

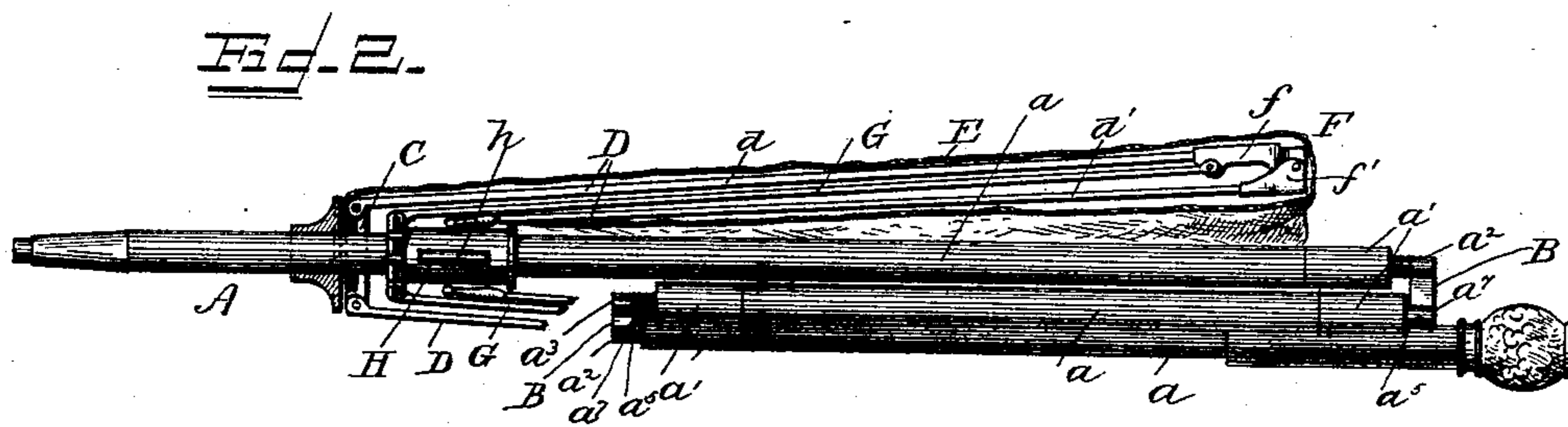
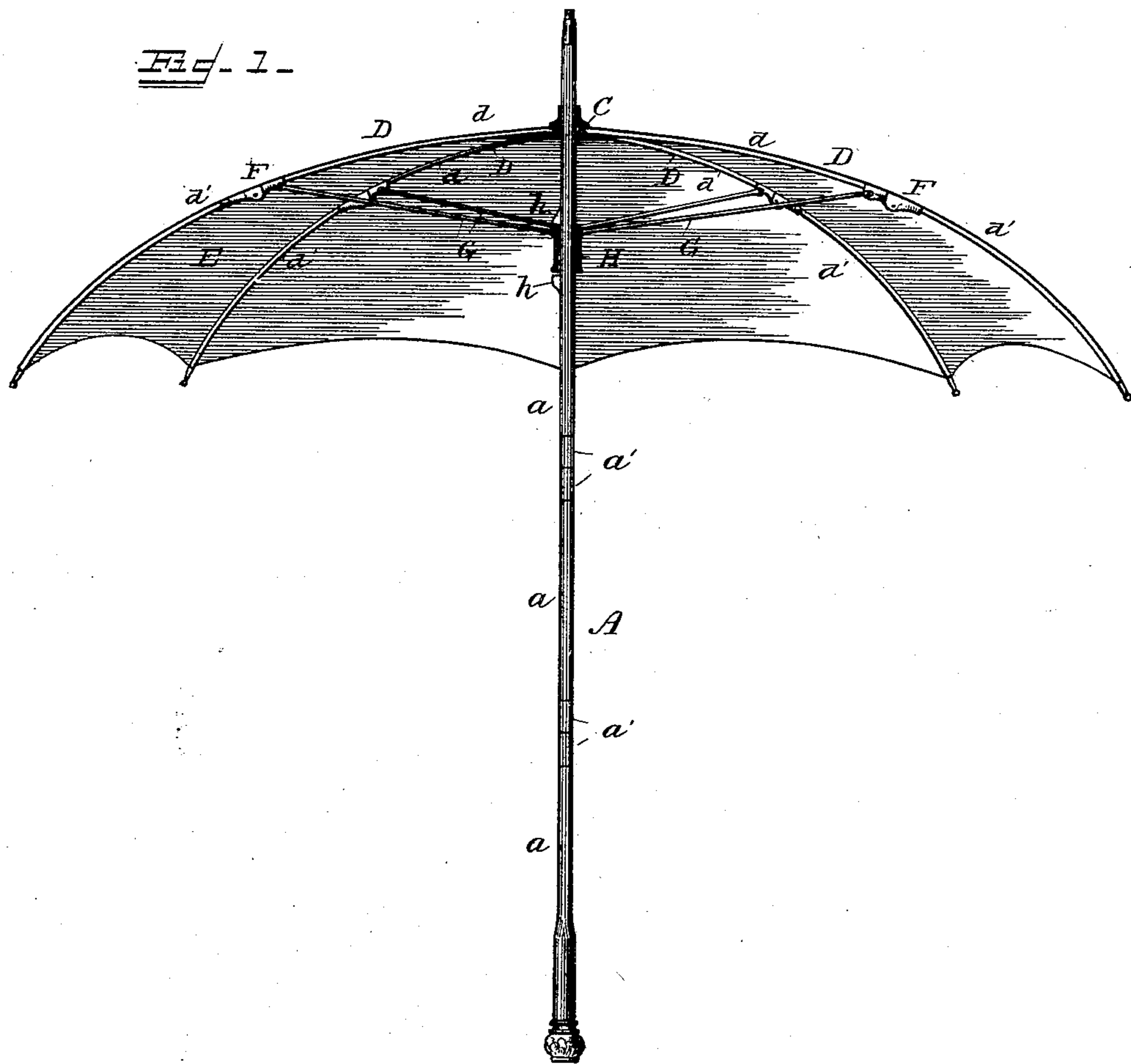
(No Model.)

