

R. W. BARNES.

UMBRELLAS.

No. 182,149.

Patented Sept. 12, 1876.

Fig. 1.

Fig. 2.

Fig. 3.

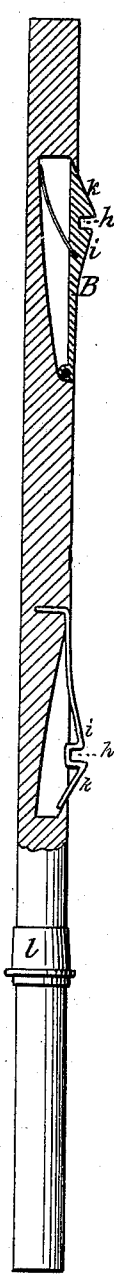
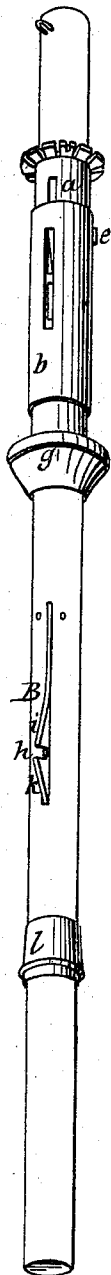
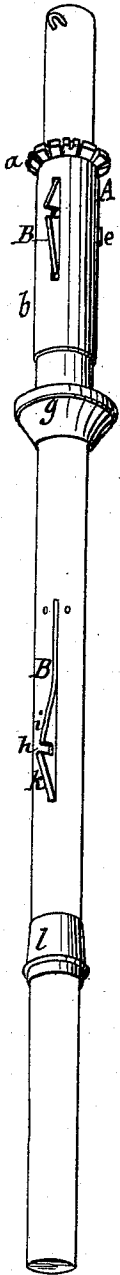


Fig. 4.



Fig. 5.

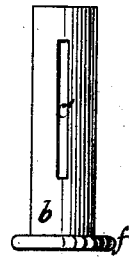


Fig. 6.

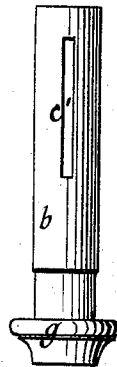
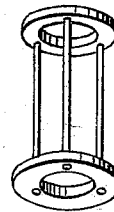


Fig. 7.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN UMBRELLAS.

Specification forming part of Letters Patent No. **182,149**, dated September 12, 1876; application filed August 24, 1875.

To all whom it may concern:

Be it known that I, RICHARD W. BARNES, of the city of Brooklyn, county of Kings, in the State of New York, have invented certain new and useful Improvements in Umbrellas and Parasols; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming part of the same, is a clear, true, and complete description thereof.

The main object of my improvements is to facilitate the opening and closing of an umbrella or parasol without special manipulation of the holding-springs; and my invention consists, first, in a holding-spring of a novel construction, the same being provided with a holding-slot and two surfaces, which incline downward from the entrance to the slot in opposite directions, and of which surfaces one corresponds with and is acted upon in precisely the same manner as the surface of a spring of an umbrella as heretofore made, while the other and additional surface constitutes the novel feature of the said spring, whereby an auxiliary runner may be arranged to deflect the spring when moved longitudinally on the main runner by contact thereof with the latter of said inclined surfaces; and, also, whereby in an upper spring the slot performs the function of a stop against undue opening movement, as well as a retaining device for keeping the umbrella open or closed; second, in the combination, with a fastening or holding spring having a slot located between two surfaces which incline downward and away from the slot in opposite directions, of a main runner having a slot provided with transverse bars for receiving and engaging with the spring, and an auxiliary runner mounted upon and acting with the main runner, whereby the holding-spring may be properly deflected by the longitudinal movement of the auxiliary runner in either direction; third, in the combination, with an auxiliary runner, which is arranged to control the holding-spring, of a tip-holder, whereby the auxiliary runner is prevented from acting on the holding-spring, except when specially manipulated for that purpose, and said tip-holder is made to serve as a thumb-piece for the auxiliary runner, and the tips held more securely

