G. G. GRISWOLD.

Umbrella.

No. 165,093. Patented June 29, 1875.

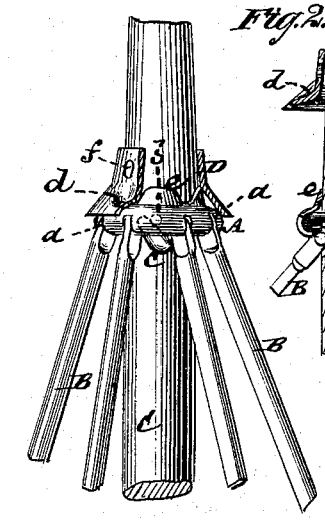

Fig. 1.

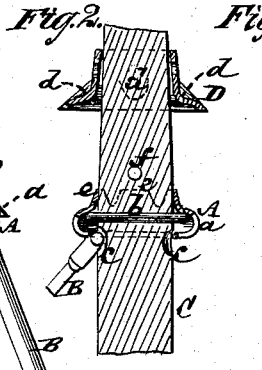

Fig. 2.

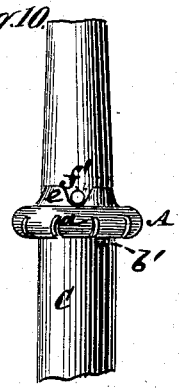

Fig. 10.

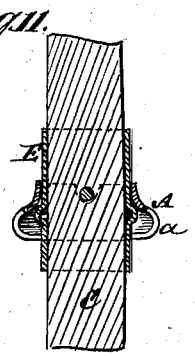

Fig. 11.

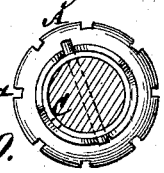

Fig. 12.

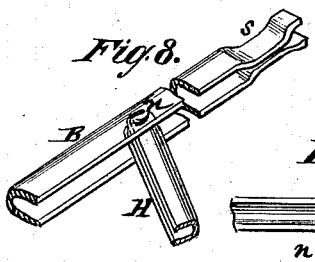

Fig. 8.

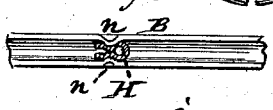

Fig. 9.

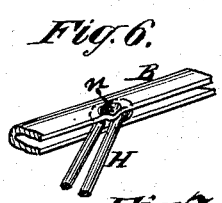

Fig. 6.

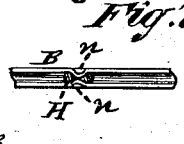

Fig. 7.

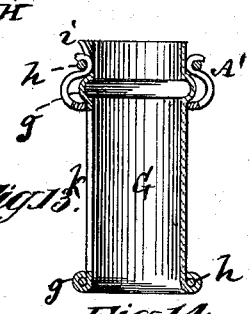

Fig. 13.

Fig. 14.

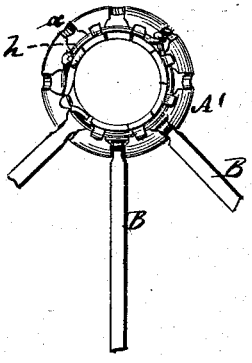

Fig. 5.

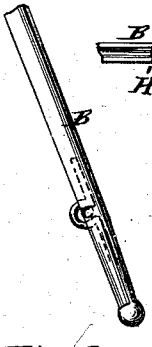

Fig. 3.

Fig. 4.

Witnesses
John Becker
Fred. Haynes

G. G. Griswold
by his Attorneys
Brown & Allen

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

GONVION G. GRISWOLD, OF NEW YORK, N. Y.

IMPROVEMENT IN UMBRELLAS.

Specification forming part of Letters Patent No. **165,093**, dated June 29, 1875; application filed February 19, 1875.

To all whom it may concern:

Be it known that I, GONVION G. GRISWOLD, of the city, county, and State of New York, have invented certain new and useful Improvements in Umbrellas; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

This invention consists in a peculiar construction of the top notch or ring with which the ribs connect, and of the cap for keeping said ring from turning; also, in a light and cheap, yet strong and durable, runner-barrel and lower notch or ring, with its attached stretcher held to its place by corrugations on the barrel; likewise in an improved connection of the ribs with the stretcher, and of the spring or springs over which the barrel of the runner works with the stick.

