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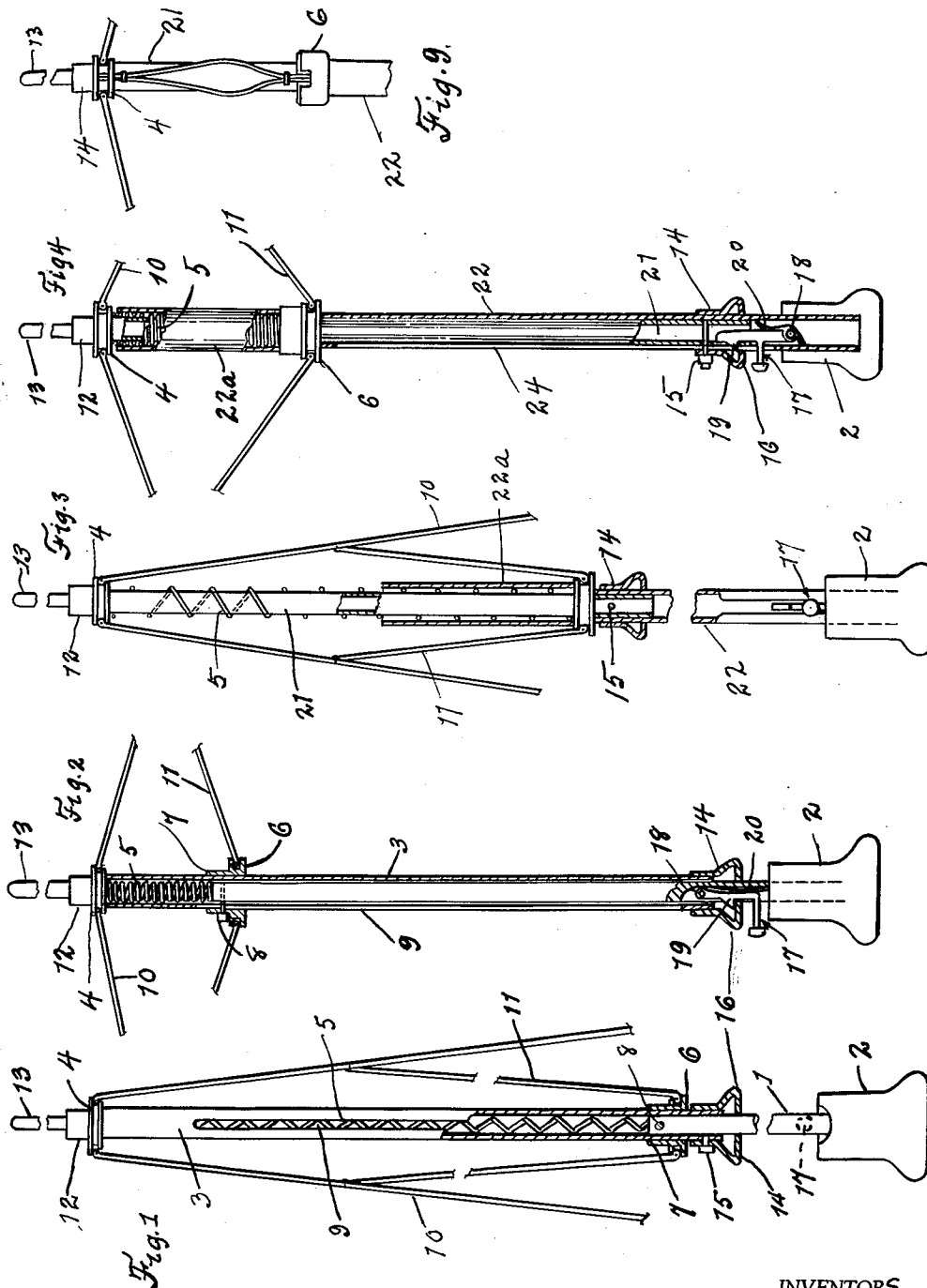
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UMBRELLAS

