2 Sheets—Sheet 1.

W. HOYLAND.
Umbrella-Frame.

No. 217,533. **Patented July 15, 1879.**

Fig: 1.

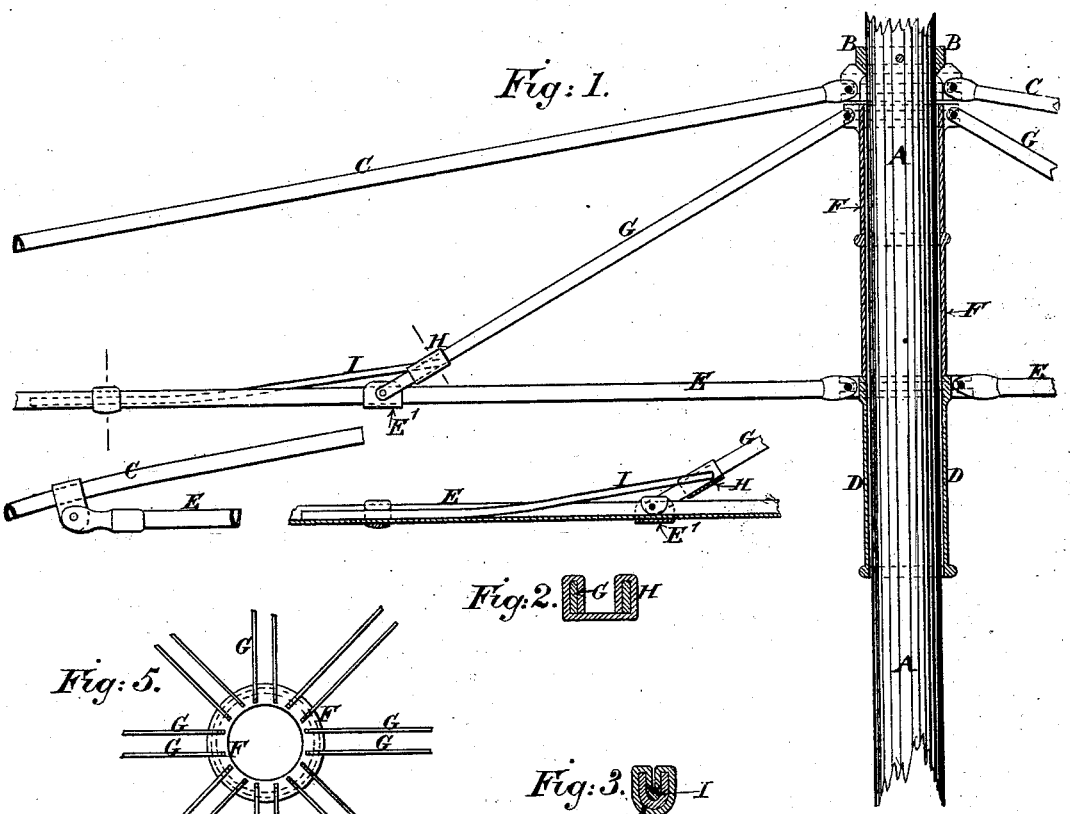


Fig: 2.

Fig: 5.

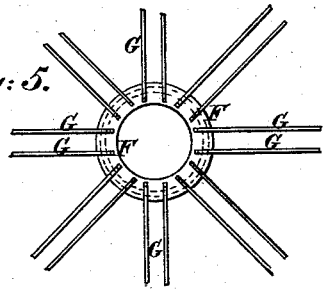
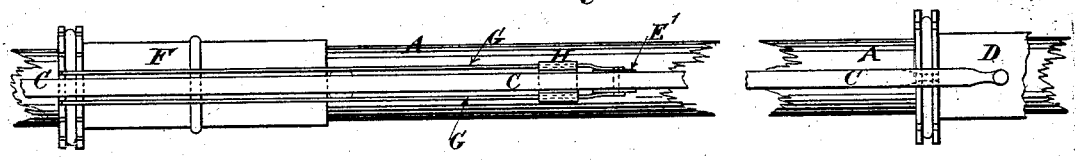


Fig: 3.

Fig: 6.

Fig: 4.



WITNESSES

Wm A Skinkle

Geo W Breck

INVENTOR:

William Hoyland.

