No. 706,352. Patented Aug. 5, 1902.

T. H. SMITH.

UMBRELLA STICK.

(Application filed May 18, 1901.)

(No Model.)

Fig. 2.

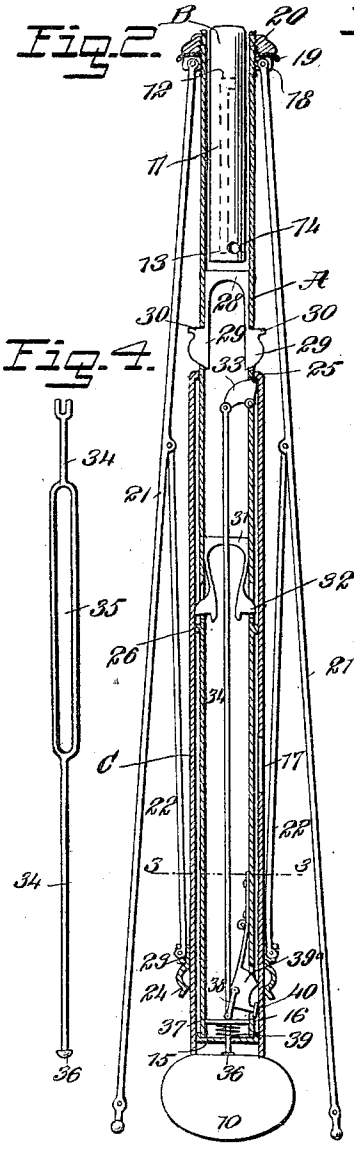
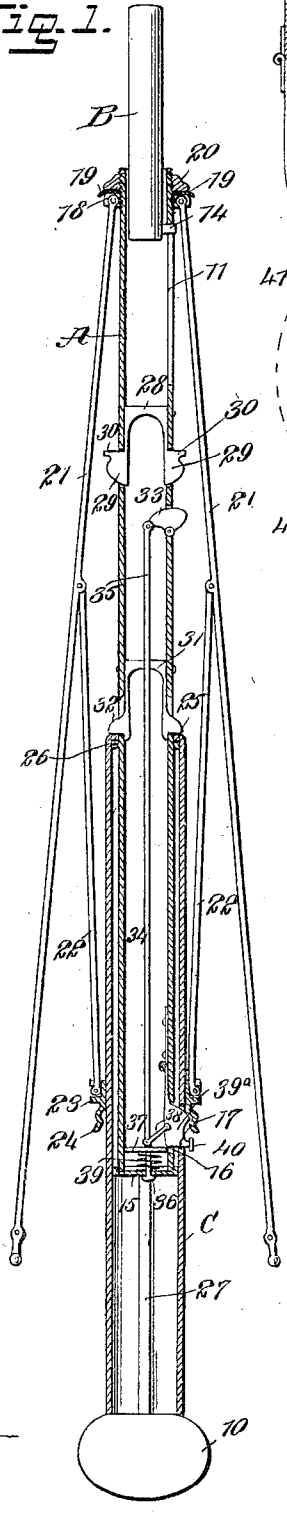


Fig. 1.



C Fig. 5.

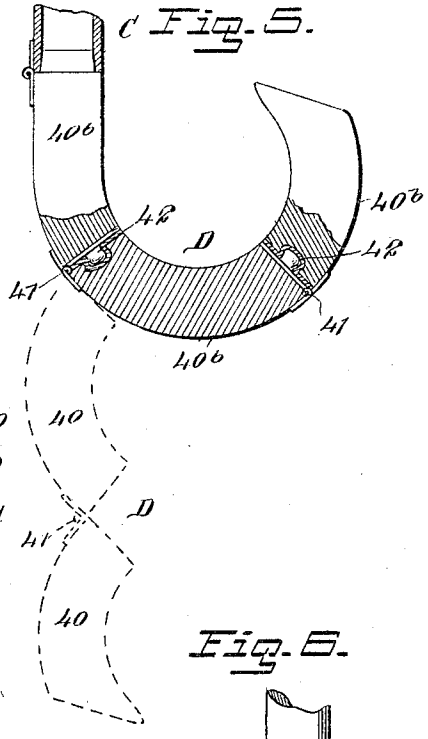


Fig. 6.

