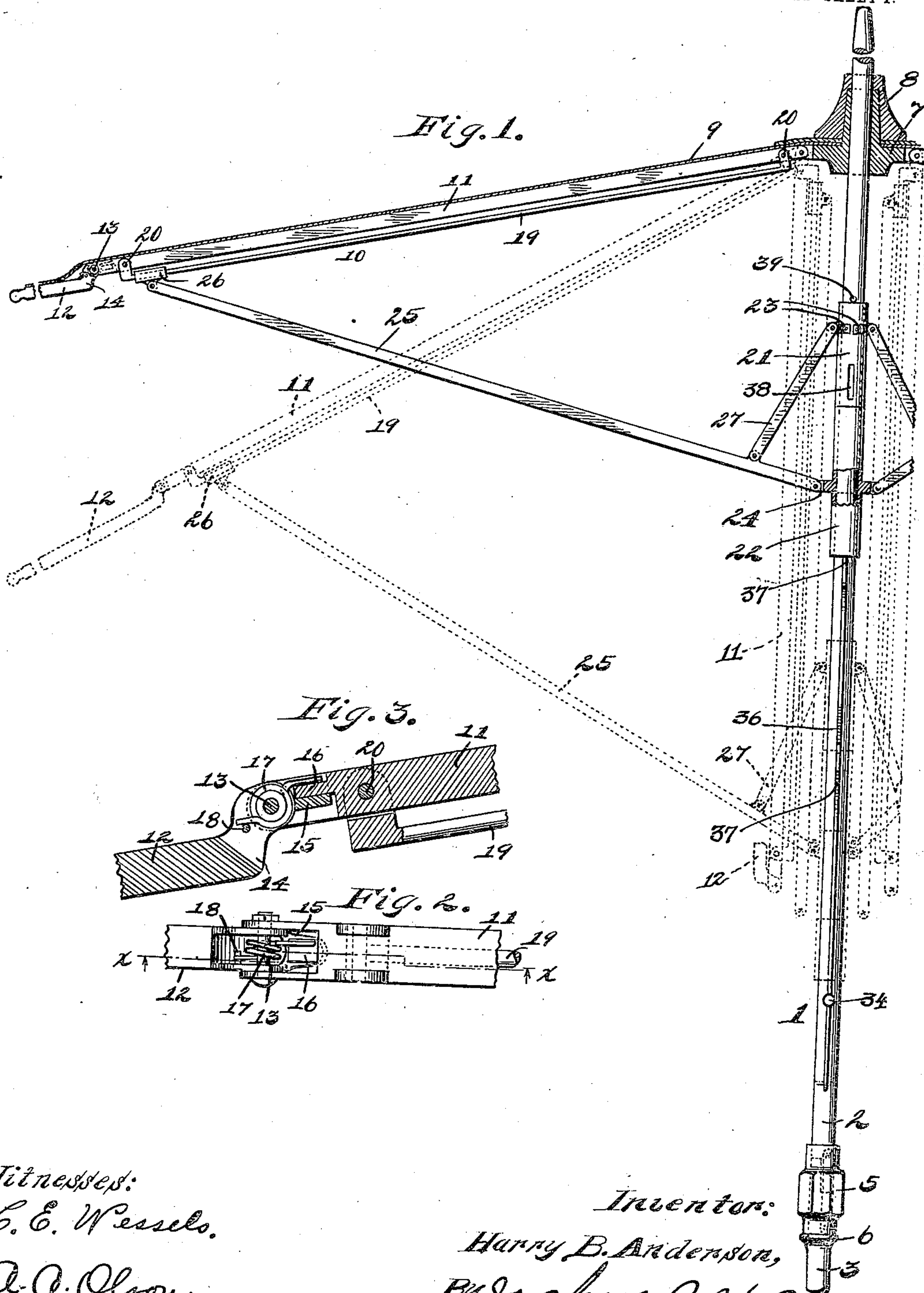


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H. B. ANDERSON.
FOLDING UMBRELLA.
APPLICATION FILED AUG. 24, 1910.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.



Witnesses:
C. E. Wessels.
A. A. Olson.

