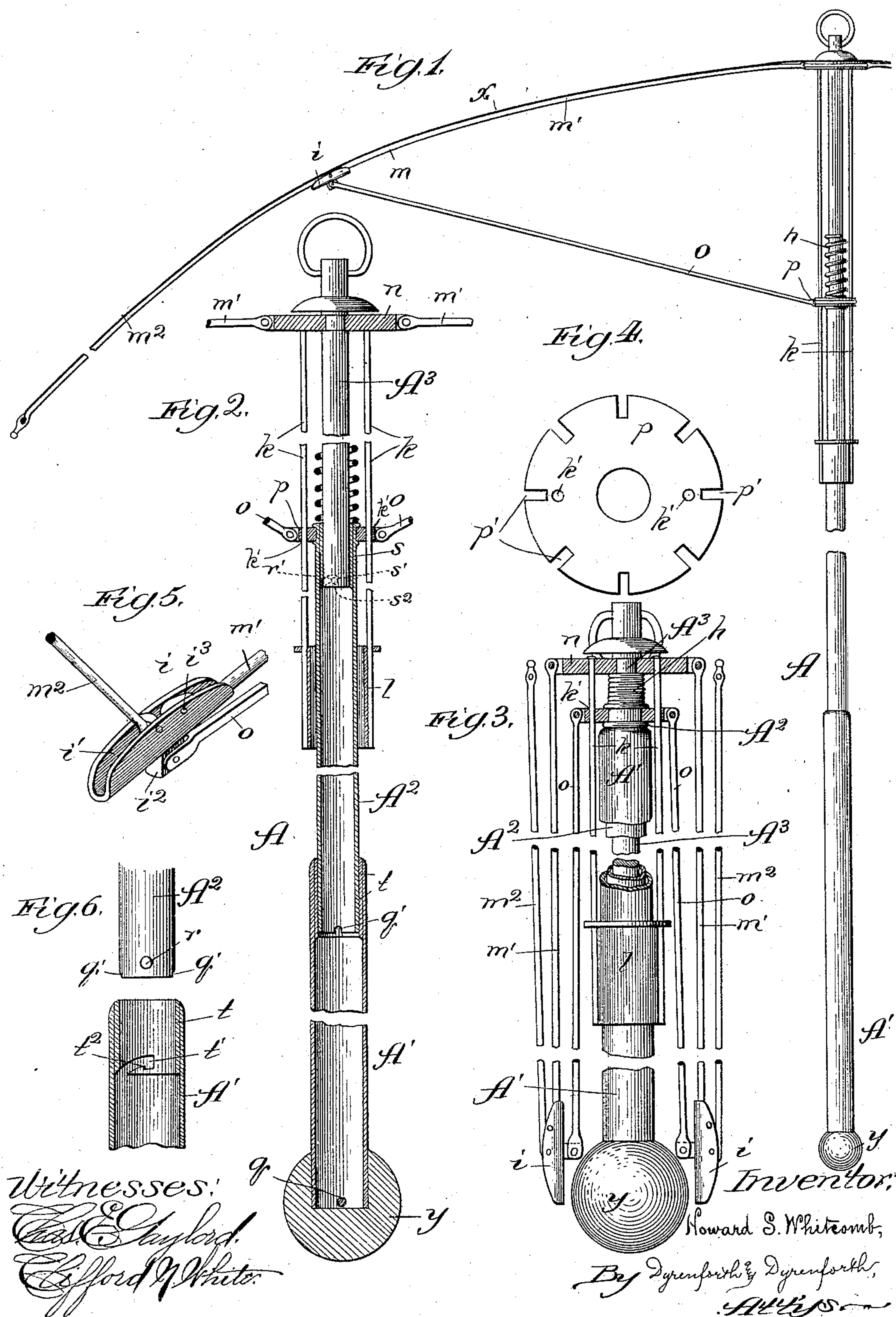


(No Model.)

H. S. WHITCOMB.  
UMBRELLA.

No. 473,649.

Patented Apr. 26. 1892.





# UNITED STATES PATENT OFFICE.

HOWARD S. WHITCOMB, OF CHICAGO, ILLINOIS.

## UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 473,649, dated April 26, 1892.

Application filed June 13, 1891. Serial No. 396,126. (No model.)

*To all whom it may concern:*

Be it known that I, HOWARD S. WHITCOMB, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Umbrellas, of which the following is a specification.

My invention relates to improvements in umbrellas of the class which are designed to be folded up into a small compass to render them of a convenient size to carry in the pocket or in a sachel; and my object is to provide an umbrella of this class of an improved construction which will render it particularly light, strong, durable, and convenient to fold and unfold.

