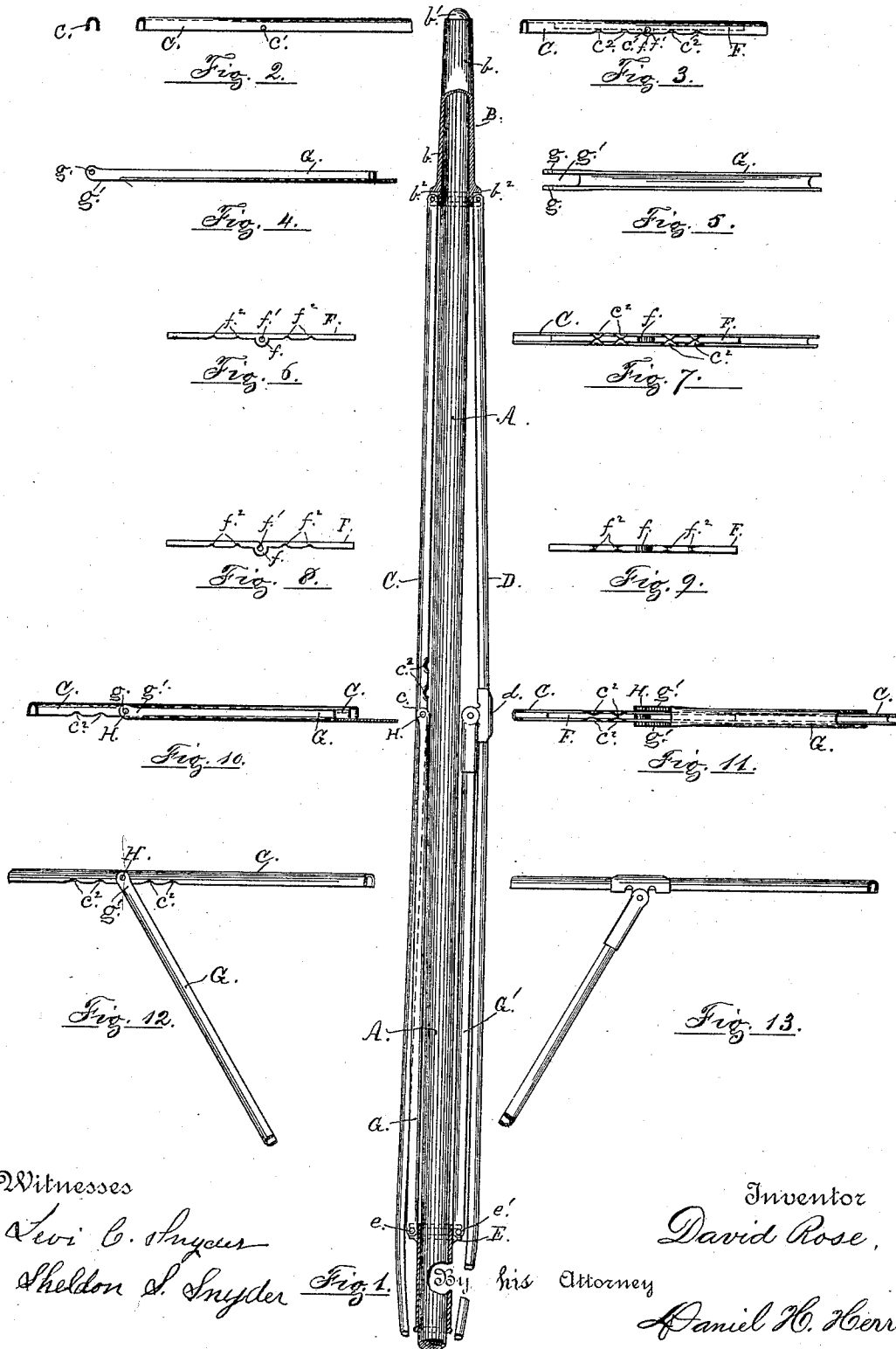


(No Model.)

D. ROSE.
UMBRELLA.

No. 415,563.

Patented Nov. 19, 1889.



Witnesses

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Fig. 1.

By his Attorney

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UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 415,563, dated November 19, 1889.

Application filed February 21, 1889. Serial No. 300,720. (No model.)

To all whom it may concern:

Be it known that I, DAVID ROSE, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and useful middle connection used in the construction of umbrella-ribs that leaves the outer edge of the rib perfectly smooth and even throughout its entire length and allows the rib to lie in the groove of the stretcher and against the umbrella-stick when closed, while at the same time I strengthen the rib at the connecting-joint where heretofore it was liable to bend and often break, of which the following is a specification.

My invention consists in placing in the groove of the ordinary paragon rib known to the trade, at the locus of the joint, a strengthening rod or strip of metal having projecting from one side a central lug provided with an eye for jointing with the stretcher, and on each side of the lug provided with two or more V-shaped notches, into which portions of the edges of the rib sides are compressed to secure the strengthening-rod to the rib and hold it in place.

The construction of my invention is fully shown by the mechanism and devices illustrated in the accompanying drawings, similar letters referring to similar parts throughout the several views, in which—

Figure 1 is a side view of a closed umbrella-frame, the upper and lower notches in section, the handle and lower ends of the ribs cut away, showing on one side a rib having my joint or middle connection, and on the other side a rib having the middle connection of the paragon frame now known to the trade. Fig. 2 is a side view of a portion of the well-known paragon rib and a cross-section of the same. Fig. 3 is a side view of the same, showing my strengthening-rod, in dotted lines, in place. Fig. 4 is a side view of a portion of the ordinary lock-stretcher, showing the jaw end as I make it. Fig. 5 is a top view of Fig. 4. Fig. 6 is a side view of my strengthening rod or strip. Fig. 7 is a plan view of Fig. 3 inverted. Fig. 8 is a side view of a different construction of my strengthening rod or strip. Fig. 9 is a plan view of Figs. 6 and 8, both inverted. Fig. 10 is a side view

of portions of a rib and stretcher jointed, showing my middle connection closed. Fig. 11 is a plan view of Fig. 10 inverted. Fig. 12 is a side view of portions of a rib and stretcher jointed, showing my middle connection opened. Fig. 13 is a side view of portions of a rib and stretcher, showing the ordinary paragon middle connection opened.

