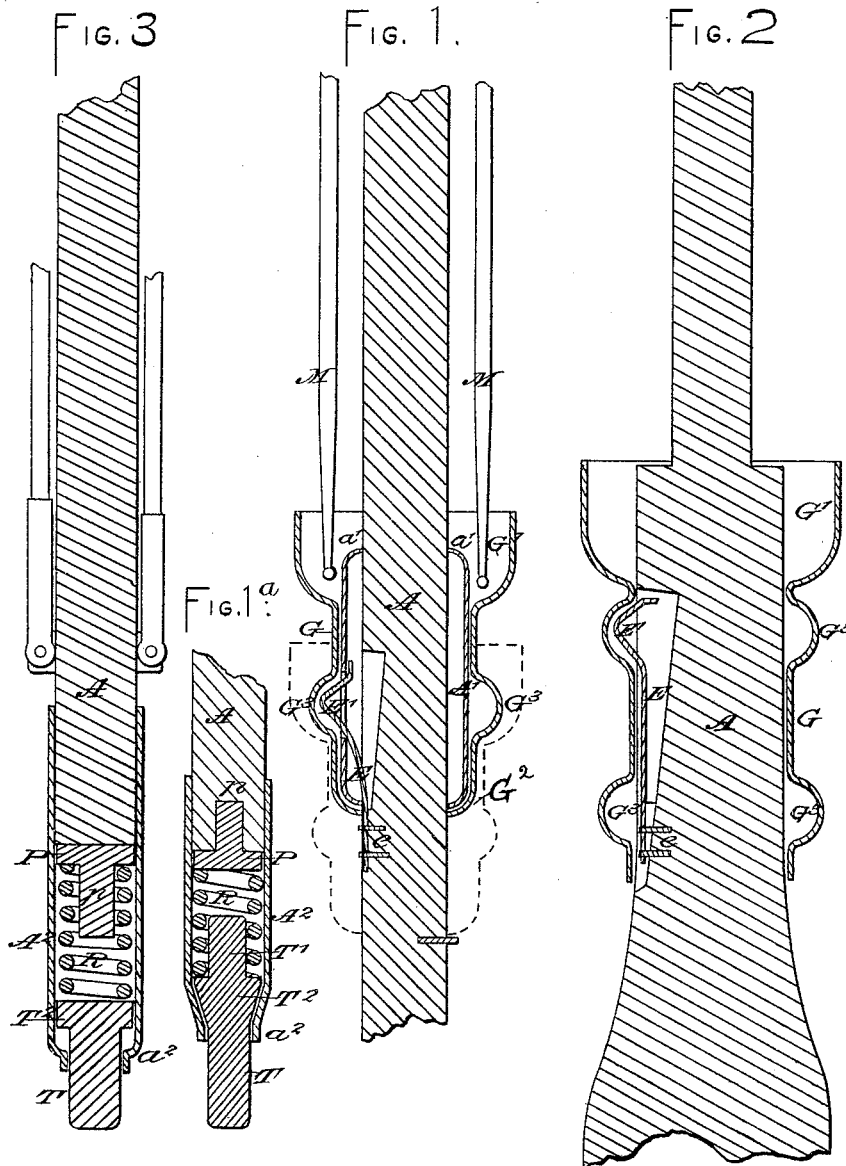


E. J. FORBES.
Umbrella.

No. 220,276.

Patented Oct. 7, 1879.



WITNESSES =

Chas. C. Stetson
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INVENTOR =

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By his attorney
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UNITED STATES PATENT OFFICE.

EDWIN J. FORBES, OF NEW YORK, ASSIGNOR TO HIMSELF AND GILBERT P. OAKLEY, OF BROOKLYN, N. Y.

IMPROVEMENT IN UMBRELLAS.

Specification forming part of Letters Patent No. **220,276**, dated October 7, 1879; application filed March 3, 1879.

To all whom it may concern:

Be it known that I, EDWIN J. FORBES, of New York city, in the State of New York, have invented certain new and useful Improvements relating to Umbrella Tip-Cups, of which the following is a specification.

One part of the invention relates to the means for holding the umbrella closed. It has long been common to hold the tips in a sliding piece, sometimes called "tip-cup," fitted to be moved on the stick, being moved toward the ribs to inclose, and away from them to liberate. I do this, and I provide a spring-catch with a peculiar construction of the parts, whereby, without weakening the structure or materially adding to the labor of putting the parts together, I insure the holding of the slide at either end of its movement.