2 Sheets—Sheet 1.

H. C. WARD.  
FOLDING UMBRELLA.

No. 480,482.

Patented Aug. 9, 1892.



Witnesses

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W. P. Holman

Inventor

Henry C. Ward

By his Attorneys,

C. A. Snow & Co.

(No Model.)

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Fig. 3.

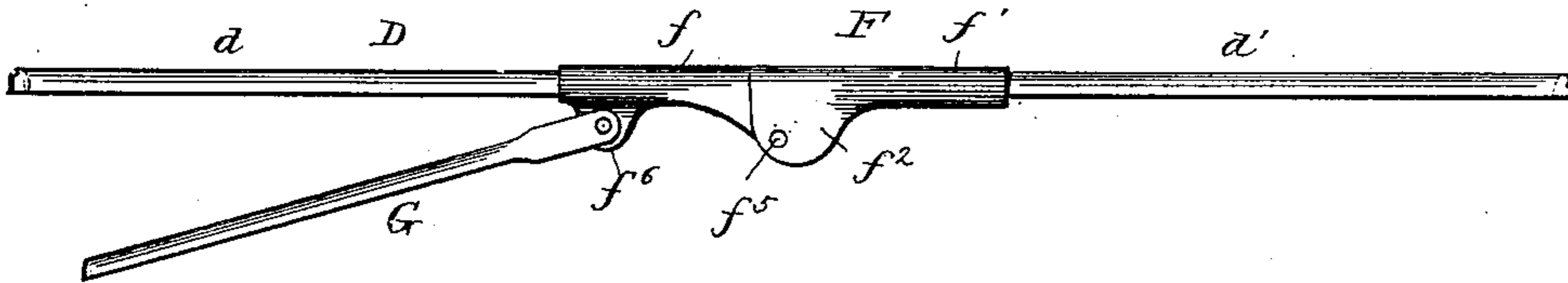


Fig. 4.