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2 Sheets-Sheet 1



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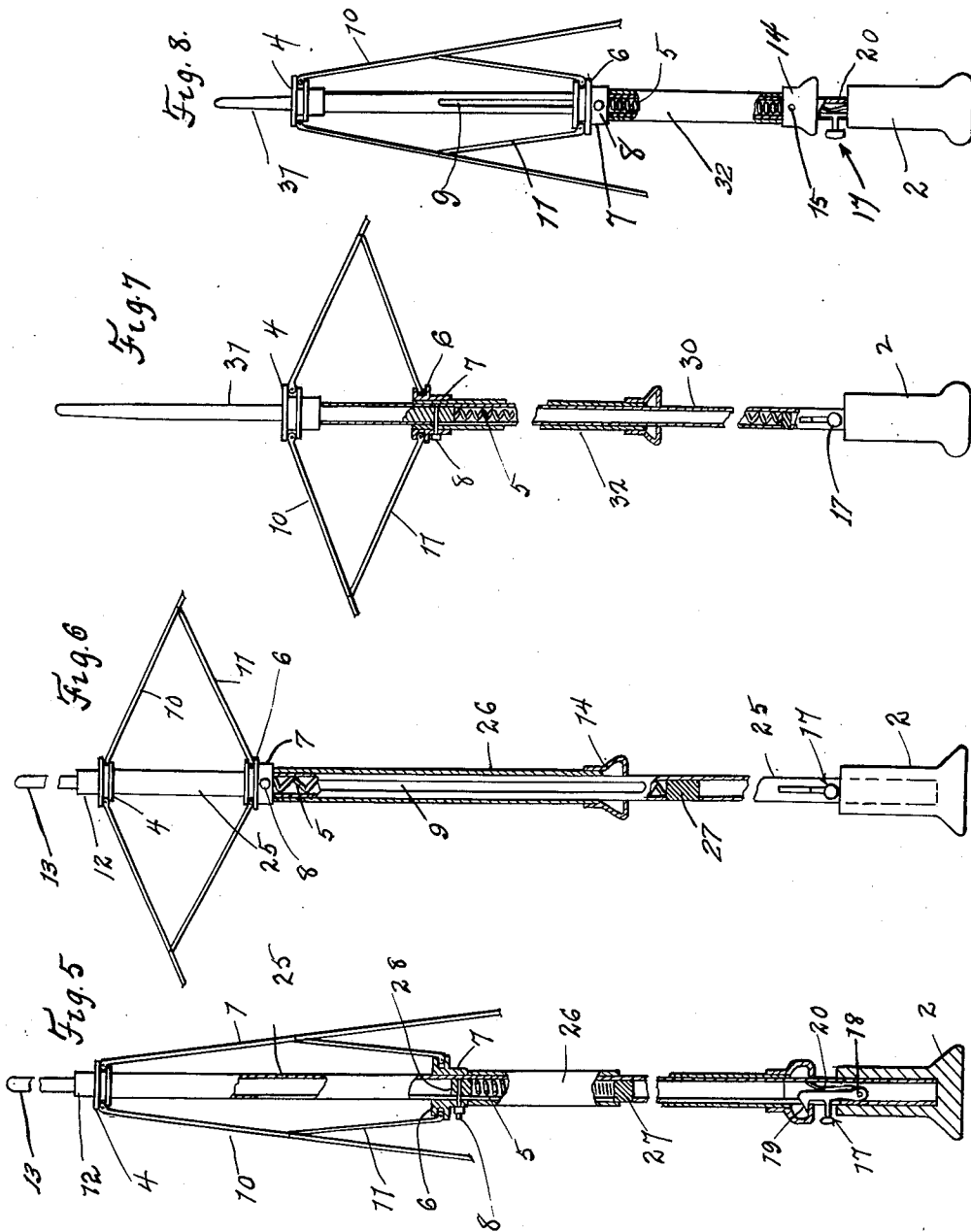
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UMBRELLAS

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Our invention is an improvement in parasols and umbrellas, especially a novel construction thereof by which the framework and cover can quite easily be raised and lowered or collapsed.

An important object is to provide such article adapted to be manipulated, to open it when necessary, by the user with one hand only.