In the drawings, Figure 1 is a broken sectional elevation of an umbrella of my improved construction extended and opened; Fig. 2, an enlarged and broken central section of the handle; Fig. 3, an enlarged broken and partly sectional view of the frame folded; Fig. 4, an enlarged plan view of a detail of the construction; Fig. 5, an enlarged broken perspective view of one of the rib-joints; and Fig. 6, a broken view showing in section and elevation, respectively, the ends of telescoping sleeves which form the stick or handle.

A is the stick of the umbrella, formed in sections, comprising a rod  $A^3$  and a handle portion, which latter consists, preferably, of two telescoping sections or sleeves  $A^2$  and  $A'$ . The rod  $A^3$  is arranged to slide into or telescope with the sleeve  $A^2$  of the handle portion.

Secured in the upper ends of the sections or sleeves  $A'$   $A^2$  are ferrules  $t$   $s$ , respectively, which are provided at their lower ends with the inclined grooves  $t'$   $s'$ , which extend about one-quarter of the circumference of the ferrules and terminate in the sockets  $t^2$   $s^2$ . Near the lower ends of the sections  $A^2$  and  $A^3$  are lugs  $r$   $r'$ , respectively, which when the sections are extended may be caused, by turning the sections upon each other in one direction, to enter the grooves  $t'$   $s'$  and rest in the sockets  $t^2$   $s^2$  to lock the sections in their extended positions. Extending across the lower end of the section  $A'$  is a pin  $q$ , and at opposite sides of the lower edge of the section  $A^2$  are sockets  $q'$ , which when the sections  $A'$  and  $A^2$  are telescoped engage the said pin and lock those

sections against relative rotation, whereby they may be turned together to unlock the sections  $A^2$   $A^3$ . On the upper end of the sleeve  $A^2$  is a bearing  $p$ , provided in its circumference with recesses  $p'$ , in which the brace-rods  $o$  are pivotally secured. The bearing  $p$  is held in place between flanges on the sleeve  $A^2$ , whereby it is secured against longitudinal play, while permitting the sleeve to be independently rotated for the purpose of locking it to the section  $A^3$ , as before described.

At the upper end of the section  $A^3$  is a bearing-plate  $n$  for the ribs  $m$  of the umbrella, and  $l$  is a sleeve or runner of an internal diameter, which permits the sleeve  $A'$  to slide freely through it. Secured at opposite ends respectively to the plate  $n$  and sleeve  $l$  are stiff rods  $k$   $k$ , which between the said plate and sleeve pass loosely through openings  $k'$  in the bearing  $p$ . The ribs  $m$  are made each in two sections  $m'$  and  $m^2$  of about equal length. The sections  $m'$  are pivoted at one end to the plate  $n$  and carry at their opposite ends pivot-bearings  $i$ , which are rigidly secured to the sections  $m^2$ . Each bearing  $i$  is formed with flanged sides, affording between them a socket  $i'$ , about midway of the ends of which the section  $m^2$  of the respective rib is pivoted, and on the reverse sides of the bearings  $i$  are lugs  $i^2$ , to which the brace-rods  $o$  are pivoted. On the frame is the usual textile covering  $x$ , which is fastened at the plate  $n$  at the ends of the ribs and at eyes  $i^3$  in the pivot-bearings  $i$ . The lower end of the sleeve  $A'$  is provided with a knob or other suitable holder  $y$ .

To open the umbrella when folded, as shown in Fig. 3, the knob  $y$  is grasped with one hand and the sections  $m^2$  of the ribs permitted to swing down over the hand and forearm. The sleeve  $l$  is then grasped with the other hand and raised, causing the sleeves  $A'$  and  $A^2$  first to become extended and then the umbrella to open as the section  $A^3$  is advanced out of the sleeve  $A^2$ . While still grasping the sleeve  $l$  and knob the latter is given a turn to the right, which causes first the lug  $r$  to enter the groove  $t'$  to the socket  $t^2$  and then the sleeves to turn together, causing the lug  $r'$  to enter the groove  $s'$  to the socket  $s^2$ , whereby the sections are locked in their extended positions,



as before described. When the umbrella is opened, the tension of the fabric covering  $\alpha$  causes the outer rib-sections  $m^2$  to become firmly pressed down into the sockets  $i'$  of the bearings  $i$ , and thus form practically continuations of the inner sections  $m'$ .

To lock the ribs in their opened condition and prevent the umbrella from closing under pressure exerted against the ribs, I provide brace-rods  $o$  of a length slightly in excess of the normal distance (when the umbrella is open) between the bearings  $i$  and parallel point on the section  $A^3$ . This causes the sleeve  $l$  to spring past said point when the umbrella is opened and closed, and is apt to make it more difficult than is desirable to effect the initial opening of the umbrella.

