

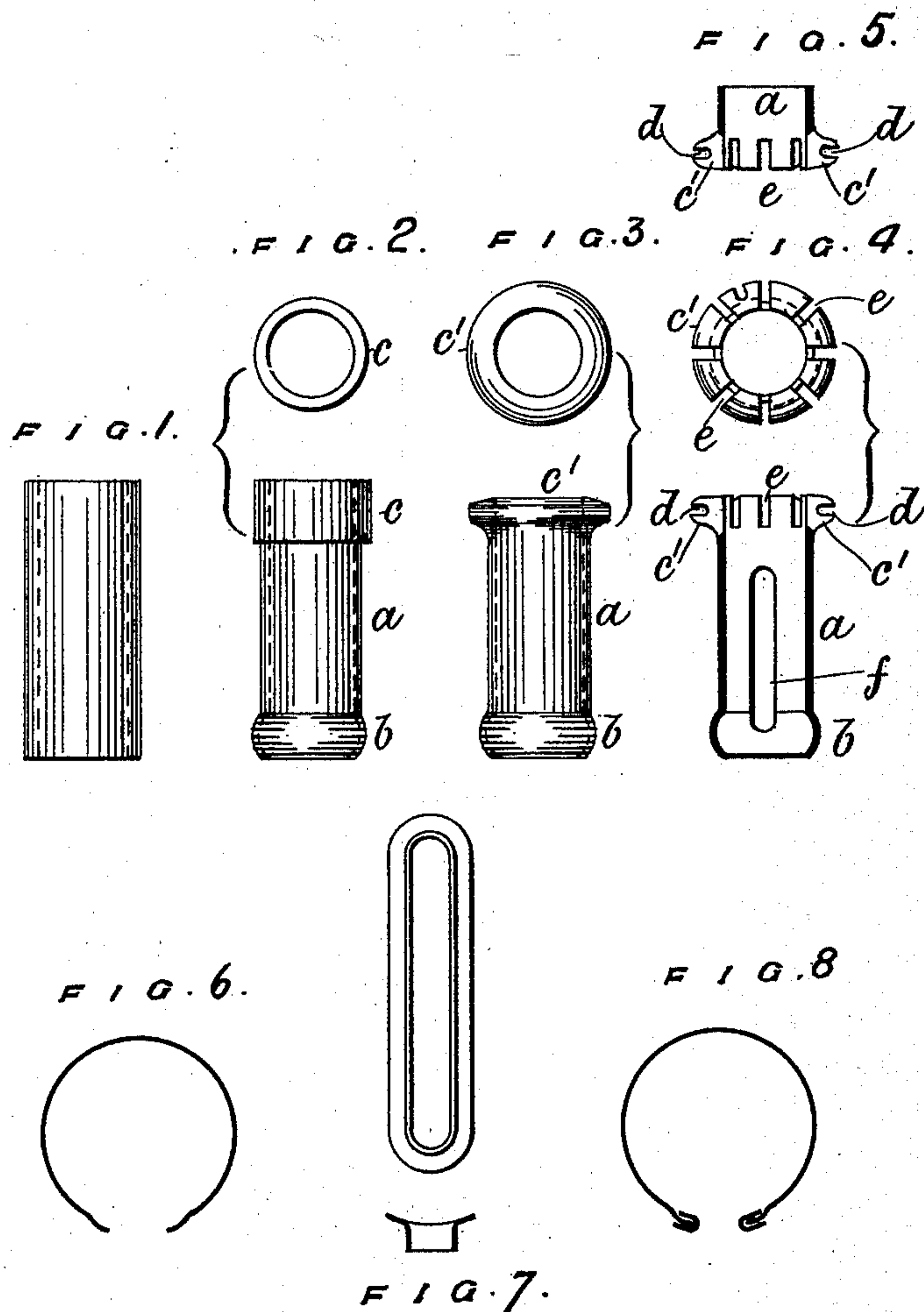
(No Model.)

F. A. ELLIS.

METHOD OF MAKING UMBRELLA RUNNERS.

No. 413,275.

Patented Oct. 22, 1889.



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# UNITED STATES PATENT OFFICE.

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## METHOD OF MAKING UMBRELLA-RUNNERS.

SPECIFICATION forming part of Letters Patent No. 413,275, dated October 22, 1889.

Application filed May 21, 1888. Serial No. 274,471. (No model.) Patented in England May 25, 1887, No. 7,616; in France May 2, 1888, No. 190,364; in Belgium May 3, 1888, No. 81,685; in Germany May 4, 1888, No. 45,574, and in Austria-Hungary February 4, 1889, No. 46,085 and No. 1,898.

*To all whom it may concern:*

Be it known that I, FREDERICK ARTHUR ELLIS, umbrella-furniture manufacturer, at present residing at Tabard Works, Glengall Road, Old Kent Road, in the county of Surrey, England, have invented new and useful Improvements in the Process of Manufacturing Umbrella-Furniture, (for which I have received patents in England, No. 7,616, dated May 25, 1887; in France, No. 190,364, dated May 2, 1888; in Belgium, No. 81,685, dated May 3, 1888; in Germany, No. 45,574, dated May 4, 1888, and in Austria-Hungary, No. 46,085 and No. 1,898, dated February 4, 1889,) of which the following is a full, clear, and exact description.