Figure 1 represents a partly-sectional longitudinal view of an umbrella stick and frame, in part, having my improvements, or certain of them, applied, including a top notch of peculiar construction, with the ribs attached, and as held from turning by the cap, which comes down on the cover; also, a runner of novel construction, the spring over which the runner works, and a peculiar attachment of a paragon rib with a doubled-wire stretcher. Figs. 2, 3, 4, 5, 6, and 7 are views of said details, Fig. 2 being a longitudinal sectional view of the upper portion of the stick with the top notch in position, but the cap as raised; Figs. 3 and 4, a face view and transverse section, respectively, of the blank from which the top notch is struck up; Fig. 5, a longitudinal exterior view of the runner, and Figs. 6 and 7 perspective views of one of the ribs and stretchers. Figs. 8 and 9 are views in perspective of a paragon rib and stretcher in part. Fig. 10 is a longitudinal view of the upper portion of the stick with the top notch as secured when using an uneven number of ribs and stretchers; Figs. 11 and 12, a longitudinal section and transverse section, respectively, of the upper portion of the stick, with the top notch as fitted with a sleeve for rigging up the umbrella-frame independently of the stick. Fig. 13 is a longitudinal section, and Fig. 14 a top view, of the runner under a modified form of construction.

Referring, in the first instance, more particularly to the several figures from 1 to 7, inclusive, A is the top notch or ring, which is struck into form from a sheet-metal disk (see Fig. 3) having leaves, the spaces between which correspond with the number of slots *a* formed for reception of the ribs B after said leaves have been bent down or over, the edges of said spaces on the inner face of the disk being beveled off, as shown in Fig. 3, so that on turning the leaves down or over the edges of the slots *a* will present parallel and broad bearing sides or guides for the ribs; or, two or more disks, with the openings between their leaves differently spaced and placed one on top of the other, may be substituted therefor. In striking up the disk to form the top notch it, of course, is opened at its center to provide for its fit as a hollow ring over the tube or stick C. Passed through the center of the tube or stick is a pin, *b*, arranged to project on opposite sides of the stick. The top notch A is slid on the stick till the projecting ends of the pin *b* pass through oppositely-arranged slots *a*, and into the annular groove or hollow of said notch. The top notch A is then turned on the pin *b*, and the ribs inserted or removed through depressions *c* in the stick, as in my patent of October 8, 1873, and of which there may be two, disposed on opposite sides of the stick to provide for inserting two ribs at a time, the top notch A having an even number of slots *a* in it to suit. The ends of the ribs are of T or ball shape, as in my patent of May 19, 1868, to enter and lock with the top notch, as well understood; and the depressions *c* in the stick are set spiral or oblique, so that when turning the top notch on the stick, as necessary when inserting the ribs, the latter will be restrained from dropping out. The top notch A is kept firmly down upon the interior pin *b* by the usual cap D, which bears on the cover at its center, but which, in this case, is indented, as at *d*, as to form inner projections, which enter between leaves or corrugations *e* formed on the upper edge of the top notch, a pin, as at *f*, afterward being passed through the cap and stick, to keep the cap stationary and in place.

When an odd number of ribs and stretchers are used, then the interior pin *b* would be in the way of fitting the ribs to their places in the top notch by rotating it around the stick. In this case the top notch may be supported (see Fig. 10) by a pin, *b'*, beneath the latter, and top notch ultimately kept from turning by a pin, *f'*, passing through the stick above the top notch and between the corrugations *e* thereof. In some cases, however, the pin, to keep the top notch from turning, may be passed through opposite leaves of the notch and through the stick.

A top notch constructed as described is at once simple, cheaply made, and efficient.

The depressions *c*, of which there may be one or more, might be made some distance below the top notch when in place, and said top notch be slid down for insertion of the ribs, and afterward be slid up to its place and secured.

When putting up the umbrella-frame as a skeleton—that is, without the stick—the ribs may be held temporarily in place by an annularly corrugated and longitudinally split sleeve, E, (see Fig. 11,) made to extend both above and below the top notch, and which may be riveted through above when all the ribs are in place, or a plug or ring, in accordance with my patent of 1868, may be used.

