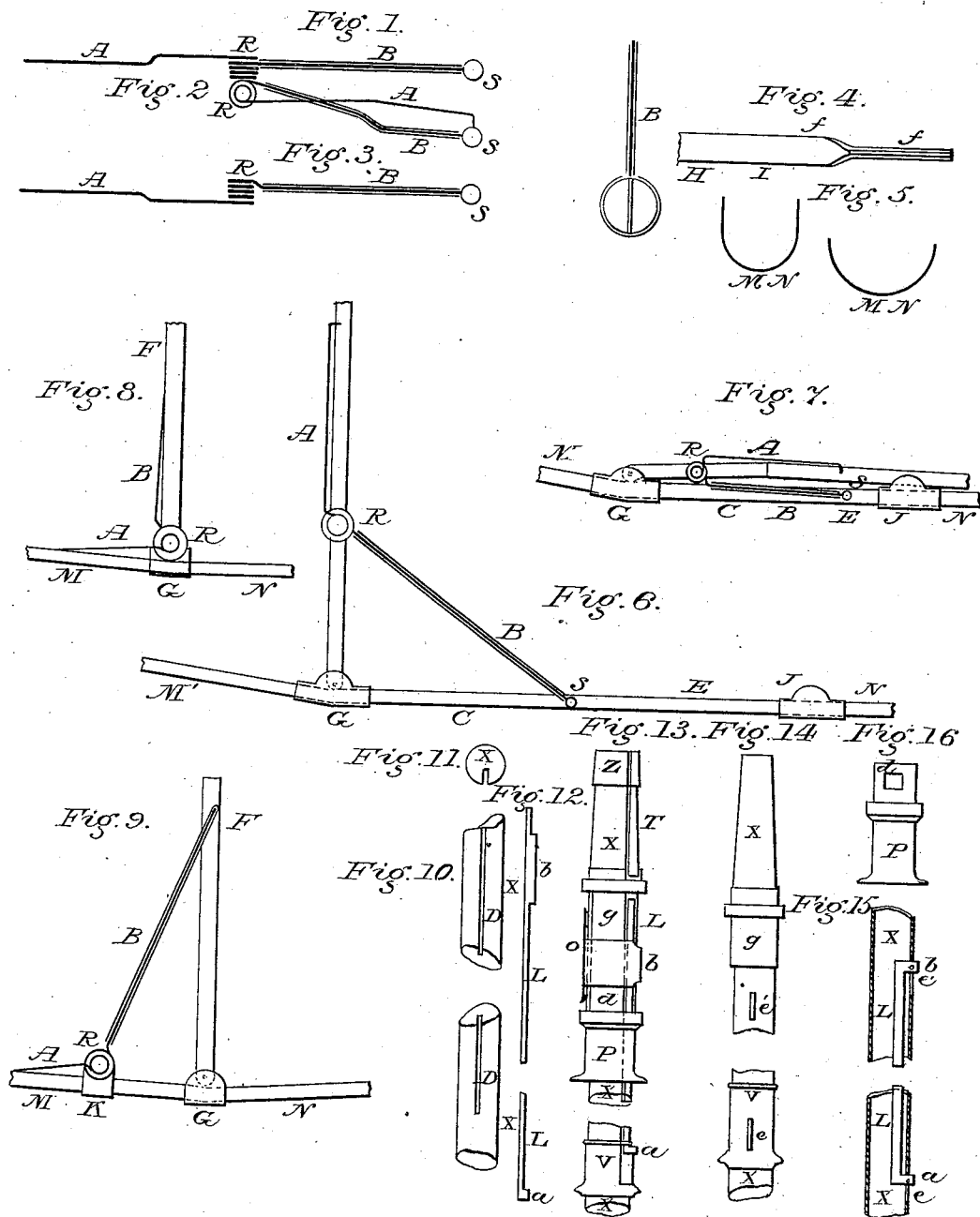


J. MINIÉRE.
Umbrella-Frame,

No. 215,830.

Patented May 27, 1879.



Witnesses:

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UNITED STATES PATENT OFFICE.

JULES MINIÈRE, OF BORDEAUX, FRANCE.

IMPROVEMENT IN UMBRELLA-FRAMES.

Specification forming part of Letters Patent No. **215,830**, dated May 27, 1879; application filed December 28, 1878.