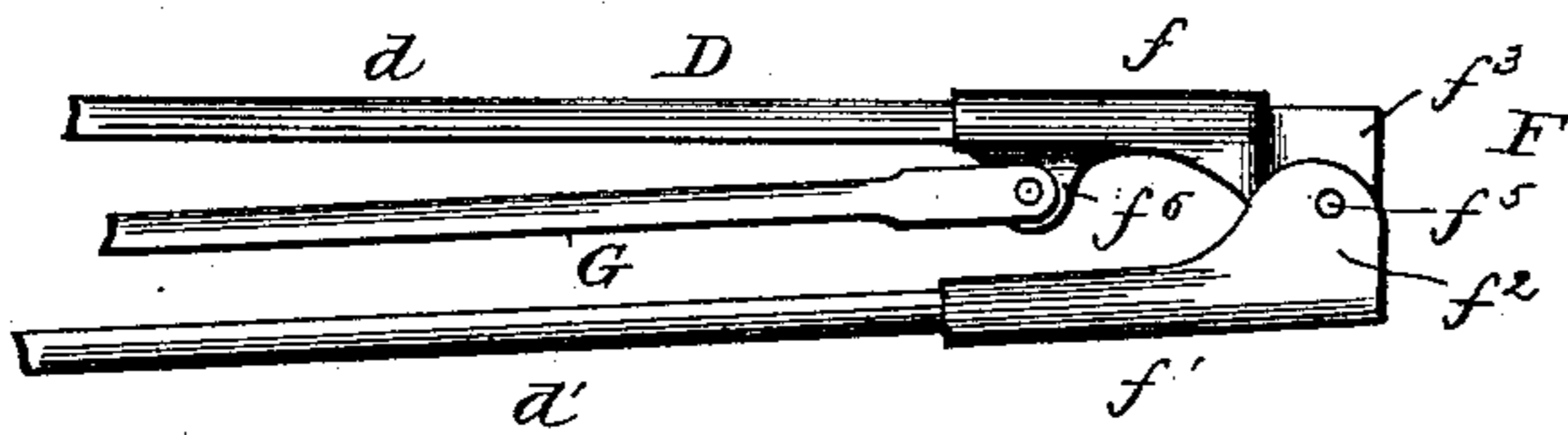


Fig. 5.

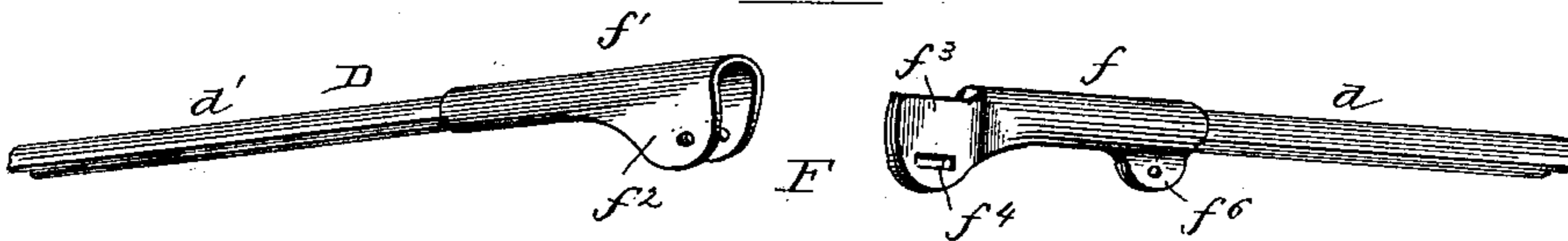
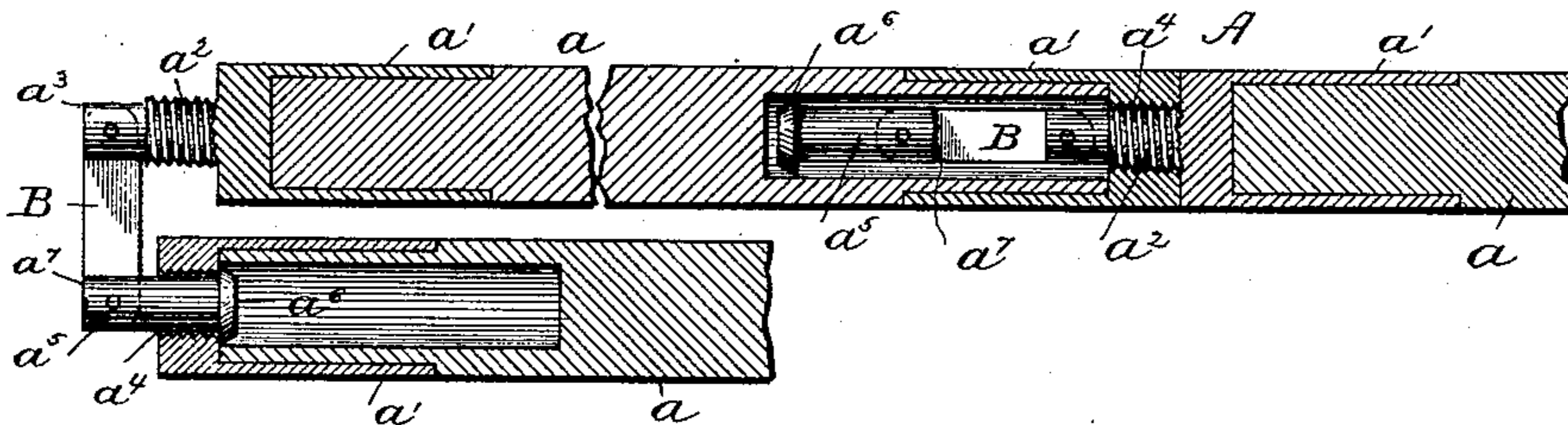