Another object is to provide an umbrella or parasol that, in one form of the invention, can be closed by the user with a single hand when the device is not required for use.

A further object is to provide an umbrella or parasol that, in another form, can be opened merely by pulling or otherwise longitudinally moving a part, generally in a direction opposite to the usual opening movement in a conventional article of the same kind, to spread the framework and cover of the same.

An additional object is to provide an umbrella or parasols which, in a different form, can be held open by a catch and automatically closed when the catch is released.

The above and other objects and advantages of the invention are clearly set forth in the ensuing specification, and the novel features are defined in the appended claims. The drawings illustrate several embodiments of the invention, but many changes in minor respects may be made without altering or omitting any of the essential characteristics by which the invention is distinguished.

On the drawings:

FIGURE 1 is a sectional view through one form of our parasol or umbrella, in closed position.

FIGURE 2 is a view partly in section seen from the right of the device, as presented in FIGURE 1, with the framework expanded.

FIGURE 3 is a longitudinal sectional view of a modification showing the framework collapsed.

FIGURE 4 is a section view, similar to FIGURE 2, seen from the right of the device as it appears in FIGURE 3.

FIGURE 5 is a longitudinal sectional view of another modification showing an umbrella or a parasol with the framework collapsed.

FIGURE 6 is a sectional view of the same modification seen from the right of FIGURE 5; with the framework expanded.

FIGURE 7 is a sectional view of another modification with the framework expanded.

FIGURE 8 is a view of the same modification, partly in section, seen from the right of FIGURE 7, with the framework collapsed; and

FIGURE 9 shows a detail of a modification of the embodiment illustrated on FIGURES 3 and 4.

With reference first to FIGURES 1 and 2, the article is shown with a central rod or stem 1, fixed at one end to a handle 2, and carrying an exterior tubular sleeve 3, the upper end of which is closed. On the sleeve adjacent its top is a collar 4 fixed to the sleeve 3; and below this collar 4 is a collar 6 surrounding the sleeve and having a cylindrical portion 7 projecting towards the collar 4, and forming a bearing for the collar 6, which is slidable relative to the sleeve 3. The portion 7 receives a pin 8 which passes into the sleeve 3 and slides in a longitudinal groove 9 thereof. The pin 8 secures the sleeve 6 to the inside

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rod 1, and between the adjacent end of this rod and the collar 4 in the sleeve 3 is a compression spring 5, which presses against the closed end of the sleeve 3 at the collar 4.

To the sleeve 6 are pivotally connected, in the usual way, arms 10 which are pinned at their outer ends to the ribs 11, the inner ends of which are pivotally secured to the collar 4. The sleeve 4 has a portion 12 extending therefrom and fixed to this sleeve, and the sleeve 3 and the portion 12 carries an outside terminal tip 13 which is also fixed on the sleeve 3.

The end of the sleeve 3 nearest the handle carries a cap 14 fixed thereto by a pin 15. This cap is expanded at its lower end to form a hollow circular bead 16 surrounding the rod 1, and the inner edge of the bead 16 can be engaged by a catch 17 which is pivoted to the rod 1 at 18 and has a hook-shaped portion 19, so that when the cap 14 and sleeve 3 are pulled towards the handle 1, the hook-shaped portion 19 can engage the edge 16 inside the cap 14 and hold the sleeve in desired position. A spring 20 normally projects the cap into holding position, one edge of the catch being inclined and the other square; so that the cap can slide over the inclined part of the portion 19, and as soon as the inturned edge 16 passes said part, the spring forces the catch outward, so that the shoulder of the hook-shaped portion projects out over the edge 16 and holds the cap and sleeve close to the handle 2, as indicated in FIGURE 2.

In the closed position of the device shown in FIGURE 1, the umbrella can be caused to expand the ribs 11, which carry the cover, by holding the handle 2 in one hand and pressing the tip 13 against a fixed object, such as a wall or floor to move the sleeve 3. This movement forces the sleeve 3 and the collar 4 towards the handle 2, compressing the spring 5 and forcing the collar 4 towards the collar 6, which is fixed to the rod 1; and the sleeve 3 and the collar 4 thus move together and the arms 10 and ribs 11 spread outward until the cap 14 on the sleeve is engaged by the catch 17. The sleeve is then held with its cap close to the handle, but any time this catch is released, the expansion of the spring 5 will move the sleeve 3 outward, and cause the collars 4 and 6 to move apart, pulling in the arms and ribs, and thus the framework is collapsed. When the sleeve 3 moves toward the handle 2, the pin 8 slides in the groove 9.