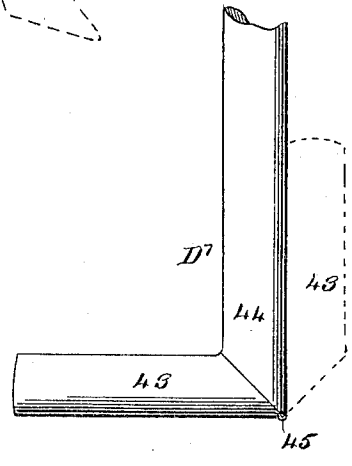


Fig. 3.

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UNITED STATES PATENT OFFICE.

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UMBRELLA-STICK.

SPECIFICATION forming part of Letters Patent No. 706,352, dated August 5, 1902.

Application filed May 18, 1901. Serial No. 60,847. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. SMITH, a citizen of the United States, and a resident of Lansford, in the county of Carbon and State of Pennsylvania, have invented a new and Improved Umbrella, of which the following is a full, clear, and exact description.

The purpose of my invention is to provide an umbrella which may be compactly folded and quickly and conveniently brought in position for use, and, furthermore, to construct such an umbrella in a simple, durable, and economic manner and so that the strength of the umbrella will not be lessened or the rigidity of its frame, and, further, so that the umbrella may be readily manipulated by any person of ordinary intelligence.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal vertical section through an umbrella-frame constructed in accordance with my invention, the stick being shown in position for use and the ribs as folded to the stick. Fig. 2 is a view similar to Fig. 1, illustrating the stick and its accompanying parts in a folded position and reduced in length practically to the length of the ribs of the umbrella. Fig. 3 is a transverse section taken practically on the line 3 3 of Fig. 2. Fig. 4 is a side elevation of the rod which is connected with the cam adapted to hold the runner in its raised position. Fig. 5 is a partial side elevation and partial section through a curved handle, illustrating the handle constructed in sections capable of being folded up close to the stick; and Fig. 6 is a side elevation of another form of the handle, also constructed in sections, one of said sections being capable of folding upon the other.

The stick of the umbrella is constructed in sections, comprising a main tubular section A, a ferrule-section B, which is solid, and a tubular handle-section C, terminating in any form of ornament—as, for example, a knob 10, as shown in Figs. 1 and 2, a curved handle, as shown at D in Fig. 5, or an angular handle, as shown at D′ in Fig. 6.

At the upper end of the main or body section A of the stick of the umbrella-frame a vertical slot 11 is made, provided with an upper horizontal section 12 and a lower horizontal section 13, and at the slotted portion of the main or body section A of the said stick of the umbrella-frame the ferrule-section B is adapted to slide, said ferrule-section having a lug 14, projected from one side, which travels in the slot 11 in the body or main section A of the umbrella-stick and is adapted to enter either the upper or the lower extension of the slot. When the lug 14 of the ferrule-section B enters the upper section 12 of the slot 11, the ferrule-section is carried out to a great extent beyond the main section and is held in such position by reason of the lug 14 being in the upper branch 12 of the slot 11. When the umbrella is in folded position, the ferrule-section B is within the body-section A, as shown in Fig. 2, and the lug 14 is in the lower branch 13 of the said slot 11, as illustrated in Fig. 2.

A cap 15 closes the lower end of the main or body section A of the stick, and this cap extends beyond the outer face of the said body-section, forming practically a flange which engages with the inner face of the handle-section C, which handle-section is of greater diameter than the diameter of the body of the main section and slides upon the said main section. The main or body section is provided with an opening 16 near its lower end, for a purpose to be hereinafter described, and when the stick of the umbrella-frame is drawn out to its full length the opening 16 in the main or body section is opposite an opening 17 in the handle-section, as is shown in Fig. 1.

The crown 18 is preferably screwed upon the exterior of the main or body section A at the top, and one or more washers 19 are placed upon the top of the crown. A cap 20 is likewise screwed upon the upper end of the main or body section A of the stick to an engagement with the uppermost of the said washers 19, and when the cover is placed upon the frame said cover is secured between the cap and crown. Preferably a washer is provided both above and below the cover, where it is

secured, so as to prevent the metal from wearing the cover.