Fig. 6.



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# UNITED STATES PATENT OFFICE.

HENRY C. WARD, OF CHIPPEWA LAKE, MICHIGAN.

## FOLDING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 480,482, dated August 9, 1892.

Application filed October 21, 1891. Serial No. 409,421. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. WARD, a citizen of the United States, residing at Chippe-  
wa Lake, in the county of Mecosta and State  
5 of Michigan, have invented a new and useful  
Folding Umbrella, of which the following is  
a specification.

This invention relates to folding umbrellas;  
and it has for its object to provide an um-  
brella of this class which can be folded into  
10 a small and compact form and can be easily  
carried in a grip or placed in other receptacles  
of small compass, and thus is capable of easy  
transportation, while at the same time it pro-  
vides a construction strong and durable and  
15 which when the umbrella is opened provides  
an article of equal strength with umbrellas  
of the ordinary type which are not folded.

With these and other objects in view the  
20 invention consists in the novel lock-hinge  
and the arrangement and the applications  
thereof to an umbrella, as will be hereinafter  
more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is  
25 a vertical sectional view of an umbrella con-  
structed in accordance with my invention, the  
same being opened. Fig. 2 is a similar view  
showing the same folded. Fig. 3 is an en-  
larged detail view of the rib-hinge in its  
30 opened or locked position. Fig. 4 is a similar  
view showing the same folded. Fig. 5 is a de-  
tail in perspective of the rib-hinge, showing  
the two members in position for assembling.  
Fig. 6 is a detail view of the handle-coupling.

Referring to the accompanying drawings,  
35 A represents the stick of my improved um-  
brella and which is illustrated in the draw-  
ings as comprising three distinct sections  $a$   
 $a$ , which are provided at their ends, which are  
40 designed to be coupled together, with the fer-  
rules  $a'$ . The notch and intermediate section  
of the stick are provided with the projecting  
screw-threaded bolts  $a^2$ , bifurcated at their  
ends, as at  $a^3$ , and securely clamped to the  
45 adjacent sections by means of the aforesaid  
ferrules, while the ferrule  $a'$  of the handle-  
section and that ferrule of the intermediate  
section adjacent to the notch-section are pro-  
vided with the interiorly-threaded hollow  
50 portion  $h^4$ , within which hollow portion the  
headed bolt  $a^5$  is designed to loosely work,  
but is prevented from being withdrawn

through said threaded opening by means of  
the flange or head  $a^6$ , while its protruding end  
is provided with a bifurcated portion  $a^7$ , that  
55 is engaged by the coupling-link B, that is  
pivoted between said bifurcated end of said  
bolt  $a^5$  and the bifurcated end of the bolt  
 $a^2$ . It can be readily seen that the bolt  $a^5$   
and the coupling-link B may be shoved 60  
within the hollow threaded ferrule, while the  
threaded bolt  $a^2$  may be screwed therein,  
thus securely coupling the several members  
of the stick securely together and providing  
a connection which, while providing a strong 65  
stick, hides the parts which couple the sec-  
tions together and which, when the bolt  $a^2$  is  
unscrewed from within the threaded ferrule,  
provides a coupling which allows the inter-  
mediate section to be folded up against the 70  
notch-section, while the handle-section proper  
folds downward, and thus allows the stick to  
be folded within the umbrella-frame and in  
a small compass.