To counteract to a degree the force of the spring produced by the tension of the braces and ribs, I provide a short helical spring  $h$  about the section  $A^3$ , between the bearings  $p$  and  $n$ , which, as the umbrella is closed, is compressed between said bearings and aids by its resilience in the initial opening of the umbrella. The spring  $h$  is not sufficiently powerful of itself to cause the sections when telescoped to separate, owing to the length and weight of the ribs and brace-rods against the leverage of which it has to bear.

The construction of my improved umbrella renders it particularly strong and durable. It may be folded and unfolded practically as quickly and easily as an ordinary umbrella, and when folded it is little over one-third of the length which it assumes when extended.

While the construction shown and described is preferred, it is subject to modifications which would not depart from the spirit of my invention and are intended to be covered by the claims.

The umbrellas, especially of the smaller sizes, may be formed with handle portions consisting of a single sleeve instead of two telescoping sleeves.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a folding umbrella, the combination of an umbrella-stick  $A$ , formed in sections, consisting of a rod  $A^3$  and a handle portion telescoping therewith, ribs  $m$ , pivotally connected with the rod  $A^3$ , braces  $o$ , pivotally connected with the handle portion, and a sleeve  $l$  below the rod  $A^3$  and rigidly connected therewith, substantially as described.

2. In a folding umbrella, the combination of an umbrella-stick  $A$ , formed in sections, consisting of a rod  $A^3$  and a handle portion telescoping therewith, bearing  $p$  for the brace-rods on the handle portion, bearing  $n$  for the ribs on the rod  $A^3$ , sleeve  $l$ , and rods  $k$ , con-

necting the sleeve  $l$  and bearing  $n$ , substantially as described.

3. In a folding umbrella, the combination of an umbrella-stick  $A$ , formed in sections, consisting of a rod  $A^3$  and a handle portion telescoping therewith, rib-sections  $m'$ , pivoted to the rod  $A^3$ , pivot-bearings  $i$  on the sections  $m'$ , provided with lugs  $i^2$ , rib-sections  $m^2$ , pivoted to the bearings  $i$ , brace-rods pivotally connected at opposite ends, respectively, to the handle portion and lugs  $i^2$ , and a sleeve  $l$ , rigidly connected with the rod  $A^3$ , substantially as described.

4. In a folding umbrella, the combination of an umbrella-stick  $A$ , formed in sections, consisting of a rod  $A^3$  and a handle portion telescoping therewith, ribs  $m$ , formed in sections  $m' m^2$ , connected pivotally together, braces  $o$ , rib-bearing  $n$  on the rod  $A^3$ , brace-bearing  $p$  on the handle portion, sleeve  $l$ , and rods  $k$ , connecting the sleeve  $l$  and rib-bearing  $n$ , substantially as described.

5. In a folding umbrella, the combination of an umbrella-stick  $A$ , formed in sections, consisting of a rod  $A^3$  and a handle portion telescoping therewith, ribs  $m$ , formed in sections  $m' m^2$ , connected pivotally together, braces  $o$ , rib-bearing  $n$  on the rod  $A^3$ , loose brace-bearing  $p$  on the handle portion and held thereon against independent longitudinal movement and provided with openings  $k'$ , sleeve  $l$ , rods  $k$ , passing loosely through the openings  $k'$  in the bearing  $p$  and connecting the sleeve  $l$  and rib-bearing, a groove  $s'$  in the handle portion, and a lug  $r'$  on the rod  $A^3$ , substantially as and for the purpose set forth.

6. In a folding umbrella, the combination of an umbrella-stick  $A$ , formed in sections, consisting of a rod  $A^3$  and a handle portion telescoping therewith, ribs  $m$ , braces  $o$ , rib-bearing  $n$  on the rod  $A^3$ , brace-bearing  $p$  on the handle portion, sleeve  $l$ , rods  $k$ , connecting the sleeve  $l$  and rib-bearing, and a spring  $h$  between the said rib and brace bearings, substantially as described.

7. In a folding umbrella, the combination of the telescoping umbrella-stick sections  $A' A^2 A^3$ , rib-bearing  $n$  on the section  $A^3$ , loose brace-bearing  $p$  on the section  $A^2$ , sleeve  $l$ , rods  $k$ , connecting the runner and rib-bearing, locking means between the adjacent ends of the extended sections, and locking means, as the pin  $q$  and sockets  $q'$  on the sections  $A' A^2$ , for securing the said sections together against independent rotation when telescoped, substantially as and for the purpose set forth.

HOWARD S. WHITCOMB.

In presence of—

J. W. DYRENFORTH,

M. J. FROST.