To all whom it may concern:

Be it known that I, JULES MINIÈRE, of Rue Cassan No. 12, at Bordeaux, France, have invented certain Improvements in Umbrellas and Parasols, of which the following is a specification.

My invention has for object an improved means of automatically closing umbrellas, sunshades, &c., by aid of one hand. This result of automatic closing is obtained in the following manner:

First, the ribs and stretchers tend always to come together on the cane or stick of the umbrella under the action of springs placed, first, either on the stretchers; second, at the jointing of the stretcher and the ribs; third, on the ribs; fourth, between the stretchers or between the ribs. These springs keep the umbrella closed without its being necessary to have recourse to the employment of a lipped or cupped runner. The umbrella is kept open by the arrangement of an upper stop, which opposes the movement of closing of the springs.

Second, a drawing mechanism placed in the cane or stick operates to disengage the runner held by the stop when the springs (the action of which is no longer impeded) automatically effect the closing of the umbrella. One hand alone suffices to work this drawing mechanism contained in the stick, and consequently to close the umbrella.

Springs producing the automatic closing.—The springs employed are helical or coiled springs formed by a single coil or turn, or by two coils or turns superposed, and they act by means of the two rods or free extremities of the steel wire, which terminate the coils or turns, whether these rods tend to approach each other or whether they tend to separate from each other, the diameter of the coil diminishing as soon as the spring is stretched.

Figure 1 of the annexed drawings represents a spring, R, of steel wire, with two superposed coils or turns—that is to say, with double coil or turn. To obtain it the steel wire is first coiled helically around a cylindrical axis of a determined diameter, and when the desired number of coils or turns are made a second coil is formed above the first. The two rods or free extremities A and B of the steel wire are thus on the same side of the coils, each of which is composed of four or five turns. The spring R is seen flat and not bent or set.

Fig. 2 represents this spring in side view, and bent, set, or stretched. The rod A terminates at the inner coil, and serves as the fixed point or fulcrum. It is flattened on two different sides, and its end in the form of a hook is designed to enter into the groove of the stretcher. The rod B terminates at the outer coil and constitutes the movable portion of the spring. This rod B is flattened and enveloped by a metallic socket, which gives it the necessary rigidity; then it is bent or curved in order that it may not touch the fork *f*. It has at its end a button or little metal ball, S, that travels in the groove in the rib.

Fig. 3 shows a helical spring, R', with a single coil or turn. (Seen flat and not bent or set.) On each side of the coil is a single rod, A' or B', of steel wire, and it works in the same way as the spring R above described. The ball S, or the stud or button terminating the rod B of the helical spring, may be replaced by a small eyelet formed by the steel wire.

I employ, by preference, the spring R, with double coils or turns, because it has more strength and elasticity under the same pressure.

1. *Position of the spring on the stretcher.*—Fig. 4 shows the fork which terminates the stretcher. This fork carries a pin, which serves as an axis for the spring R, and is jointed to the rib.

Fig. 5 shows the arrangement of a small ball, S, of the rod B in the rib. For this purpose I use the ordinary paragon ribs, trough-shaped, as at M N, but larger and deeper, the two opposite walls of which are simply brought together for a determined length by the aid of a mandrel, according to the travel of the small ball. In this way the small ball S is held in the rib while having perfectly free play. I can also employ a completely tubular rib with a longitudinal slot, or else I can apply the ball to the ordinary rib enlarged deeper, and with a slotted sleeve. I designate by M' the end of the rib which is jointed to the fixed top notch-nut, and by N' the free end, the extremity of which bears against the runner. Near this part N', Fig. 6, is mounted a bit or rest, J, into which the stretcher fits when the umbrella is closed. The rib is bent near the middle bit or center joint of articulation.

Fig. 6 shows the position of the helical spring R on the stretcher F. This spring is carried by the pin I of the fork *f* to within two centimeters of the middle bit, G, of the rib.

The rod or free extremity A rests on the stretcher, in the groove of which enters the hook which terminates it, and the rod B is joined to the rib N by the metallic ball S, which is retained by the channel formed by the bringing together of the walls from the joints C to E of the rib, within which it slides freely. As soon as the umbrella is opened the spring R, carried by the stretcher, quits the free end N' of the rib; but the little ball S keeps it always in communication with this rib, where it slides while approaching the bit or joint of articulation. The stretcher is seen in a position nearly perpendicular to the rib.