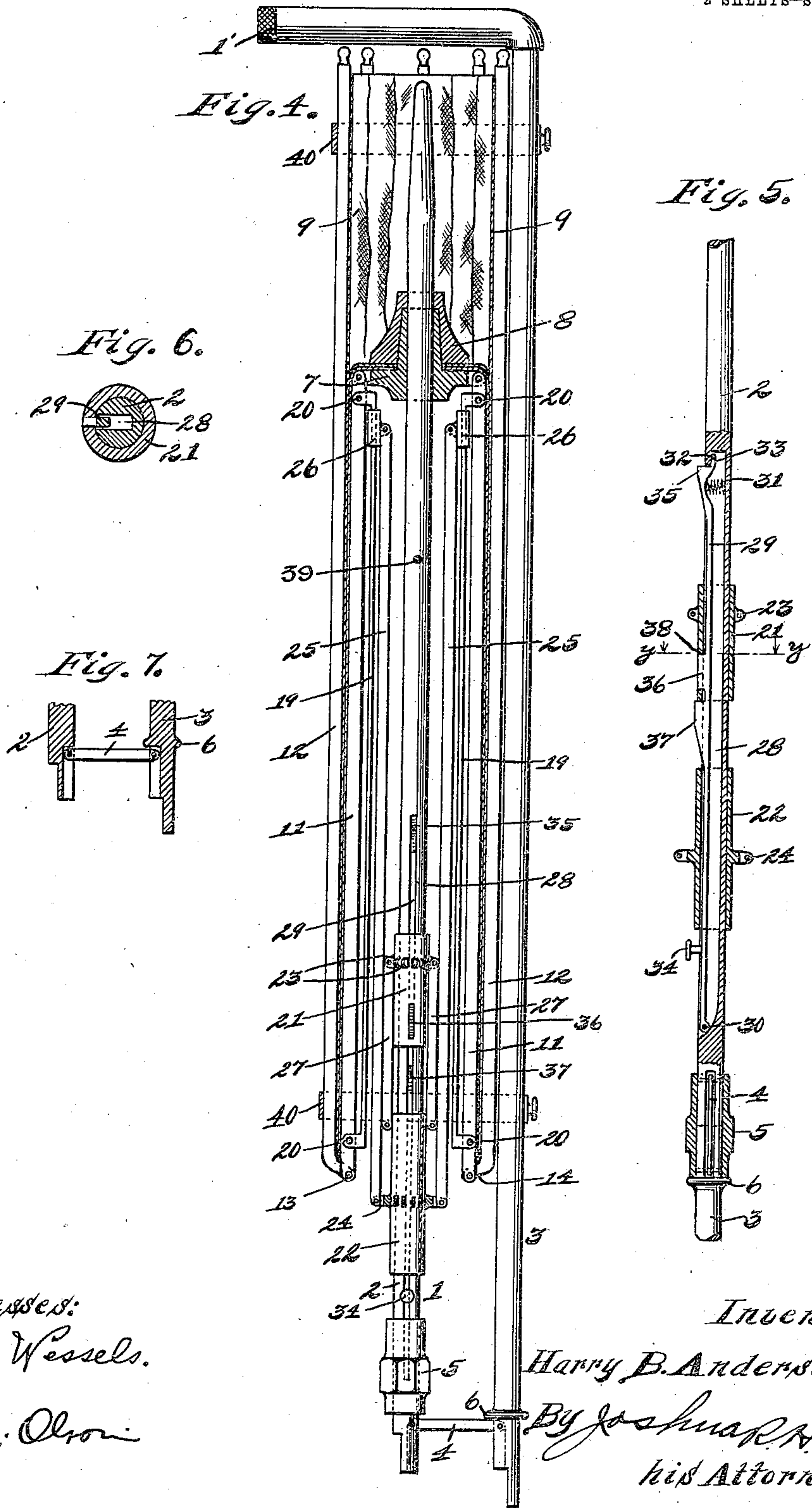
Inventor:
Harry B. Anderson,
By Joshua R. N. T. P.
his Attorney.

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his Attorney.

UNITED STATES PATENT OFFICE.

HARRY B. ANDERSON, OF CHICAGO, ILLINOIS.

FOLDING UMBRELLA.

990,329.

Specification of Letters Patent. Patented Apr. 25, 1911.

Application filed August 24, 1910. Serial No. 578,702.

To all whom it may concern:

Be it known that I, HARRY B. ANDERSON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Folding Umbrellas, of which the following is a specification.

My invention relates to improvements in folding umbrellas, and the object of my invention is the provision of an umbrella which when extended will present an appearance not unlike that of the conventional umbrella, and which may be folded so as to occupy a length approximately one-half that occupied at present by an ordinary umbrella so as to adapt the same for ready arrangement and carriage in a satchel or other hand bag.

A further object is the provision of an umbrella of the character mentioned which will be of durable and economical construction, one which may be readily and expeditiously folded or extended, and one which will be efficient in use.

Other objects will appear hereinafter.