By his Attorneys

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W. HOYLAND.
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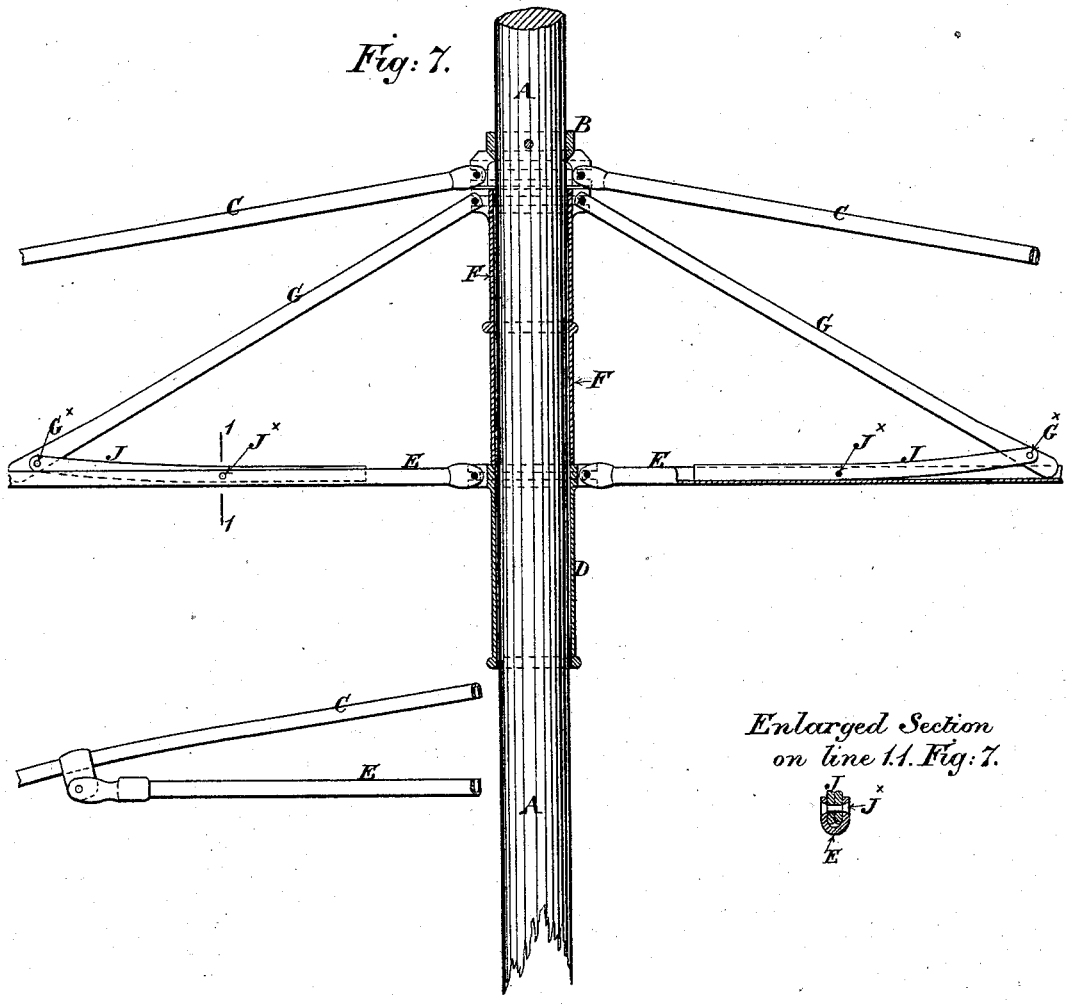
Fig: 7.



Enlarged Section on line 1.1. Fig: 7.

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UNITED STATES PATENT OFFICE.

WILLIAM HOYLAND, OF ECKLAND BRIDGE WORKS, NEAR PENISTONE, COUNTY OF YORK, ENGLAND.

IMPROVEMENT IN UMBRELLA-FRAMES.

Specification forming part of Letters Patent No. **217,533**, dated July 15, 1879; application filed April 8, 1879; patented in England, August 2, 1878.

To all whom it may concern:

Be it known that I, WILLIAM HOYLAND, of Eckland Bridge Works, near Penistone, in the county of York, England, have invented new and useful Improvements in Umbrellas, Parasols, and Sun-Shades, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

This invention has for its object improvements in umbrellas, parasols, and sun-shades of that kind which do not have catches to hold them open and closed.