The ribs 21 are pivoted to the crown 18 in the usual manner, and each rib is provided with a stretcher 22. These stretchers, which may be of the ordinary type, are pivotally attached at their lower ends to a runner 23, which runner is provided with a downwardly-extending outwardly-flaring apron or sleeve 24, having, preferably, an interior annular groove produced therein, as is shown in Figs. 1 and 2. This runner is made, preferably, quite small and is of such diameter that it may readily travel upon the handle-section C of the stick of the frame.

An inwardly-extending flange 25 is formed at the upper end of the handle-section C of the stick, which flange engages with the body or main section A, and when the handle-section is drawn down to its full extent this flange 25 is brought in engagement with the collar 26, which is formed upon the main or body section, as shown in Fig. 1. It will be observed that this collar limits the downward and outward movement of the handle-section.

In order that the handle-section C may travel upon the main or body section A without danger of turning, the handle-section is provided with interior ribs 27, and these ribs 27 may be made to enter grooves 26^a in the exterior of the body-section A or simply enter grooves produced in the collar 26 and the outwardly-extending or flange portion of the cap 15 at the lower end of the body-section of the stick.

Near the upper end of the body or main section A a bridge or arched spring 28 is located within the said section, slightly below the lower end of the slot 11 therein, as is shown in Figs. 1 and 2, and the members of this spring at their lower ends are provided with feet 29, which extend out through openings in opposite sides of the main or body section, and these feet are preferably more or less convexed at their outer edges and are provided with horizontal extensions 30 at their upper portions. These extensions 30 limit the upward movement of the runner 23 when the umbrella is to be opened, and the curved portions of the feet 29 enter the groove in the sleeve or apron 24, having gentle frictional contact with the runner. A second arched or bridge spring 31 is located within the main or body section A below the upper spring 28, and the feet 32 of this lower spring 31 extend out through openings in the main or body section A of the stick and engage with the upper portion of the handle-section C when said handle-section is drawn outward or downward, holding the said handle-section in its adjusted position. When the handle-section C is to be carried upward, as shown in Fig. 2, in order to decrease the length of the umbrella-stick, the foot portions 32 of the arched or bridge spring 31 are pressed inward by the fingers sufficiently to permit the upper portion of the handle-section C to pass them.

The runner 23 is held in its upper position by means of a cam-support 33, which is pivoted in an opening made in a side of the main or body section A at a point slightly below the upper arched or bridge spring 28, and this cam-support 33 is pivotally attached to a rod 34, which rod extends down and through the bottom portion of the main or body section A of the stick, as is illustrated in Figs. 1 and 2. In order that the rod 34 may have free movement within the main or body section of the stick, it is provided between its ends with a loop-section 35, which spans the arched or bridge spring. The lower end of the rod 34 is usually made to terminate in a head 36, and a plate 37 is attached to the lower portion of the rod 34 above the bottom of the main or body section A of the stick, which plate has bearing against a spring 39, which is coiled around the rod 34 and has bearing on the cap 15 at the bottom of the body-section of the stick, as is illustrated in Figs. 1 and 2. A link 38 is pivotally attached to the rod 34 just above the plate 37, and this link is likewise pivotally attached to a latch 39^a, having spring attachment to the inner face of the main or body section A. This latch 39^a extends out through the openings 16 and 17 in the main and handle sections of the stick when the umbrella is in position for use, and when the runner is carried upward to an engagement with the upper bridge-spring 28 the runner will force the cam-support 33 inward as it passes said support, and the said cam-support is then forced outward by its spring, so that the runner may rest thereon. When the runner is to be drawn downward, the latch 39^a is forced inward by pressing on a button 40, forming a portion of the latch, and by means of the link connection 38 between the latch and the rod 34 said rod 34 is carried downward and the cam-support 33 is drawn within the main or body section, enabling the runner to pass it. When the runner is in its lowest position, the latch 39^a, engaging with the sleeve or apron 24 thereof, serves to hold the runner in such lower position.

When the sections of the stick are to be folded up, the ferrule-section B is drawn within the body-section A, as described and as shown in Fig. 2, and the latch 39^a is forced entirely within the body-section, as shown in the same view. The handle-section is then forced upward or outward on the main or body section, the feet 32 of the lower or retaining bridge-spring 31 having been carried inward. In Fig. 3 I have illustrated a slight groove 40^a in the handle-section C, which receives the knob 40 of the latch 39^a when the handle-section is being adjusted on the main or body section of the stick.