Another part of the invention relates to an improved spring-tip. I use such a tip at the top to facilitate the use of the umbrella as a cane, and allow it to be thumped roughly upon the pavement without jarring the other parts. Such have been before proposed, but without adequate guard against over-compression of the spring. I make the tip elastic, yet well defended against all possible overstrain, providing a definite and reliable stop to meet the end of the slide and arrest it when sufficiently forced in. I thus relieve the spring from further strain.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification, and show the novel features with so much of the ordinary parts as serve to show their relation thereto.

Figure 1 is a longitudinal section. The strong lines show the umbrella-stick and my novel attachments in the condition when the sliding piece is engaged with and holds the ribs. The dotted lines show the condition when the sliding piece or tip-cup is drawn away from the ribs to leave them free. Fig. 2 is a section of a modification. Fig. 3 is a section showing a spring-tip which relieves the other parts from the concussion, which would otherwise act strongly to derange the other parts when the umbrella is used as a cane.

Fig. 1^a is a section through the tip alone, showing a modification of this part.

Similar letters of reference indicate like parts in all the figures.

A is the stick. A¹ is a large tube fixed thereon, and having each end formed with an internal flange, as shown by a'. There is an annular space between A and A¹, in which plays a spring-catch, E, firmly fixed at one end by a rivet, e. Its free end has a tendency outward, and is formed with a bend, as shown at E'. A hole is formed in the case A¹, which allows this bend E' to be protruded through it.

G is the main body of the sliding piece, embracing A and A¹. It is formed with a cup-like end or tip-cup, G¹, adapted to embrace and confine the tips of the ribs M when properly moved into position, as will be understood. The main body G of the slide fits easily on the exterior of the tube A¹. A contraction or internal flange, G², forms a stop to prevent its being moved too far.

An enlargement, G³, receives the bend E' of the spring-catch E, and holds it firmly in position whenever it is engaged with the ribs M. The bend E' should be made so rounded that it will yield on the application of a sufficient force to move the slide in either direction; but it is proof against all the slight forces liable to be applied by chance in the ordinary use of the umbrella.

A rivet with a large flat head, P, and a stout short body, p, is set on the top of the stick. The rivet-head P forms a hard bearing-surface at the end to receive the coiled spring R, which relieves the umbrella from shocks when used as a cane. T T² is a movable bearing-piece formed with a collar or enlargement, T², as shown. A² is an inclosing-case with a contraction, a², having the form shown. It is fixed firmly upon the top of the stick A. Through the contracted end a² the bearing-piece T T² is protruded by the force of the spring R until its collar T² bears against the inner face of the contraction a². This is its normal condition.

When the umbrella is used as a walking-stick and the tip is struck on the ground, the piece T T² strikes the ground or pavement and yields by the compression of the spring R, so

as to form a yielding bearing, yielding until the piece $T T^2$ rests on the body P of the rivet. It saves the mechanism of the umbrella from concussion, and yet forbids the spring being too greatly compressed.

The construction gives increased durability to the umbrella, due to the lessening of the concussion on the delicate and heavily-loaded parts. It also relieves the slide $G G^1 G^2 G^3$ from being displaced by such concussion. The yielding tip $T T^2$ allows the slide G to be held by a more gentle spring, E , than would be otherwise practicable.

The parts should be so proportioned that the inner end of $T T^1$ will strike on the body p of the rivet P before the spring R can be forced or compressed in so far as to injure the spring or involve any other difficulty.

The contraction a^2 should be elongated, as shown, so as to afford a strong lateral support to the piece $T T^2$ as it is moved inward and outward, and to afford a large amount of bearing-surface without wear.

Modifications may be made without sacrificing the advantages of the invention. I can, for example, attach the stop p P on the upper end of the movable tip-piece $T T^2$, so that it shall be equally central and similarly inclosed

within the spring R and equally efficient; but I prefer the exact construction shown.

I claim as my improvement in umbrellas—

1. In an umbrella, the double tubes surrounding the stick A , arranged as described, to inclose and protect the spring-catch $E E'$, and consisting of the tubes A^1 and G , the latter provided with the cup G^1 , enlargements G^3 , and flange G^2 , substantially as specified.

2. The umbrella described, having a yielding tip adapted to yield by the compression of a spring, and to return to its original condition by the expansion of such spring, and provided with a rigid stop to prevent the spring from being overstrained, as herein specified.

3. The spring-tip for umbrellas described, consisting of a yielding bearing-piece, $T T^2$, having a collar, T^2 , in combination with the fixed case A^2 , having the contracted end a^2 elongated, as shown, and with the coiled spring R and central stop p , as herein specified.

In testimony whereof I have hereunto set my hand this 28th day of February, 1879, in the presence of two subscribing witnesses.

E. J. FORBES.

Witnesses:

CHARLES C. STETSON,
EDWARD D. STAFFORD.