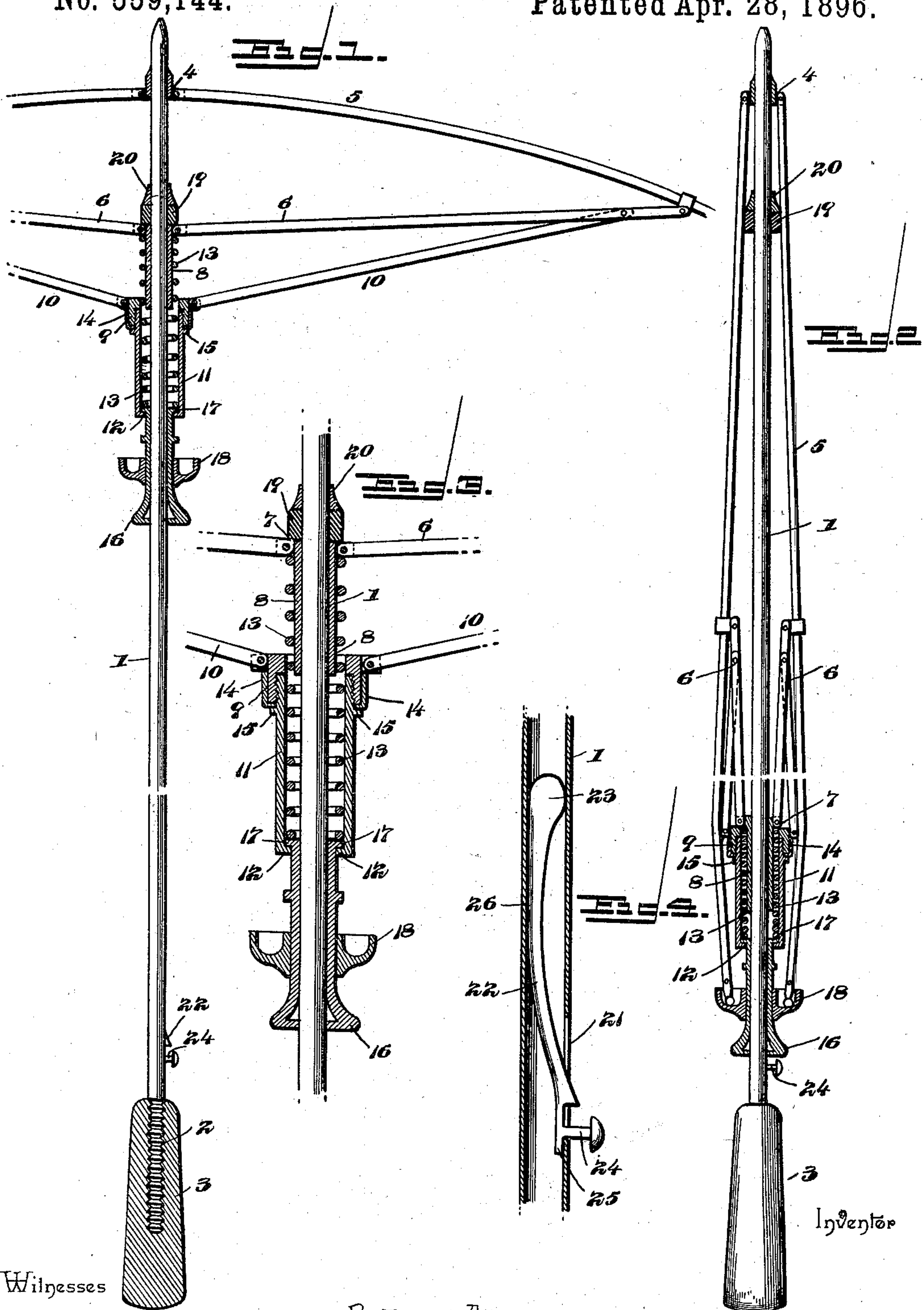


(No Model.)

F. J. MÜLLER.  
SELF OPENING UMBRELLA.

No. 559,144.

Patented Apr. 28, 1896.



Witnesses

*E. H. Stewart*  
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By *his* Attorneys.

*Frederick J. Müller*  
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# UNITED STATES PATENT OFFICE.

FREDERICK J. MÜLLER, OF SCRANTON, PENNSYLVANIA.

## SELF-OPENING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 559,144, dated April 28, 1896.

Application filed May 21, 1895. Serial No. 550,133. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK J. MÜLLER, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and useful Self-Opening Umbrella, of which the following is a specification.

This invention relates to an improvement in self-opening umbrellas, and has for its object to simplify and improve the construction of devices of this nature with a view to rendering the same capable of being easily repaired and kept in thorough working order.

In self-opening umbrellas as heretofore constructed great difficulty has been experienced in repairing the same and replacing the opening-spring when the latter becomes broken, requiring the services of an experienced workman and rendering it necessary to take the umbrella to pieces. It is to overcome this difficulty that I have invented the improved construction herein described, so that any person can readily remove a broken spring and replace it with a new one in a short space of time and with very little trouble.

Other objects and advantages of the invention will appear in the course of the subjoined description.

The invention consists in a self-opening umbrella having novel features and details of construction and arrangement of parts, whereby certain advantages in point of simplicity and ease with which the same may be repaired are attained, as hereinafter fully described, illustrated in the drawings, and finally embodied in the claims.