In Fig. 5 I have illustrated a curved handle for the stick, wherein the handle is constructed in a series of sections 40^b, and these sections have a hinged connection 41. The sections are normally held together by spring-buttons 42 or equivalent fastening devices, so

that when an umbrella is to be folded up to be placed in a trunk or to occupy a small space the handle may be broken, as shown in dotted lines in Fig. 5, and said sections may then be folded up close to the main portion of the stick.

In Fig. 6 I have illustrated an angular or L-shaped handle, in which the horizontal member 43 is connected with the vertical member 44 by a hinge 45, and the two members are locked together, as shown in Fig. 5 or by other approved means. Thus in the form of handle shown in Fig. 6 the horizontal member 43 of the handle may be folded up against the vertical member 44, as is shown in dotted lines in the said Fig. 6. It will be observed that an umbrella constructed as above set forth is exceedingly simple, durable, and effective and that it may be quickly reduced in length and as readily extended for use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an umbrella, a stick constructed in telescopic sections, including a main or body section and a handle-section, a crown secured to the body-section, a runner mounted to slide upon the handle and the body sections, a spring located within the body-section and provided with projecting portions extending through openings in the body-section and arranged for frictional engagement with the runner when the latter is in its upper position, and having means for limiting the upward movement of the runner, a spring-controlled cam-support for the runner below and adjacent to the said spring, and a second spring located within the body-section of the stick and provided with feet arranged to extend through openings in the body-section, for the purpose set forth.

2. In umbrellas, a stick consisting of a tubular main section, a handle-section adapted to slide on the main section, and a ferrule-section adapted to slide in the main section, the ferrule-section having guided and locking connection with the main section, a crown secured to the main section, ribs pivoted to the crown, stretchers pivoted to the ribs, a runner having pivotal engagement with the stretchers, means for limiting the upward movement of the runner carried by the main section, a spring-latch carried by the main section and adapted for engagement with the upper end of the handle-section when the stick is lengthened, a cam-support for the runner, likewise carried by the main section of the stick and located above the said latch, a spring-controlled rod connected with the said cam, the said rod having a loop-section spanning the said latch, and means for operating said rod from the exterior of the said stick, as described.

3. In folding umbrellas, the combination, with a stick constructed in telescopic sections, embracing a ferrule-section, a tubular body-section and a tubular handle-section, the body-section being provided with a longitudinal slot having horizontal branches and the ferrule-section with a lug adapted to travel in the said slot and enter the said branches, of a spring-latch located within the body-section and adapted for engagement with the upper end of the handle-section of the stick when the stick is lengthened, a stop-spring located above the spring-latch, a runner arranged to travel on the handle and body sections of the stick, and having a downwardly-extending outwardly-flaring sleeve provided with an interior groove, the said stop-spring being arranged to engage the said groove and provided with extensions for limiting the upward movement of the runner, a cam-support for the runner pivoted on the body-section of the stick, a spring-controlled rod attached to the cam, a spring-controlled latch secured to the body-section of the stick and extending out through an opening therein, and a link connection between said latch and said rod, for the purpose described.

4. In folding umbrellas, the combination, with a stick constructed in telescopic sections, embracing a ferrule-section and a tubular body-section and a tubular handle-section, the body-section being provided at its outer end with a longitudinal slot having upper and lower branches, a lug extending from the ferrule-section into the said slot, means, substantially as described, for preventing one section of the stick turning on the other, a crown attached to the upper portion of the body-section of the stick, ribs pivoted to the crown, stretchers pivoted to the ribs, and a runner having a flaring sleeve mounted to slide upon the handle and the body sections of the stick, of a bridge-spring located within the body-section of the stick near its upper end, having feet extending out through openings in opposite sides of the said stick-section, which feet limit the upward movement of the runner, a cam-support pivoted upon the body-section of the stick below the said bridge-spring, a spring-controlled rod attached to the cam-support and extending downward through the body portion of the stick, a spring-controlled latch attached to the inner face of the body-section of the stick and extending out through an opening therein, a link connection between the latch and the rod, and a latch bridge-spring also located within the body-section of the stick, the feet whereof extend out through openings in the said section of the stick and serve to hold the handle-section of the stick in its lower position, as described.

