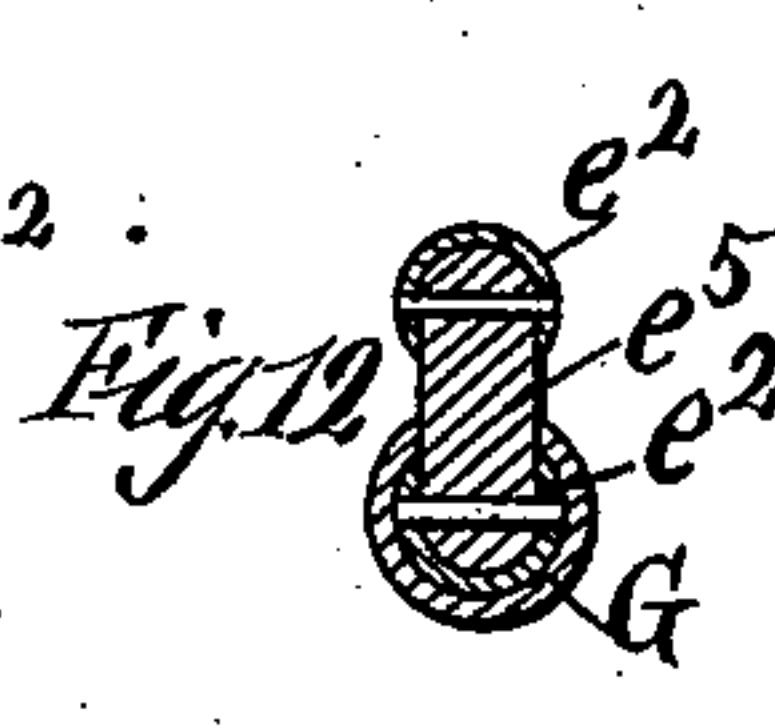


Fig. 12.



Fig. 13.

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UNITED STATES PATENT OFFICE.

RICHARD H. HATZFELD, OF CHICAGO, ILLINOIS.

FOLDING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 529,170, dated November 13, 1894.

Application filed November 1, 1893. Serial No. 489,733. (No model.)

To all whom it may concern:

Be it known that I, RICHARD H. HATZFELD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding Umbrellas, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan of an open umbrella embodying my invention, with the cover partly broken away; Fig. 2, a vertical section of the same taken on the line 2. 2 of Fig. 1; Fig. 3, a vertical section of the frame of the umbrella, the cover being removed and the ribs and braces partly broken away, with the sections separated ready for folding; Fig. 4, an elevation of the frame-work without the cover and reversed preparatory to folding; Fig. 5, a similar view with the sections separated and the ribs folded; Fig. 6, a similar view showing the folding completed; Fig. 7, an elevation of a section of one rib containing the joint; Fig. 8, a similar view of the same with the fastening sleeve retracted for folding; Fig. 9, a similar view showing the rib folded; Fig. 10, a section of the same taken on the line 10. 10 of Fig. 8; Fig. 11, a detail cross-section taken on the line 11. 11 of Fig. 9; Fig. 12, a similar section taken on the line 12. 12 of Fig. 9, and Fig. 13, a detail elevation of the inner or hinge end of the outer section of one of the ribs.

In the drawings Figs. 1 and 2 are upon a single scale; Figs. 3 to 6 inclusive are upon another and enlarged scale; Figs. 7 to 10 inclusive are upon a single scale still further enlarged; and Figs. 11, 12, and 13 are upon a scale enlarged from the latter.

My invention relates to umbrellas in which both the handle and ribs are made in sections jointed together, with the joints stiffened for normal use, but released for the folding up of the umbrella for packing and transportation.

The invention consists in a sectional tubular staff and slip-joint connections, sectional link rod arranged within the staff and provided with special adjusting and fastening devices, whereby the staff may be adjusted to stiff condition for ordinary use, or disconnected at its sections for folding, by the lengthwise adjustment of this rod.

I will now describe in detail the construction and operation of an umbrella embodying my present invention, and will then point out more definitely in the claim the special improvement which I believe to be new and desire to secure by Letters Patent.

In the drawings, A, represents the handle of the umbrella which, as shown, is composed of three separate sections, a ; the outer or lower section, a' , the middle section, and a^2 , the upper or inner section. These sections are all tubular, and the lower one is provided with a thimble, a^3 , fastened on its upper end and adapted to receive the adjoining end of the middle section, as seen in Figs. 2 and 3. The middle section has at its upper end a short hollow plug, a^4 , set into the end of the section with a projecting end adapted to enter the adjacent end of the upper section, these features being shown in Figs. 2 and 3. These handle sections are strung upon a jointed rod, B, by which the sections are connected together and are also adjusted to make a stiff handle, or a loose jointed handle, the sections of which may be folded together. This rod is composed of three sections; a lower or outer one, b , middle section, b' , and upper section, b^2 . They are connected together by short links, b^3 , hinged to adjacent ends of the rod sections, as seen in Fig. 3. The lower or first section, b , of this rod is pivoted at its outer end to the corresponding section, a , of the handle and within the latter, as also seen in Fig. 3. Thence the rod passes up through the middle handle section and part way through the upper section, within which it is hinged at its upper extremity to the inner end of a tubular plug, C, which is adapted to fit into the open upper end of the handle section, a^2 , and is free to slide back and forth therein, being provided with a small cap, c , sufficiently large to cover the end of the handle and stop the inward movement of the sliding tube. The hinges between the sections of this rod are arranged near the points of division between the sections of the handle, so that when the latter are separated they may be folded upon each other by the folding of the rod upon its hinges, while, at the same time, the sections of the handle always remain connected together by the said link-rod.