In order that the catches commonly employed in connection with umbrellas, parasols, and sun-shades to keep them open and closed may be dispensed with, and also in order to strengthen the frame, I employ an additional or intermediate runner, sliding upon the stick between the ordinary runner which receives the ends of the stretchers and the top notch to which the ends of the ribs are jointed. This intermediate runner I connect by links to the stretchers. The stretchers have bits fixed upon them at some distance from their inner ends to receive the joint-pins for connecting the links. I sometimes employ two links in connection with each stretcher, one on either side of it, so that when the umbrella, parasol, or sun-shade is closed the stretcher may lie close to the stick between the two links; also, to keep the stretchers in this position when the umbrella, parasol, or sun-shade is closed, I fix a spring to each stretcher at a point some distance away from the bit to which the links are jointed. This spring bears upon a cross-bar, which connects the two links together at a short distance from the joint, and tends to press the cross-bar toward the stretcher, and so to make the stretcher and the links lie parallel the one to the other, which is approximately their position when the umbrella, parasol, or sun-shade is closed. As the umbrella, parasol, or sun-shade is opened by sliding the main runner up the stick, the links and the stretchers separate until they become perpendicular, and when the umbrella, parasol, or sun-shade is fully open they have passed this position and begun again to close together, so that the springs tend to hold the umbrella, parasol, or sun-shade open as well as closed. The intermediate runner is made of such a length that it serves as a stop or abutment for the main runner when the umbrella, parasol, or sun-shade is open, the intermediate runner itself being then in contact with the top notch.

In order that my said invention may be most fully understood and readily carried into effect, I will proceed to describe the drawings hereunto annexed.

Referring to the drawings, Figure 1 is a section of the frame of an umbrella constructed according to my invention.

A is a portion of the stick. B is the top notch, fixed to the stick near its end and receiving the inner ends of the ribs C C, as is usual. D is the ordinary runner, capable of sliding along the stick, and the inner ends of the stretchers E are jointed to it. The outer ends of the stretchers are also jointed to the ribs in the ordinary way, and as is seen in Fig. 1.

F is the intermediate runner, which I place upon the stick between the ordinary runner D and the top notch, B. G G are the links by which I connect the intermediate runner with the stretchers. I employ, by preference, two of these links for each stretcher, so that the links lie on either side of the stretchers.

E′ E′ are bits fixed upon the stretchers to receive the pins by which the links G are jointed to them. These bits are applied in the same way as the bits on the ribs are usually fixed.

H H are cross-bars connecting the links of each pair. The way in which these cross-bars are applied is represented in the cross-section, Fig. 2, which is drawn to an enlarged scale.

I I are springs fixed to the stretchers, and which press upon the cross-bars H. The way in which the springs I are fixed in their places upon the stretchers is shown by the cross-section, Fig. 3, which also is drawn to an enlarged scale.

Fig. 4 is a side view of a portion of the stick of the umbrella, and with it there is shown the outer end of one of the ribs C; also the ordinary runner D, the intermediate runner, F, and

two of the links G, connecting the intermediate runner with one of the stretchers. The stretcher itself is not seen, as it lies beneath the rib. All the parts in this figure are in the positions which they occupy when the umbrella is closed.

Fig. 5 shows the head of the intermediate runner and the ends of the links G, jointed to it in a similar manner to that in which the ribs are jointed to the top notch and the stretchers to the ordinary runner.

Fig. 6 is a plan of a portion of one of the stretchers, with the pair of links G jointed to it, their cross-bar H, and the spring I, fixed to the stretcher and pressing upon the cross-bar. The pressure of the springs upon the cross-bars, as already stated, tends to prevent the umbrella closing when open, and when it is closed to keep the stretchers and links parallel and closed together. This compels them, and also the ribs, to lie close in against the stick, so that no fastening is required to keep the umbrella closed.

It is preferred to make the intermediate runner, F, of such a length that when the umbrella is opened it fills the interval between the top notch and the ordinary runner D, as is seen in Fig. 1.

The cover of silk or other fabric is not shown in the drawings. It is applied in the usual way.

Sun-shades and parasols may be similarly constructed.

Fig. 7 shows another arrangement for carrying out my invention.

E is one of the stretchers, and G is a single link connecting this stretcher with the intermediate runner, F. J J are two parallel blades, which take the place of the spring I in the arrangement first described. The blades J lie in the trough-like hollow of the stretcher E, and are secured by a rivet, $J^{\times}$. The link G is connected with the blades J by a pin-point at $G^{\times}$, and the end of the link projects so far beyond the joint-pin $G^{\times}$ that it bears against the stretcher, and the movement of the parts in opening and closing the umbrella, parasol, or sun-shade causes deflections of the parts, from which a spring-like action results, as in the arrangement already described.

Having thus described the nature of my said invention and the manner of performing the same, I would have it understood that I claim—

1. The combination of the intermediate runner, F, the links G, and the stretchers, arranged to operate substantially as described.

2. The combination of the intermediate runner, F, the links G, the stretchers, and the spring-connection between the links and the stretchers, whereby the umbrella tends to keep open when open, and to keep shut when shut, substantially as set forth.

WILLIAM HOYLAND.

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