5. In an umbrella a stick having a tubular main section, a handle-section adapted to slide on the main section and a ferrule-section adapted to slide in the main section, a crown secured to the main section, a runner adapted to slide on the handle and body sections, means for limiting the upward move-

ment of the runner, a latch bridge-spring located within the body-section of the stick and having feet extending through openings in the said section, to hold the handle-section in its extended position, a support for the runner pivoted upon the body-section of the stick above the said bridge-spring, to hold the runner in its upper position, a spring-controlled rod connected at its upper end with the support for the runner, a spring-latch secured to the body-section and extending out through an opening therein and adapted to engage an opening in the handle-section when the latter is extended, and a connection between the said spring-latch and the lower part of the spring-controlled rod, substantially as set forth.

6. In an umbrella, a stick constructed in telescopic sections, a crown secured to one section, a runner adapted to slide upon two of said sections, and having a downwardly-extending and outwardly-flaring sleeve provided with an interior annular groove, means for limiting the upward movement of the runner, a spring-controlled cam-support for the runner, when the latter is in the upper position, and a spring-controlled latch adapted to engage the annular groove of the sleeve of the runner, when the latter is in its lowest position, substantially as described.

7. In an umbrella, a stick constructed in telescopic sections, a crown secured to the main or body section, a runner adapted to slide upon the handle and the body sections, a stop-spring located within the body-section and adapted to limit the upward movement of the runner, a spring-latch also located within the body-section below the stop-spring, for engagement with the upper end of the handle-section, when the stick is lengthened, a spring-controlled cam-support for the runner pivoted upon the body-section and located between the said stop-spring and the spring-latch, a latch secured to the main or body section and extending out through openings in the main and handle sections when the stick is extended, the said latch also serving to hold the runner in the lower position, and a connection between the said latch and the spring-controlled cam-support for the runner, substantially as described.

8. In an umbrella, the combination with a hollow stick having an inner or body section and an outer or handle section, and a runner thereon, of a spring located within the inner section and provided with feet adapted to extend out through openings in opposite sides of the section, the said feet being arranged for frictional contact with the runner, and provided with extensions at their upper portions to limit the upward movement of the runner, a cam for holding the runner in its uppermost position, and a second spring having feet extending out through opposite sides of the inner section of the stick for the purpose set forth.

9. In an umbrella, the combination with a hollow stick, and a runner on the stick and having an internal annular groove, of a spring provided with feet extending out through opposite sides of the stick and adapted to enter the groove of the runner, and a pivoted runner-support below the projecting feet of the spring, as set forth.

10. In an umbrella, the combination with a hollow stick, and a runner on the stick and having an internal annular groove, of an arched spring having feet at the lower ends of its members, the outer edges of the feet being convex and adapted to enter the groove of the runner, a pivoted and spring-pressed runner-support below the projecting feet of the spring, a spring-latch adapted to enter the groove of the runner and hold it in its lowermost position, and an operative connection between the latch and the pivoted runner-support, as set forth.

11. In an umbrella, the combination with a hollow stick, and a runner on the stick, of an arched spring, having feet at the lower ends of its members extending out through opposite sides of the stick, the said feet being provided with horizontal extensions at their upper portions for limiting the upward movement of the runner, the side edges of said feet being arranged for frictional engagement with the runner, and means for supporting the runner in its uppermost position.

12. In umbrellas, a stick constructed of a tubular main section, a handle-section adapted to slide on the main section, the main section being provided at its upper end with a longitudinal slot having end extensions, a ferrule-section adapted to slide in the main section at the slotted portion and having a lug adapted to travel in the slot of the main section and to enter either of the end extensions of the slot, a crown secured to the main section, ribs pivoted to the crown, stretchers pivoted to the ribs, a runner having pivotal engagement with the stretchers, means carried by the main section for limiting the upward movement of the runner, a support for the runner when the latter is in its upper position, the said support being also carried by the main section, a spring also carried by the main section for holding the handle-section in the extended position, and a spring-latch for holding the runner in its lowest position, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS H. SMITH.

Witnesses:
J. FRED. ACKER,
JNO. M. RITTER.