

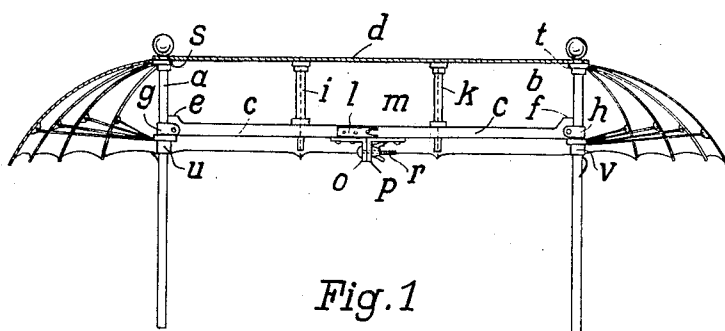
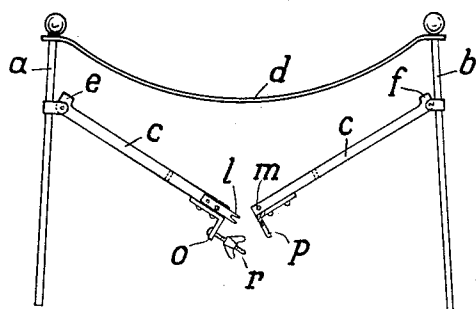
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UMBRELLA

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UNITED STATES PATENT OFFICE

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UMBRELLA

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3 Claims. (Cl. 135—2)

This invention relates to a tension frame for long umbrellas.

Long umbrellas having several sticks which are reinforced parallel to one another by a foldable bracing or whose top portions are jointly connected with a tension device for the umbrella top are known already, the latter being tensioned either by spreading the sticks apart parallel to one another by means of a scissors-like stretching device or by keeping them apart by means of a bar connecting the tops of the sticks.

However, these known devices are suited only for relatively short umbrellas having two sticks, and lack also clips on the long stretch, so that their resistance, especially to wind pressure, is comparatively low.

The invention eliminates these drawbacks by providing a tension frame for long umbrellas having several sticks with a divisible cross strut connecting the sticks, further with a closing device for the strut, with stops pressing against the sticks and being secured to the strut and with a tensioning member connecting the tops of the sticks.

Owing to the toggle effect of the closed connecting strut in conjunction with the tensioning member joining the tops of the sticks, the actuation of the frame will produce a self-contained rigidly angular stretching and carrying structure.

Unlike the known types of long umbrella structures, the construction according to the invention can be employed, regardless of the length of the sticks, for producing perfectly rigid umbrellas of any desired length and for any purpose, particularly for use in connection with boats, land vehicles, long tables, balconies and tents where the umbrella top is usually several times as long as the sticks.

An important feature of the invention is that rows of clip devices suitably united with a cross strut and tension girth can be arranged on the long stretch, which alone makes it possible to tighten the long piece of fabric or the like so as to offer sufficient resistance to all atmospheric influences and especially to wind pressure.

Furthermore, umbrellas fitted with the device according to the invention may regardless of length, simply be rolled up after the tensioning members have been folded so as to form a handy package which can be easily carried.

The device can be operated by one person, since after insertion of the sticks in their holders all other manipulations can be carried out one after the other.

By way of example, one embodiment of the invention is illustrated in the accompanying drawing, in which Figure 1 is a longitudinal section of the frame with the umbrella in tensioned condition and Fig. 2, a view of the frame during the folding operation.

Referring to the drawing, the two sticks *a*, *b* carry in known manner the semicircular umbrella frames and are connected on the tops *s*, *t* with the tension girth *d*. Shortly above the slides *u*, *v* of the frames the clips *g*, *h* are secured to the sticks *a*, *b* for the reception of the cross strut *c* which is divided in its center. The two halves of the cross strut *c* are provided at their fulcrums with the stops *e*, *f* which in closing position press firmly against the sticks *a*, *b*. Central closing of the two halves of the cross strut *c* is effected by the fork *l* which moves over the pin *m* attached to the other half and by uniting and bolting the angles *o*, *p* by means of the thumb screw *r*, or a suitable draw or joint lever of the kind used for patent bottle stoppers and made of wire may be employed. To the tension girth *d* cross clips having short sticks *i*, *k* are secured, which correspond in the main to the top portions of the semicircular frames with the sticks *a*, *b*, are like the latter provided with slides and tops but carry only one pair of clips which is disposed transversely to the longitudinal direction of the umbrella top. The correspondingly shortened sticks *i*, *k* engage with their lower pins the cross strut *c* where they are cottered.

Instead of the girth *d* the cloth itself may take up the tension at this point.

Fig. 2 shows the function of the cross strut *c*, all confusing other elements, such as clips and other parts, being omitted from the drawing. By joining the two halves of the strut *c* and straightening them out the two stops *e*, *f* will be caused to press with toggle effect against the upper portions of the sticks *a*, *b* which are thus brought exactly into the requisite right angle relative to the cross strut *c* and which simultaneously tighten there the girth *d* or the cloth itself which for this purpose are kept somewhat shorter than the cross strut *c* to insure better tension.

The device is so simple that it will hardly be necessary to describe its functioning in detail, and it will therefore suffice to say that in order to make use thereof the two semicircular umbrella frames are tightened first by means of the slides *u*, *v* whereupon the cross strut *c* is brought into position and the clip slides are pushed at *i*, *k* onto their sticks which are then

inserted in the cross strut c. This procedure is reversed when the umbrella is to be folded.

While the invention has been shown and described with the particularity required to enable those skilled in the art to practice and obtain the benefits of the same, it will be evident that modifications and changes may be made without departing from the spirit and scope of the invention.

10 I claim:—

1. A foldable tension frame for long umbrellas having a plurality of sticks, comprising a sectional cross strut connecting the sticks, each strut section being fulcrumed to its associated stick, a stop disposed on each strut section near the fulcrum thereof and pressing against the associated stick in toggle fashion, a tension member connecting the tops of said sticks, and a closing device for the sections of said strut for producing a self-contained rigidly angular and stable tension and carrying structure.

2. A foldable tension frame for a long umbrella having a covering and a plurality of sticks,

comprising a sectional cross strut connecting the sticks, each strut section being fulcrumed to its associated stick, a stop disposed on each strut section near the fulcrum thereof and pressing against the associated stick in toggle fashion, a reinforced breadth of said umbrella covering for connecting the tops of the sticks, and a closing device for the sections of said strut for producing a self-contained rigidly angular and stable tension and carrying structure.

3. A foldable tension frame for long umbrellas having a plurality of sticks, comprising a sectional cross strut connecting the sticks, each strut section being fulcrumed to its associated stick, a stop disposed on each strut section near the fulcrum thereof and pressing against the associated stick in toggle fashion, a tension member connecting the tops of the sticks, short sticks for securing said strut sections to said tension member, and, a closing device for the sections of said strut for producing a self-contained rigidly angular and stable tension and carrying structure.

OTTO STÜTTGEN.

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35	110
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45	120
50	125
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70	145
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