In Fig. 1 A is an ordinary umbrella-stick. B is my umbrella-tip, consisting of a ferrule *b*, having in its upper end and attached to it a metallic point *b'*, and integral with it at its lower end a notch *b²*. (This tip will be made the subject for a patent in a future application.) In the usual way, ordinary paragon ribs C and D are wired to the notch *b²*, forming what is known to the trade as the "upper" connection, the rib C being provided with my improved rib-joint or middle connection at *c*, and the rib D at *d* with what is known to the trade as the paragon "middle" connection. (This illustration is given for comparison only.) To the notch E of the runner is wired in the usual manner, at *e*, a lock-stretcher G, having a jaw as I make it, and at *e'* an ordinary paragon stretcher G', thus forming what is known to the trade as the "lower" connection. A portion of the rib C, having through its sides holes *c'*, where the joint is located, its U-shaped groove in cross-section, is shown in Fig. 2.

A strengthening rod or strip F, having a central side lug *f*, provided with an eye *f'*, and on each side of said lug, extending across the lower face and into the sides, two or more V-shaped notches *f²*, adapted to receive compressions *c²* of portions of the edges of the sides of the rib C, may be punched out of a metallic plate, or heated metal may be pressed into the required shape, Fig. 6. The same may be formed from wire, as is shown in Fig. 8. A face view of both constructions is shown in Fig. 9.

Taking either construction of the rod or strip F, placing it into the groove of the rib C, so that the eye *f'* in the lug *f* will correspond with the holes *c'* in the sides of the rib C, and compressing portions *c²* of the edges of the sides of the rib C into the V-shaped notches above described, as shown at *c²* in side view in Fig. 3 and in face view in Fig. 7,

the rib C will be properly prepared for forming my joint or middle connection. It will be readily seen that thus attaching the part F to the rib C will materially strengthen the rib C, and my strip F is properly called a "strengthening rod or strip."

Taking a lock-stretcher G wide enough to receive into its groove the body of the rib C and cutting away the back a sufficient distance from the upper end and thickening the sides at this point to strengthen them, providing them with holes *g*, I make the jaw *g'*, and adapt said stretcher G to the forming of my rib-joint or middle connection, (see Figs. 4 and 5,) which show top and side views.

Laying the rib C, prepared as shown in Figs. 3 and 7, in the groove of the stretcher G, as described, so that the holes *c'* in the rib C and the holes *g* in the jaw *g'* of the stretcher G will correspond, and joining them with a rivet H, I complete my rib-joint or middle connection. (See Figs. 10, 11, and 12.)

It will be readily seen that in my rib-joint or middle connection the rib C will lie in the groove of the stretcher G when closed, Fig. 10, and brought close against the umbrella-stick, as at *c*, Fig. 1, and whether closed or open the outer edge of the rib C will always remain smooth and even, saving the rib-covering or umbrella-cloth, from the excessive wear and abrasion to which it is exposed by the unevenness or projection of the lug-strip, which embraces the rib D at this point in the formation of the ordinary paragon rib-joint or middle connection known to the trade. (Shown closed at *d*, Fig. 1, and opened in Fig. 13.) It will also be readily seen that an umbrella-frame made with ribs having my improved joint or middle connection will allow an umbrella to be formed into a much thinner roll than the old-style paragon frame will permit. A comparison of the two is shown at *c* and *d* in Fig. 1. My middle connection will also prevent the ribs from tangling or catching into each other, now so disagreeable when a closed umbrella having an ordinary paragon frame is desired to be opened.

I am aware of the inventions of A. and W. Hill, No. 153,324, dated August 4, 1874, and

W. Carter, No. 244,545, dated July 19, 1881, in both of which the stretcher-jaw for jointing is made three-pronged and projecting considerably beyond the line of the rounded back of said stretcher. The rib is also embraced by a blank or narrow strip of metal formed into a corrugated joint-lug projecting considerably beyond the line of the open side of said rib. The two when jointed form a middle connection similar to the one shown at *d*, Fig. 1 and also in Fig. 13 of the drawings. I lay no claim to anything they show in their respective inventions; nor do I claim the U-shaped form of the rib and stretcher; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a middle connection, the strengthening-rod F, having the central side lug *f*, provided with the eye *f'*, and on each side of said lug, extending across the lower face and into the sides two or more V-shaped notches *f*², adapted to receive compressions *c*² of the edges of the sides of the ribs C, substantially as set forth, and for the purpose described.

2. The combination, in a middle connection, of the strengthening-rod F, having the central side lug *f*, the eye *f'*, and the V-shaped notches *f*², with the rib C, provided with the holes *c'*, and having the compressions *c*² of the edges of the rib C pressed into the V-shaped notches *f*² of the strengthening-rod F, strengthening the rib C and adapting it to the formation of the middle connection, substantially as set forth, and for the purpose specified.

3. The combination, in a middle connection, of the rib C, containing entirely within its body the strengthening-rod F, having the side lug *f*, the eye *f'*, registering with the holes *c'*, and secured in place by the compressions *c*² of the edges of the rib sides into the V-shaped notches *f*² of the strengthening-rod F, with the stretcher G, pivoted thereto by the rivet H, all substantially as and for the purpose set forth.

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Witnesses:

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