It is evident that with the sliding of the tubular plug within its tubular seat, the sections of the handle will be drawn together, or separated, according to the direction in which the plug is moved, and the parts are constructed of such relative dimensions that when the plug is thrust inward to its fullest extent, that is until its cap rests upon the top of the upper handle section, the sections of the handle will be separated by the thrust of the rod, as seen in Fig. 3; but upon drawing the plug outward obviously the handle sections will be drawn together by means of the link-rod until finally they are fitted together by the means already described, and as seen in Fig. 2, in which position a stiff handle is provided.

A spring-catch, D, is mounted within the tubular plug, and in the side of the latter there is a slot or opening, c' , through which the head, d , of the catch will project under the unrestrained action of the spring, and this catch is located so that when the plug has been drawn out sufficiently far to bring the sections closely together, as just described, the head of the catch will just pass outside of the upper section of the handle, when it will at once spring outward to engage over the end of the said handle-section, as seen in Fig. 2, thereby fastening the sections together in their adjusted position to make a stiff handle. When it is desired to separate the handle sections by forcing the plug inward, as mentioned above, this catch must be pushed inward until it is disengaged from the top of the handle and will then slip along inside of the latter as the plug is slid inward, as seen in Fig. 3. The ribs, E, are made in two sections, the upper or inner sections, e , which are hinged as usual to the top notch, F, the latter being fastened to the outer extremity of the top section of the handle. The outer or lower sections, e' , of the ribs are hinged to the upper sections, being of about the same length. This connection between the two rib-sections is of special construction. A short metal tube, e^2 , is mounted as a tip on each of the adjacent ends of the said sections, being secured in place by striking in the metal of the tube for a distance along the rib, the latter being of channel-shape, as seen in Figs. 10 and 13, so that there will be thus formed a kind of depressed rib, e^3 , in the tubular tip dropping into the channel of the rib and fastening the two together. A recess or notch, e^4 , is cut in the adjacent ends of these tubular tips, and they are connected together by a short rectangular link, e^5 , hinged respectively to the said tips and adapted to be folded up into the said notches, which must be arranged to register with each other. It will be seen from this description that this link connection permits the outer rib section to be turned outward and upward against the upper section, the link piece falling into the notches in the tubular tips to accommodate this movement, as seen in Figs. 6, 8 and 9. The sections of ribs

are arranged so that the said notches will be upon the outside, thereby providing for turning the sections, e' , outward and upward instead of inward. Now, in order to stiffen this joint and so provide a rigid rib for its normal use, a small metal tube, G, is sleeved on the hinge end of the upper rib-section, e , being of a size to inclose the tubular tip thereon and to slide down the latter onto the similar tip on the lower section, thereby covering the hinge connection and so making a stiff rib of the two sections. A spring, H, is coiled around the rib section above this sliding sleeve, being held in place at its upper end by a small collar, h , fastened to the rib section, and at its lower end resting upon the sleeve, so that in its normal action it will force the sleeve outward over the hinge, as just described, and there hold it. At the same time the spring will yield to permit the sleeve to be shoved upward, thereby uncovering the hinge to permit the folding of the rib-sections as described.

Though not absolutely necessary, it is desirable to provide a short recess or notch, g , at the outer end of the sleeve corresponding and registering with the similar notch in the end of the tubular tip, so that the link may be turned up into this notch in folding the ribs, thereby obviating the necessity of moving the sleeve along the rib until it has entirely cleared the hinge, as seen in Figs. 8 and 9. In order to limit the downward or outward movement of the sleeve I provide a little lug or toe-piece, g' , on the upper end thereof and turned inward so that it will come in contact with the corresponding end of the tubular tip, thereby arresting the movement of the sleeve under the impulse of the spring. The usual brace-rods, I, are hinged at one end to the upper rib-sections and at the other end, as usual, to the runner, J.

From the description above, the adjustment and operation of the devices shown and described for ordinary use, requiring a stiff handle and stiff ribs, will be readily understood.

When it is desired to fold the umbrella, for convenience it is turned and held downward, as seen in Fig. 4. The sleeves on the ribs are then slid downward and the outer rib sections folded outward upon the outer sections, as seen in Fig. 5. The tubular plug, C, is forced into the end of the handle or staff, as already described, by a pull on the two extremities of the handle, thereby separating the sections of the latter, as already described and as also shown in Fig. 5. The staff or handle is then folded one section in one direction and the other in the other direction, as seen in Fig. 6, thereby bringing the entire structure into a short compact arrangement suitable for packing and transportation.

In the construction shown and described the staff of the umbrella is composed of three sections, but if desired it may be of two, the precise number of sections being immaterial.

Having thus described my invention, what

I believe to be new, and desire to secure by Letters Patent, is—

In a folding umbrella, a tubular staff composed of several sections provided with slip joint devices at their ends whereby they are connected together lengthwise, in combination with a connecting link rod, B, composed of sections corresponding in number with the sections of the staff and joined together by hinges which coincide with the joints of the staff sections, arranged within the tubular staff and at one end connected to the handle-section thereof, a tubular plug, C, fitted in the outer end of the outer staff-section, in

which it is free to slide, provided with a side opening, *c'*, and connected at its inner end with the outer section of the link rod, and a spring catch, D, secured within said tubular plug, C, and arranged to project through the said opening therein to pass over the outer end of the staff section, when the plug is pulled out sufficiently far to close the sections of the staff together, and thereby fasten them in this position, substantially as described.

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Witnesses:

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