In the accompanying drawings, Figure 1 is a sectional view through an umbrella constructed in accordance with this invention, showing the same open. Fig. 2 is a similar view with the umbrella shown closed. Fig. 3 is an enlarged sectional view through the runners and umbrella-stick. Fig. 4 is an enlarged section taken adjacent to the spring-catch.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the accompanying drawings, 1 designates the umbrella-stick, which for the purposes of carrying out this invention is made from a metal tube of the necessary length,

having its upper end closed by a suitable plug or ferrule, as shown, and the lower or handle end thereof screw-threaded or provided with a threaded plug or shank 2, inserted therein and adapted to receive a handle 3 of any preferred form, which is threaded thereon and capable of being removed when desired.

4 designates a notched collar or flange secured near the upper end of the stick, and 5 indicates a series of ribs over which the usual cover is stretched.

6 are the usual U-shaped stretchers or braces, which are pivotally connected to the ribs and at their inner end are pivotally connected to a notched runner 7. In this instance this notched runner 7, which may be termed the "upper" runner, is provided with a depending sleeve or tube 8, which surrounds the umbrella-stick and is fitted loosely, so as to be capable of sliding thereon. The lower or main runner 9 is also notched, as shown, to receive pivotally the inner adjacent ends of a series of supplemental stretchers or braces 10, pivotally connected at their outer ends to the upper main stretchers or braces adjacent to the outer ends of the latter.

The main runner 9 is internally screw-threaded to receive the upper screw-threaded end of a metal sleeve or cup 11, the lower end of said sleeve or cup being partially closed with an inwardly-projecting annular flange 12, forming a seat for the reception of a spiral spring 13.

The diameter of the lower or main runner 9 and the sleeve or cup threaded thereto is such that the spring 13 may be readily received within the same and adapted to expand and contract as the umbrella is opened or closed. The spring 13 is interposed between and bears at one end against the upper runner and at its opposite or lower end against the inturned flange of the cup or sleeve carried by the main runner, said spring always exerting its tension to force the two runners and their stretchers or braces apart or away from each other.

14 designates a band or collar which surrounds the lower or main runner for the purpose of strengthening the screw-threaded portion thereof, so that it will not spread when the depending cup 11 is screwed into the said main runner and is held snugly in



contact therewith by means of an annular rib or ridge 15, formed on the cup or sleeve 11.

16 designates a tubular finger-grip, provided with an enlarged lower end adapted to be grasped by the finger for closing the umbrella, and also formed with an annular flange 17, arranged within and engaged by the lower intumed flange of the sleeve or cup 11, said flange 17 being adapted to receive the pressure of the actuating-spring 13. The sleeve or finger-grip 16 is further provided with a sliding tip-cup 18, adapted to engage the tips of the ribs when the umbrella is folded in a manner that will be readily understood.

19 designates a rubber washer or bumper, disposed around the stick 1 and located beneath a fixed annular shoulder 20 for affording the proper support to the bumper, said bumper acting as a cushion for the upper runner when the umbrella is expanded by the action of the spring 13.

Adjacent to the handle the stick 1 is provided with a longitudinally-elongated slot 21, in which is arranged a removable spring-catch 22. The catch 22 is formed from sheet metal and comprises a stationary or wedge portion 23, which fits snugly within the interior of the tubular stick, a longitudinally-extending shank portion which carries the catch proper and enables the latter to be forced inward out of engagement with the finger-grip sleeve, and a laterally-projecting stud 24, carrying a push-button by means of which the catch may be manipulated. The catch is further provided with a stop 25, adapted to engage within the hollow stick and prevent the accidental displacement of the catch. By pushing the catch slightly upward the stop 25 may be disengaged, and this will allow the catch, as a whole, to be drawn out through the slot 21 and removed.

The spring action of the catch 22 is afforded by rounding off the rear edge of the shank of the catch, as shown at 26, thus allowing the lower end of the catch to yield inwardly.

From the foregoing description it will be apparent that should the actuating-spring 13 become broken, so that the umbrella will no longer open, the broken pieces of the spring may be removed by first unscrewing and removing the handle from the stick and then removing the spring-catch 22, as above explained. The sleeve or cup 11 is now unscrewed from the lower or main runner, after

which said sleeve or cup, together with the finger-grip sleeve, tip-cup, &c., may be withdrawn from the handle end of the stick. The broken spring may now be removed and a new spring inserted, after which the sleeve or cup 11 is again screwed into the main runner, and the umbrella is now again ready for use.

It will be apparent that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In an umbrella of the kind described having an upper and lower series of radial braces adapted to operate the ribs thereof by means of an actuating coiled spring surrounding the umbrella-stick between an upper and lower runner to which the inner ends of the said upper and lower series of braces are respectively, pivotally attached, the combination of a depending sleeve incasing the said actuating coiled spring and forming a seat therefor, the lower end of said sleeve being attached to the upper end of a tubular finger-grip sliding on the umbrella-stick and the upper end of the said depending sleeve having a threaded connection with the main part of the lower runner aforesaid and capable of being separated therefrom; with an umbrella-stick adapted to be stripped of its handle and catch readily without the use of tools so as to permit sliding the aforesaid finger-grip, sleeve and spring off or on the umbrella-stick in the manner and for the purposes as set forth.

2. In an umbrella of the kind described the lower or main runner 9 having an internally-screw-threaded flange, in combination with the band 14 surrounding said main runner, and the sleeve or cup 11, provided with the ridge 15, having its upper end externally screw-threaded and adapted to be connected to the main runner and secure the band 14 in its position substantially as shown and described.

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

FREDERICK J. MÜLLER.

Witnesses:

JOHN H. SIGGERS,  
HAROLD H. SIMMS.