Fig. 7 shows the position of the spring R when the umbrella is closed. This spring presses on the free part N' of the rib, against which it holds the stretcher. In this position of the spring on the stretcher the two rods or free extremities A and B of the steel wire, continually tending to come together, determine thus the automatic closing of umbrellas sun-shades, &c.

Modification Fig. 8.—The pin of the bit of articulation G serves as an axis for the helical spring R. The rod A presses against the rib M, and the rod B bears against the stretcher F. The action of the spring is operated thereby. These two rods have a tendency to separate one from the other, and thereby the rod B brings back the stretcher toward the free part N' of the rib, and thus determines the automatic closing of the umbrella.

Modification Fig. 9.—The spring R is held by a pin serving it as an axis in a clip or bit, K, mounted on the rib M. The rod A presses on the rib M, and the rod B, enveloped by a metallic socket, bears against the stretcher F, in the groove of which its extremity slides freely. The action of this spring is the same as that in the second modification, and acts by the separation of the two rods A and B. The spring might also be placed on the free part N of the rib, and the action of the two rods A and B would be still the same.

The ribs and the stretchers are each furnished with a small fork, by which they are jointed, the first to the top notch and the second to the flange of the runner, and the entangling of the ribs, and consequently their rupture, is thus avoided. The two notches (top notch and runner) have their sixteen grooves or notches.

I employ by preference the first modification of the spring on the stretcher, because the automatic closing is produced very rapidly with application of the free extremities of the ribs against the runner.

Mechanism for disengaging the runner.—The stick X of the umbrella has a groove, D, Figs. 10 and 11, which receives a metallic blade, L, which is movable, and which carries two projections, a and b, Fig. 12, and is placed on edge in the said groove D.

The projection a enters a movable ferrule, V, placed on the stick or handle, Fig. 13. The other projection, b, bears against the runner P

when the umbrella is open. This blade L is held in the groove of the stick by the movable ferrule V, and by the socket extended from the top notch, g, under which it slides freely. The second metallic blade, T, serves to conceal the groove which is made at the extremity of the stick.

In hollow canes or sticks in wood or metal the groove is dispensed with, and is replaced by two slots, e e', Fig. 14, through which enter the two projections a and b of the blade L, Fig. 15, placed inside of the stick.

The projection a is held by the movable ferrule, on which it is turned down, and the projection b is held by a rivet. The movable ferrule is long enough to always conceal the slot e', Fig. 14. On the lengthened socket of the top notch a spring, o, formed of a steel blade, Fig. 13, is fitted, the free extremity of which serves to maintain the runner when the umbrella is open. The end of this spring-blade O has a projection obtained by punching out, and this projection enters an oval opening in the lengthened socket d of the runner P in such way as to press on the stick itself. Fig. 16 shows the runner with its lengthened socket d, into which the opening has been contrived.

When the umbrella is open the socket of the runner P encounters the projection b of the blade L, which is drawn up by the socket, and which socket raises the spring O, which then enters the opening and fixes the runner. In solid canes it is the projection b which in abutting against the socket of the top notch stops the runner in its travel. In hollow canes or sticks the upper slot, e, stops projection b, and consequently the runner. To close the umbrella it is sufficient to draw down the movable ferrule V with the thumb, and the projection b of the blade L frees the runner; then the helical springs act rapidly and with strength to produce the automatic closing, which is thus done by aid of the one hand which holds the handle.

This umbrella closing by means of one hand I name "Velox."

Having now described the nature of my said invention, and in what manner the same is to be performed, I declare that I claim—

1. The combination, in an umbrella, of the ribs and stretchers with a two-armed spring, A B, the one arm, A, made fast to the stretcher, the other arm, B, attached to the rib so as to slide freely thereon, and the spring operating to draw the ribs and stretchers together, substantially as described.

2. The combination, in an umbrella, of the ribs and stretchers, the two-armed springs A B, staff X, runner P, blade L, having projections a b, spring o, and movable ferrule V, substantially as described.

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

Witnesses: JULES MINIERE.
ROBT. M. HOOPER,
CHARLES MARDELER.