and firmly than with the ordinary well-known tip-holder; fourth, in the combination of a main or an auxiliary runner, either with or without a tip-holder connected thereto, and constituting a part thereof, of a friction-ferule mounted on the handle of the umbrella, whereby the said runner, when the umbrella is closed, is kept firmly in its place, and also whereby, in case the lower holding-spring be inoperative or dispensed with entirely, the umbrella may be conveniently secured when closed, and also readily opened; fifth, in a runner composed of two or more tubes, telescopically arranged, having a suitable stop, a notch-ring on the upper end of the runner, and a rib-tip cup on the lower end.

For describing the several features of my invention more particularly I will refer to the drawings, in which—

Figure 1 represents a portion of an umbrella-handle provided with my improvements, with the holding-spring in service. Fig. 2 represents the same, with the holding-spring deflected. Fig. 3 represents portions of an umbrella-handle, partially in longitudinal section, illustrating the construction of my novel springs. Figs. 4, 5, and 6 illustrate the parts in detail. Fig. 7 represents a modification of my auxiliary runner.

The runner to which the ribs are connected is designated at A. It is a complex structure, and is composed of the main runner *a* and the auxiliary runner *b*. The main runner is shown in detail in Fig. 4. It is provided with a spring-slot, as at *c*, which differs only from the well-known spring-slot of ordinary runners in having transverse bars, as at *d*. It is also provided with a stud, as at *e*, Figs. 1 and 2.

The auxiliary runner *b* is a tubular slide, fitted loosely to the exterior of the main runner. It is shown in detail in Figs. 5 and 6. In both figures it is shown to be provided with the spring-slot *c'*, which, when in proper position, is coincident with the spring-slot *c* of the main runner. In Fig. 5 it is shown to be provided with a thumb-piece, as at *f*, while in Fig. 6 it is combined with the tip-holder *g*, which, when so connected, performs the function of a thumb-piece, as well as that of a tip-holder. Said tip-holder may be soldered,

or otherwise secured to the said auxiliary runner *b*; or be made of one piece with it; or it may be loosely secured to the said runner, and given sufficient play or movement as to allow for passing it down over the tips of the umbrella. In Fig. 7 the auxiliary runner is composed of two rings connected by several longitudinal bars. The open spaces between the bars allow the spring to project, as it does, through the slot *c'* in the tubular auxiliary runner, before described. The main and auxiliary runners are prevented from being drawn apart by a slot and stud, as indicated at *e*, Fig. 2. *B* denotes the novel holding-spring. It possesses two novel features, to wit, the holding-slot *h*, and the two inclined surfaces, one on each side of the slot, inclining downward therefrom in opposite directions, as indicated at *i* and *k*.

In an upper spring this slot serves not only to retain the umbrella in its opened position, but it also serves as a stop against undue upward or opening movement—that is to say, the lower side of the slot serves to keep the umbrella extended the same as the top of the ordinary spring as heretofore used, while the upper side of the slot serves as the upward stop.

In my improved spring the inclined surface *i* corresponds with the inclined surface of umbrella-springs as heretofore constructed, while the inclined surface *k* is a novel feature, and constitutes the surface on which the auxiliary runner acts in the following manner: It will be understood that when the umbrella is closed the lower transverse bar *d* of the main runner occupies the slot of the lower spring, the two inclined surfaces occupying the slot on each side of said bar; and that when the umbrella is opened the upper bar *d* occupies the slot of the upper spring. It will be observed, too, in this connection that the inclined surface *k*, at its junction with the slot *h*, is higher than the surface *i* opposite thereto. When the auxiliary runner is moved upward on the main runner, for opening the umbrella, the lower end of its slot *c'* engages with the inclined surface *k* of the lower spring, and deflects it so far as to place the opposite shoulder of the slot *h* below the transverse bar *d* of the main runner, as to allow the latter, with the auxiliary runner, to advance along the handle.