Near the end of the notch-section of the 75  
stick is secured the ordinary notched collar C,  
to which are pivoted the inner ends of the  
ribs D, over which the cover E of the um-  
brella is stretched, and in the present in-  
stance said ribs D comprise the folding-sec- 80  
tions  $d$  and  $d'$ , respectively, which are coupled  
together by means of the folding lock-hinges  
F. Said lock-hinges couple the ends of the  
rib-sections together and themselves com-  
prise the opposing and jointed sections  $f$  and 85  
 $f'$ , respectively, the member  $f$  being illus-  
trated in the drawings as receiving the end  
of the rib-section  $d$ , while the other member  
 $f'$  is illustrated as being rigidly connected  
with the end of the outer rib-section  $d'$ , that 90  
is designed to be folded within the portion of  
the cover stretched over the inner rib-sec-  
tion  $d$  in a manner that will be apparent.  
The member  $f'$ , which is connected to the  
outer rib-sections  $d'$ , is provided with the 95  
lugs  $f^2$ , while the opposite member  $f$ , which  
is connected to the inner rib-sections  $d$ , is  
provided with the projecting tongue  $f^3$ , pro-  
vided with the longitudinally-disposed slot  
 $f^4$ , formed in the face thereof, said tongue be- 100  
ing designed to work between the lugs of the  
opposing member and being jointed therein  
by means of the pivot-bolt  $f^5$ , passing through  
said lugs and the slot in the tongue therein,

while said member *f* is further provided with the inwardly-projecting lug *f*<sup>6</sup>, to which are pivoted the braces *G*, pivoted also to the runner *H*, working on the notch-section of the stick and adapted to open and close the ribs of the umbrella in the ordinary manner and working over and against the ordinary spring-catches *h*, with which umbrellas are usually provided. It can be readily seen now that the folded umbrella may be opened by sliding the runner from its position adjacent to the notch until it is locked by the catch *h*, thus opening the inner rib-section and allowing the outer rib-section *d'*, folded up within the inner portion of the umbrella, to be readily straightened out in view of the hinge-coupling *F* joining the same together, and that by pressing the outer rib-sections in a straight line with the inner sections the slot near the outer end of the tongue in the inner of the members of said hinge will allow the pivot-pin *f*<sup>5</sup> to slide within, which action will cause the tongue to be locked within the lugs of the outer member of the hinge, inasmuch as the joint cannot be broken until the said hinge members are drawn away from each other sufficiently to allow the tongue of one to clear the top portion of the other, beneath which the said tongue is located. It can be readily seen now that the outer portion of the umbrella-frame may be folded up within the inner portion, as may also be the sectional stick, and thus providing a folding umbrella which may be confined in an exceedingly-small compass, while at the same time there is provided a strong and rigidly-connected article fully answering all the requirements of an umbrella.

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

1. In an umbrella, the combination, with a sectional stick, of the ribs made in two parts and hinged together by an inwardly-breaking lock-hinge and the radial braces fixedly pivoted to said hinges and to the sliding runner, the outer portions of said ribs and the umbrella-cover being adapted to be folded under and within the inner portion, substantially as set forth.

2. In an umbrella, the combination of a sectional stick adapted to be folded up and within the umbrella-frame, the ribs made in two parts, inwardly-breaking lock-hinges coupling the rib-sections together and adapted to lock the same in their open position and to allow the outer rib-sections to be folded only up and under the inner portion of the cover and the ribs, and the radial stretchers fixedly pivoted to the inner portions of said hinges and to the sliding runner, substantially as set forth.

3. In an umbrella, the combination, with a sectional stick, of the ribs made in two parts, inwardly-breaking lock-hinges joining the rib-sections together, said hinges comprising the opposite members, one member of which is provided with parallel lugs and the other member with a projecting tongue having a slot near its outer end and adapted to work within the lugs of the opposite member and over a pivot bolt or pin passing through said lugs and said slot, and the radial braces pivoted to the inner members of said hinges and to the sliding runner, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY C. WARD.

Witnesses:

C. H. HARGER,  
RHEUBIN BURT.