G is the barrel of the runner with its attached bottom notch A', with which the stretchers H lock, and which may be similar, as regards its general construction, to the top notch. This barrel, G, as shown in Figs. 1 and 5, is formed from a rectangular piece of metal bent into tubular form, and corrugated at one and the same operation. These corrugations *g*, which are annular when the barrel is formed, may be extended or repeated throughout the length of the barrel, thereby obtaining great strength with but very thin metal, or said corrugations may be restricted to the ends of the barrel. The longitudinal edges of said split barrel or tube are left apart, so that the space between them forms the slot of the runner for the engagement and operation of the latter with the springs, by which the umbrella is kept closed and extended. Such slot or opening *k* also serves for the insertion and withdrawal of the stretchers which are connected with the bottom notch A' on the runner in similar manner to the connection of the ribs with the top notch. A wire ring, *h*, is inserted at each end of the runner within the annular corrugations *g* thereof to form the closed ends of the slot, or such wire at the bottom of the runner may be inserted on the outside and the metal closed over it, as shown in Fig. 13. This strengthens the barrel and gives it a neat finish. Fig. 1 shows a duplicate corrugation on the upper end of the barrel within the bottom notch A'. This permits the ends of the stretchers H to play in the hollow between said corrugations, the lower one of which latter contains the ring and affords a firm rest for the stretchers, while the upper one acts as a top stop to the stretchers.

After the stretchers are inserted a very convenient way of locking the barrel G and bottom notch or ring A' together is to bend outwardly, as at *i*, in one or more places, the upper end of the barrel, preferably, on either side of the longitudinal slot *k*.

Figs. 13, 14 show a barrel having a single corrugation, *g*, which serves to hold the bottom notch or ring A' to its place, and with the wire *h*, which binds the split barrel at its top, arranged around the outside of the bottom notch or ring A', and with the ends of the leaves of the latter turned up over the wire. This arrangement of the top wire also serves to bind and stiffen said bottom notch or ring, and may be applied with advantage to the top notch A as well.

The spring I, used to hold the umbrella when extended, as also, if desired, the spring to hold it when closed, may be made either of round or flat wire, or both combined. No slot to weaken the stick—and to make which involves considerable labor, is necessary for insertion of this spring; but it is mounted for the most part on the surface of the stick. The one end of said spring is driven into the stick, while its other end is fitted to play freely in a hole, *l*, having a larger diameter on one side of the stick than the other, and the free end of the spring having a hook, *m*, which catches on the shoulder formed by the enlargement in the hole *l*, to prevent the spring from drawing out.

The ribs B and stretchers H may be made solid and of single wires, but it is preferred to construct the ribs B of trough-like shape, or what is known as "paragon" style, as shown in Figs. 1, 6, 7, 8, and 9 of the drawing also to construct the stretchers H either of similar shape, as in Figs. 8 and 9, or of a doubled or looped wire, as in Figs. 1, 6, and 7, and, in either of these cases, to connect the ribs with the stretchers by suitably shaping the stretchers to enter within the trough-like ribs, and simply to indent the latter from the outside, as at *n*, to unite the stretchers with the ribs, and to permit of their free or independent play relatively with each other. This mode of uniting the ribs and stretchers dispenses with all joint pins or rivets and other attachments, and combines great strength with durability. To thus unite the ribs and stretchers, the same should be properly tempered and hardened, so that they will spring to their connection and form a secure hold.

When paragon ribs and stretchers are used, then I fashion the same while soft at their ends, which enter and lock with the top and bottom notches A A', so that they form a hollow T, as shown at *s* in Fig. 8 for the end of the rib. This construction, which may be applied to either the ribs or the stretchers, or both, forms a very simple and effective mode

of attaching paragon ribs and stretchers with their notches or rings.

I claim—

1. The slotted hollow top notch or ring A, having its slots *a* constructed as described, and formed with locking corrugations *e* on its upper edge, substantially as specified.

2. The cap D, having locking indentations *d*, in combination with the slotted hollow top notch or ring A, having corrugations *e* on its upper edge, essentially as described.

3. The split-barrel G of the runner, constructed with annular corrugations *g* at its opposite ends or throughout its length, in combination with the wire-rings *h*, applied internally or externally thereto, substantially as described.

4. The combination of the upper annular corrugations *g* of the runner with the slotted hollow notch or ring A′ and the stretchers H, essentially as specified.

5. The trough-shaped ribs B, indented from the outside, as at *n*, in combination with the stretchers H, constructed to receive the internal projections formed by said indentations within them, to unite the ribs and stretchers, substantially as shown and described.

6. The spring I, having hook *m* on its free end applied to the surface of the stick, in combination with the hole *l*, of enlarged size, on the one side of the stick, essentially as specified.

G. G. GRISWOLD.

Witnesses:

MICHAEL RYAN,

BENJAMIN W. HOFFMAN.