With these objects in view my invention consists in a folding umbrella characterized as above mentioned and in certain details of construction and arrangement of parts all as will be hereinafter fully described and more particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a sectional side elevation of an umbrella, in extended condition, embodying the preferred form of my invention, Fig. 2 is an enlarged fragmentary detail of the knuckle joint provided in each of the sectional ribs of the umbrella, Fig. 3 is a section on line $x-x$ of Fig. 2, Fig. 4 is a sectional side elevation of the umbrella in folded condition, Fig. 5 is a sectional detail of the central portion of the umbrella staff in extended condition, Fig. 6 is an enlarged transverse section taken on line $y-y$ of Fig. 5, and Fig. 7 is a sectional detail of the lower end of the umbrella staff in folded condition.

Referring now to the drawings 1 indicates the umbrella staff which is of a foldable nature comprising the outer and inner sections 2 and 3 respectively. Said sections are of substantially the same length, the contigu-

ous extremities thereof being connected by a link 4 in such a manner that said sections may be folded back in parallel spaced positions; as clearly shown in Fig. 4. The contiguous extremities of said sections are so formed as to form a rabbet joint when brought together, in which position the same may be held by means of a sleeve 5 which is slidably mounted upon the section 2. A circumferential flange 6 formed upon the section 3 adjacent the point of connection thereof with the section 2 serves to limit downward movement of said sleeve when in locking position. A suitable handle 1' is shown at the opposite extremity of said section 3.

Arranged upon section 2 adjacent the outer extremity thereof is a notched ring or hub 7, the same being rigidly secured thereto by means of a snugly fitting cap 8. The inner edge of the cover 9 of the umbrella is shown secured or clamped in position between the member 7 and cap 8. Pivotaly secured to the member 7 are the radially extending ribs 10 of the umbrella. Said ribs are of a foldable nature, each being comprised of an inner section 11 and an outer section 12. The adjacent extremities of said sections are connected by a knuckle joint as at 13. The sections 12 are adapted to be folded back upon the sections 11, as clearly shown in Fig. 4, the former, in order to permit of this folding, being offset as at 14. An ear 15 formed integral with and inwardly extending from the inner extremity of each of the sections 12 is adapted to abut an outwardly extending ear 16 formed at the outer extremity of the section 11 in order to limit extending movement of the former.

At each of the joints 13 is provided a torsional spring 17 the respective extremities of which engage the projection 16 of the section 11 and a stop 18 provided in the section 12 adjacent its inner extremity, the springs 17 serving to normally hold the sections 11 and 12 in extended or alining positions. Arranged at the under side of each of the sections 11 of the ribs 10 is a parallelly extending spaced bar 19 the extremities 20 of which are rigidly secured thereto, said bar 19 being substantially co-extensive with the rib section to which it is secured.

Slidably mounted upon the section 2 of the staff 1 are two sleeves 21 and 22 upon which are formed radially projecting pivotal ears 23 and 24 respectively, the ears 24, for reasons which will be apparent as the de-

scription proceeds, being of a length slightly greater than that of the ears 23. Pivotally secured at their inner extremities to the ears 24 of the sleeve 22 are radially projecting
 5 brace rods 25 the outer extremities thereof being pivotally secured to sleeves 26 which are slidably mounted upon the bars 19. The brace rods 25 are adapted as will be observed, when the sleeve 22 is in elevated po-
 10 sition upon the staff 1, to support the ribs 10 in extended positions, as clearly shown in Fig. 1. Pivotally secured to said brace rods adjacent their inner extremities are links 27, the upper extremities of which are
 15 pivotally secured to the ears 23 of the sleeve 21.

Formed in the staff section 2 intermediate its extremities is a longitudinally extending slot 28. Arranged in said slot is a bar
 20 29 the lower extremity thereof being pivotally secured as at 30 to said staff section. A compression spring 31 arranged under the free extremity of said bar 29 serves to nor-
 25 mally hold the same in its outermost position, outward movement of said end of said bar being limited by the ear 32 formed at the upper extremity of the slot 28 against which abuts the free extremity of said bar, as
 30 clearly illustrated in Fig. 5. An exteriorly projecting stem or button 34 formed upon the bar 29 adjacent its lower extremity affords means of ready manual depression of said bar. Formed upon the bar 29 at its
 35 upper extremity is a projection 35 which is adapted to engage under the lower extremity of the sleeve 22 to hold the same at its upper terminal of movement upon the staff section 2, as clearly shown in Fig. 1, in
 40 which position of said sleeve the ribs 10 will be held in extended positions. The lower side of the projection 35 is inclined, as indicated, so as to offer no resistance to up-
 45 ward movement of the sleeves 21 and 22. Formed upon said bar 29 intermediate its extremities are projections 36 and 37. The projection 36 is adapted to engage a slot 38
 50 formed in the sleeve 21 so as to adapt the bar 29, when the sleeve 22 is lowered upon the staff section, to serve as a stop for said sleeve 21 and so that further movement of
 55 the sleeve 22 after said sleeve 21 has been engaged will through the medium of the links 27 effect inward swinging of the outer ends of the brace rods 25. The arrangement is
 60 such, as will be observed, that such movement of the brace rods 25 effects inward sliding of the sleeves 26 to which the outer extremities of said rods are secured along the bars 19 and so that, when the rib sections 11
 65 are in lowered or closed condition, as shown in Fig. 4, the sleeves 26 and hence the upper extremities of the brace rods 25 will be positioned adjacent the inner extremities of the rib sections 11, this evidently being a
 very compact arrangement. Thus, with the