The type of umbrella can also be opened with the parts in the position shown in FIGURE 1, merely by pulling the cap 14, so as to draw the sleeve 3 and collar 4 thereon downward until the cap engages the catch 17. The collar 6, being fixed to the rod 1 holds the arms 10 so that the movement of the sleeve 4 towards the sleeve 6 causes ribs 11 to spread outward. The umbrella can be closed as before merely by releasing the catch 17.

In practice, the rod 1 can be a piece of hollow tubing with its inner end closed, and the pin 8 passes through slot 9 in the sleeve 3 and into an opening at the upper end of the rod 1. Hence, the collar 6 is always in fixed position; and the slot 9 in the sleeve 3 through which the pin passes permits free movement of the sleeve 3, when the spring 5 is compressed.

At all times, the fixed collar 6 is at a constant distance from the handle 1, and the sleeve 3 moves to compress the spring 5 to open the umbrella or is moved by this spring to close the umbrella. The rod 1 is shown broken away in the lower part of FIGURE 1, but when the umbrella is collapsed as shown in this figure, the distance between the collar 6 and the handle 2 is the same as shown in FIGURE 2.

The modification presented in FIGURES 3 and 4 has a handle 2 to which is fixed one end of a piece of rod, tubing or sleeve 22 in which is slidably mounted a rod 21. Surrounding the tubular rod 22 below the collar

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6, which is fixed on this sleeve, is a cap 14 which is slidable on the rod 22 and connected by a pin 15 to the rod 21. Said pin projects out through a longitudinal slot 24 in the sleeve 22. A sleeve 22a extends beyond the collar 6 towards the collar 4, and is fixed to the collar 6.

The collar 4 is fixed to the rod 21 at its outer end and the collar 6 is fixed to the tubing 22. This umbrella can be opened by pushing the tip 13 against a fixed object, thus causing the collar 4 and rod 21 to move inward to compress the spring 5; and as the collar 6 is fixed on the tubing 22 and does not move towards the handle, the collar 4, as it approaches the collar 6, will necessarily distend the framework. When the framework is spread, the sleeve 22a nearly abuts the collar 4. The same effect can be obtained to open the umbrella by pulling the cap 14 towards the handle to draw the rod 21 inward; and in either case the umbrella will be held open by the catch 17 engaging the edge of the bead 16 on cap 14, as in FIGURES 1 and 2. The umbrella is thus held open with the spring in compressed condition, as indicated in FIGURE 4, and it can be closed with one hand only, by releasing the catch 17. The spring then moves the rod 21 outward, the pin 15 sliding in the groove 24, and the cap 14 moves up as far as the collar 6, fixed on the rod 21. The spring 5 is enveloped over its lower half when the umbrella is closed by tubular sleeve 22a between the collars 4 and 6, that terminates short of the outer collar 4; but when the umbrella is opened this portion extends up as far as the collar 4, but not quite in contact with the collar 4.

For the device of FIGURES 3 and 4, the arms 11 are of the type indicated diagrammatically in FIGURE 9, each consisting of two sections joined at their outer ends to the ribs and at their inner ends to the collar 6. These springs all are bowed outward adjacent the collar 6, and when the umbrella is opened, the springs are spread apart sidewise to some extent but are resilient, and when the catch 17 is released the parts of each arm tend to straighten out and make themselves, in effect, longer; thus drawing the ribs toward the rod at the center. The closing of the umbrella is then completed by drawing the cap 14 away from the handle 2. The spring 5 on the rod 21 is omitted. This construction also permits the umbrella to be opened by pressure on the tip 13.