When, for closing the umbrella, the auxiliary runner is moved downward, the upper end of its slot *c'* in like manner engages with the surface *k* of the upper spring, and deflects it as before, allowing the main runner to descend. When the skeletonized auxiliary runner (shown in Fig. 7) is employed, the upper and lower rings perform precisely the same function in acting upon the inclined surfaces *k* as is performed by the ends of the slots *c'* in the tubular-auxiliary runner.

It will readily be seen that the auxiliary runner must have a capacity for longitudinal movement independent of the main runner, which will allow it to fully deflect the springs,

and also allow the tip-holder to embrace the tips in case the said tip-holder be soldered to or be made of one piece with the said auxiliary runner. This movement is provided for and limited by a slot in the auxiliary runner, which is occupied by the stud *e*, or an equivalent device on the main runner.

For actuating the auxiliary runner *b* I also use, besides the thumb-piece *f*, and in lieu thereof, a tip-holder attached to the said auxiliary runner, and forming a part of the same, as shown in Fig. 6, as by reason of its size and form, and from the fact of its being nearer the handle of the umbrella, such tip-holder is well suited for the purposes of a convenient thumb-piece in connection with its primary office of securing the tips.

As a special means for retaining the umbrella in its closed position, I combine with the main or auxiliary runner, with or without a tip-holder connected thereto, a frictional ferrule, as shown at *l*. It has inclined sides, being smallest at the end nearest the runner. When the runner is forcibly drawn toward and upon the ferrule, the tip-holder or the runner frictionally engages therewith sufficiently to keep the umbrella closed, and the lower spring may therefore be dispensed with, if desired. When temporarily closed the umbrella can be promptly opened, and when it is desired to permanently close it the tip-holder is caused to embrace the tips, after which the umbrella cannot possibly be opened without first releasing said tips. Therefore the combination of frictional ferrule with a runner, with or without a tip-holder connected thereto, has specific value, even though the runner be unprovided with any kind of auxiliary runner.

The main runner *a* may be provided with two slots on opposite sides of the same, each with one transverse bar for engaging respectively with the lower and upper spring, if desired. The auxiliary runner would, in that case, also be provided with two slots corresponding with the slots of the main runner.

With relation to my novel spring, I will state that it is obvious that it can be constructed in various ways and yet embody the holding-slot and the two inclined surfaces—as, for instance, two modes of construction are shown in Fig. 3. One of these is cut with dies from sheet metal, provided with a pintle-joint and an actuating bow, spiral, or other kind of spring. Another form there illustrated consists of a piece of wire, bent of the required form, and secured at one or both ends to the handle, as in the case of ordinary umbrella-springs. Or the spring may be made of two parts cut from sheet metal, loose jointed adjacent to the slot, and pivoted at each end to the handle, and both parts actuated by a bow, spiral, or other form of spring located beneath them. Or the spring may be made of two parts from wire, loose jointed adjacent to the slot *h*, and secured at each end to the handle. However the springs may be constructed, I prefer to provide the slots in

the handle for receiving the spring with a metal escutcheon.

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

1. An umbrella-spring, having a holding-slot and two surfaces inclined from the entrance to the slot downward in opposite directions, substantially as described.

2. The combination, with an umbrella-spring having a holding-slot located between two surfaces, which incline downward from the entrance of the slot in opposite directions, of a runner and an auxiliary runner, substantially as described.

3. The combination, with an auxiliary runner arranged to control the holding-spring of

an umbrella, of a tip-holder, substantially as described.

4. The combination, with the main or auxiliary runner of an umbrella, with or without a tip-holder attached thereto, of a friction-ferrule mounted on the handle and arranged to engage with the runner, substantially as described.

5. A runner composed of two or more tubes telescopically arranged, provided with a suitable stop, a notch-ring at the upper end of the runner, and a rib-tip cup at the lower end, substantially as described.

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