provision of the sleeve 21 and links 27 co-
 operating with the catch bar 29, downward
 movement of the sleeve 22 upon the staff 1
 will automatically effect inward folding of
 the rib sections 11 and bars 25 and inward
 70 sliding of the outer extremities of the latter relative to said rib sections. The lower end
 portion of the projection 37 is inclined, as
 will be observed, this provision being made
 so that upon upward movement of the sleeve
 75 22 from its lower or closing position, depression of the bar 29, in order to effect the re-
 lease of the sleeve 21, will be automatically effected by reason of the upper extremity of
 said sleeve 22 riding upon said lower in-
 80 clined end portion of said projection. Up-
 ward sliding movement of the sleeves 21 and 22 upon the staff section 2 is limited by a
 projecting pin 39 provided upon the latter.

Bands 40 are preferably provided in order
 85 to hold rib and staff sections in folded condition, said bands being adapted, as seen, to be wrapped about the umbrella at its respective ends, when in folded condition.

An umbrella of the construction as set
 90 forth is strong and durable, the same may be readily and quickly operated to fold or extend the same, the construction is such as to not be susceptible to readily becoming inop-
 95 erative, and the same is efficient in use.

While I have shown what I deem to be the preferable form of my umbrella I do not wish to be limited thereto as there might be various changes made in the details of
 100 construction and arrangement of parts described without departing from the spirit of the invention comprehended within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters
 105 Patent is:

1. In a folding umbrella, the combination of a foldable central staff; ribs pivotally se-
 cured thereto, each of said ribs comprising a
 plurality of pivotally connected sections; an
 110 inwardly spaced guide bar secured to the inner section of each rib; a sleeve slidable upon said staff; brace rods pivotally con-
 nected to said sleeve and slidably connected to said guide bar for holding the latter in
 115 extended positions; a second sleeve slidable upon said staff; a catch device coöperating with said sleeves; and an operative connection between said second mentioned sleeve and said brace rods whereby downward
 120 movement of said first mentioned sleeve upon said staff relatively to said second mentioned sleeve coöperating with said catch device effects inward rocking of said ribs and in-
 125 ward rocking and sliding of the outer ends of said brace rods, substantially as described.

2. In a folding umbrella, the combination with a foldable central staff; ribs pivotally secured thereto, each of said ribs comprising
 a plurality of pivotally connected sections; 130

an inwardly spaced guide bar secured to the inner section of each rib; means for normally holding said sections in extended condition; a sleeve slidable upon said staff; 5 brace rods pivotally connected to said sleeve and slidably connected to said guide bar for holding the latter in extended positions; a second sleeve slidable upon said staff; a catch device cooperating with said sleeves; and an 10 operative connection between said second mentioned sleeve and said brace rods whereby downward movement of said first mentioned sleeve upon said staff relatively to said second mentioned sleeve cooperating 15 with said catch device effects the inward rocking of said brace rods and inward sliding of the outer ends thereof relatively to said ribs, substantially as described.

3. In a folding umbrella, the combination 20 of a foldable central staff; ribs pivotally secured thereto, each of said ribs comprising a plurality of pivotally connected sections, an innermost section of each of said ribs being provided at its under or inner side with 25 a rigid spaced bar substantially co-extensive

therewith; a sleeve slidably mounted upon said staff; brace rods having their inner ends pivotally connected to said sleeve and having their outer ends slidably and pivotally connected with the supplemental bars of said 30 ribs; a second sleeve slidable upon said staff above first said mentioned sleeve; a spring catch arranged in said staff for cooperation with said sleeves; means connecting said second mentioned sleeve of said staff and said 35 brace rods whereby downward sliding of said first mentioned sleeve upon said staff relatively to said second mentioned sleeve cooperative with said catch effects inward rocking of said brace rods and inward slid- 40 ing of the outer ends thereof upon said supplemental rib bars, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY B. ANDERSON.

Witnesses:

JOSHUA R. H. POTTS,
ARTHUR A. OLSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