In the construction of FIGURES 5 and 6, a tubular rod 25 is embedded at one end in the handle 2. Near the outer end on this rod is the collar 4 which is now fixed thereon, and to which the ribs are pivoted, and the other collar 6 is made fast on a sleeve 26 slidable on the rod 25, pivotally connected by the arms 10 to the ribs 11. In the hollow rod 25 is a spring 5 and the lower part of the rod 25 has a plug 27 against which the spring seats at one end. At its other end the spring engages a fixed plug 28 in the hollow rod 25 near the collar 6. The plug 28 and the collar 6 are made fast by a pin 8 in this collar, which projects through the sleeve 26 into the plug 28. The pin 8 slides in a slot 9 in the rod 25 as the sleeve 26 moves toward the handle 2. The lower end of the hollow rod 25 bears a catch 17 as before, and the end of the sleeve 26 nearest the handle has a fixed cap 14, shaped as in FIGURE 1, so that when the sleeve 26 is pulled towards the handle, the collar 6 and sleeve 26 move together, pulling the framework into collapsible position. The sleeve 26 is held by the catch 14, and when it is desired to open the umbrella as in FIGURE 6, the catch is released.

As shown in FIGURES 7 and 8, the umbrella or parasol has a tubular rod 30 secured at one end to the handle

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2, and in the outer end of this rod 30 is mounted a slidable stem 31. This stem 31 is fastened by a pin 8 at its inner end to a collar 6, which is affixed to the upper end of an outer slidable sleeve 32 on the rod 30, and this rod has a slot 9 in which the pin 8 can move so that the sleeve 32 can slide up and down on the tubular rod 30. The rod 30 adjacent the handle has a catch 17 as before. When an umbrella of this type is to be closed, the sleeve 32 is pulled downward until the catch 17 engages the cap 14. This movement of the sleeve pulls the collar 6 down with it, folding the ribs and compressing the spring 5 which is in the rod 30 between the collar 6 and handle 2; the collar 6 then moving, but the collar 4 remaining fixed on the rod 30. The stem 31 is then withdrawn as shown in FIGURE 8. To raise the umbrella, the catch is released and the spring 5 can then expand, pushing the collar 6 towards the fixed collar 4 and spreading the ribs 11. At the same time, the stem 31 is projected from the top of the cover as shown in FIGURE 3. The collar 6 is secured on the end of the sleeve 32.

In all the forms above shown, the rod comprises a central member which has a fixed part, and a member which is slidable with respect to said part. For example, in FIGURES 1 and 2, the central member comprises the rod or stem 1 fixed to the handle, and the movable sleeve 3. In FIGURES 3 and 4, the central member is made up of the tubular portion 22 fixed to the handle and the slidable stem 21 which is secured to the cap 14. In FIGURES 5 and 6, the central member comprises the fixed hollow rod 25, and the slidable sleeve 26, and in FIGURES 7 and 8 the central member comprises the fixed hollow part 30 and the movable sleeve 32 to which is fixed the stem 31. In each case, one of the collars is fast on the fixed part and the other collar is movable. The collar 6 in FIGURES 1, 2, 3 and 4, for example, is always held in one position on the fixed stem 1, and the other collar 4 moves with the sliding part to which is attached the cap 14; and in the umbrella of FIGURES 5, 6, 7 and 8, the collar 4 is fixed and the collar 6 moves towards and from the collar 4.

Having described our invention, what we believe to be new is:

1. An umbrella comprising a central member having a fixed part, a handle attached to one end of said part, a collar fast on said part and a sleeve slidably mounted on said part, a collar fixed on said sleeve, the second-named collar being between the handle and the first-named collar, a pin connecting the second-named collar to the sleeve and movable in a longitudinal slot along said fixed part, ribs united to the first-named collar, and links joined to the ribs and the second-named collar.

2. An umbrella comprising a central member having a rod, a handle fixed to one end of the rod, a collar fixed to said rod, a sleeve slidable on the rod, a collar fixed to the sleeve and having pin-and-slot engagement with said rod, ribs pivotally attached to one of said collars, arms pivotally attached to the other collar and pinned to said ribs, and a spring carried by said member having one end immovable with respect to the collar fixed on the rod and the other end movable with the collar attached to the sleeve.

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