My invention relates to the manufacture of those parts of the furniture of an umbrella which are technically known as the "runner" and the "top notch."

My invention has for its object to greatly reduce the cost of manufacture and increase the strength and durability of the runner and top notch, as compared with the ordinary mode of manufacture; and as applied to the runner it consists in making the runner-barrel, the runner-notch, and the bead at the lower end of the runner-barrel all in one piece (or, as applied to the top notch, in making the barrel and notch in one piece) by partially turning down and partially upsetting a piece of metal tube, as hereinafter described, whereby the operations of and incidental to joining the said parts together, as usually practiced heretofore, are avoided and consequently the labor and cost of manufacture are greatly reduced, at the same time that the strength of the article is much increased and other incidental advantages are obtained.

Reference is to be had to the accompanying drawings, forming part of this specification, which represent, first in—

Figures 1 to 4, the runner of my invention in the various stages of manufacture; and in Fig. 5 a top notch made in a similar manner.

Referring to Figs. 1 to 4, which illustrate full size in end and side views the mode of manufacturing, I cut off from what is known as "solid-drawn" or "mandrel-drawn" brass or

other metal tubing of the intended internal diameter of the runner, and about one-sixteenth of an inch thick, (more or less,) a length (shown in Fig. 1) rather greater than the intended length of the runner, so that when partially "upset" to form the "notch," as hereinafter described, it will form a runner of the desired dimensions. I then turn in a suitable lathe the parallel or barrel portion *a* of the runner, as shown in Fig. 2, so as to reduce this portion to the desired thickness and external diameter, and likewise the rounded bead *b* at the end of the barrel portion, which is left of rather greater diameter than the said barrel portion. A portion *c* at the opposite end of the tube, about three-eighths of an inch in length, is left of the original diameter, and the partially-formed runner is then placed on a mandrel and brought between the two halves of a split die, (corresponding internally to the form of runner shown in Fig. 3,) and the die being closed upon it a punch is brought down upon the end of the portion *c* with sufficient force to upset the metal and force it outward into the cavity of the die, thus reducing the length of the portion *c* and increasing its external diameter, and so throwing out a flange (represented at *c'* in Fig. 3) as near as possible of the intended form of the notch. The notch is then completed by turning the flange *c'* to its final form, and by turning a circumferential groove *d* to receive the binding-wire of the stretchers, and by cutting radial slots *e* to receive the ends of the stretchers, these last-mentioned operations being performed in the usual way of making such notches.

The foregoing description applies, also, *mutatis mutandis*, to the manufacture of the top notch, (which is represented in Fig. 5,) except that the tool for turning the barrel portion of the top notch would not require to have a traversing motion, but would be brought up to the work by any convenient mechanical movement or by hand, so as to reduce the barrel part externally, and leave a portion unturned to form the notch proper by upsetting the metal, as described in respect of the runner-notch. Further, as the top notch is



not required to have any bead, the tool for that purpose would not be required. The bead *b* of the runner is then turned internally by means of any suitable tool, so as to hollow it slightly, as shown in Fig. 4. The usual slot *f* for the spring-catch is then punched out, care being taken that its lower end partly intersects the hollow bead *b*, so that any burr or roughness at that point will be distant from, and therefore not liable to scratch the stick.

To finish the hand-spring slot of a runner made as above described, or in the ordinary way, the metal around the slot *f* is bulged slightly outward, as shown in cross-section in Fig. 6, by a suitable press-tool to receive the inner flange of an eyelet, Fig. 7, corresponding in form to the slot *f*, which is then inserted in said slot from within and clinched on the outside, as shown in elevation and section, Fig. 8, so as to form a bead around the slot and give it a better finish and greater strength.

It will be obvious that the operations of turning and upsetting above described may be performed by any proper tools, and that my invention is not limited to the use of any particular apparatus, but consists, essentially, in manufacturing such runners and top notches from lengths of open tubing by a combined turning and upsetting process whereby the flange to form the notch proper is in one with the barrel, as is, in the case of the runner, the bottom bead also.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I would observe that I am aware that it has heretofore been attempted to make a runner solid with its notch by cupping a flat disk of metal and drawing the cupped portion in dies to cylindrical form, leaving the top edge of the cup or cylinder of its original thickness to form the notch, the closed lower end of the cylinder being then cut off and a bead formed by spinning over the lower end of the barrel thus formed, and I do not, therefore, claim all ways of making a solid runner or top notch; but

I declare that what I do claim is—

The herein-described mode of manufacturing umbrella runners and top notches, each in a single piece of metal, which consists in first turning down a portion of the length of metal tubing and in then upsetting the remainder of said tubing in dies, as and for the purpose specified.

The foregoing specification of my improvements in the manufacture of umbrella-furniture and in apparatus used therefor signed by me this 30th day of April, 1888.

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