

C. L. WILLARD.
PARACHUTE.

APPLICATION FILED JAN. 23, 1911.

1,028,517.

Patented June 4, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

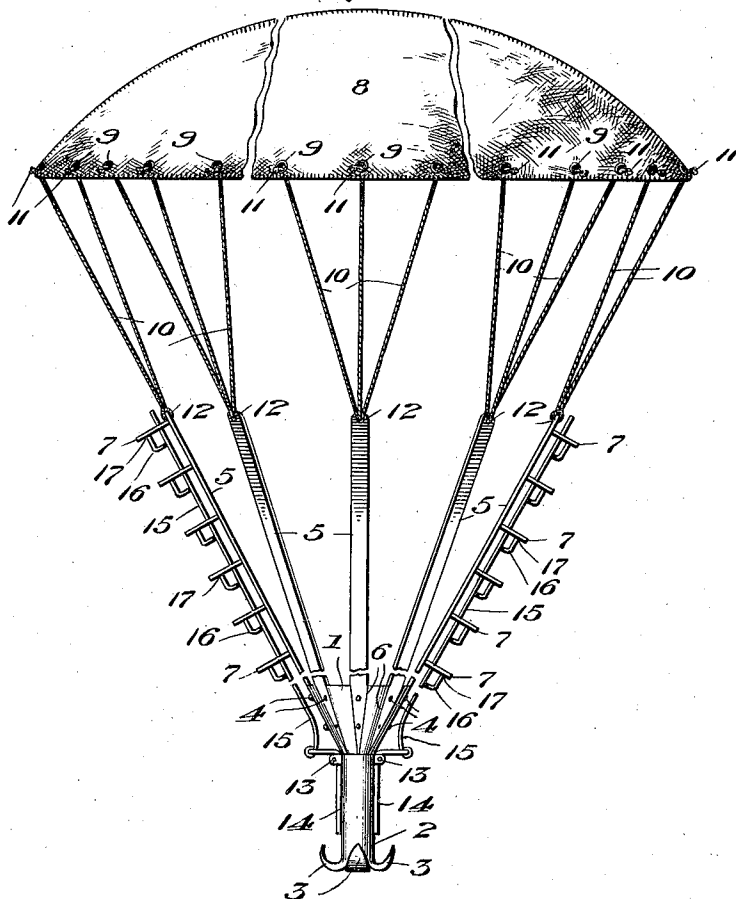
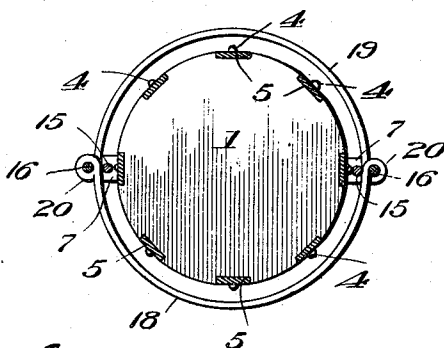


Fig. 2.



Witnesses
[Signature]
M. L. Newcomb.

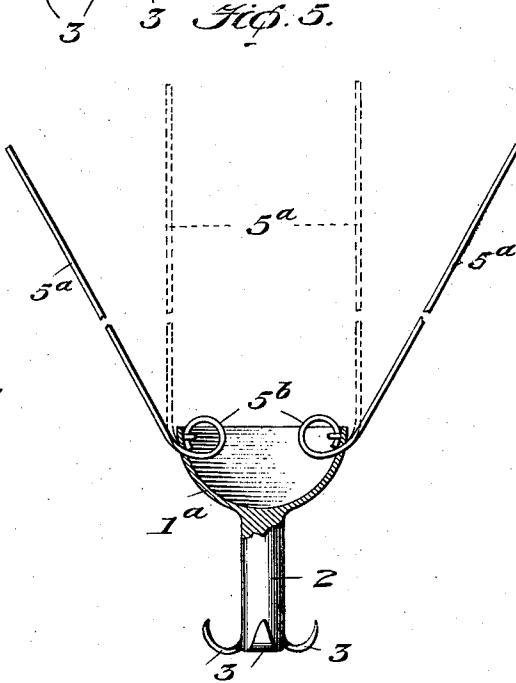
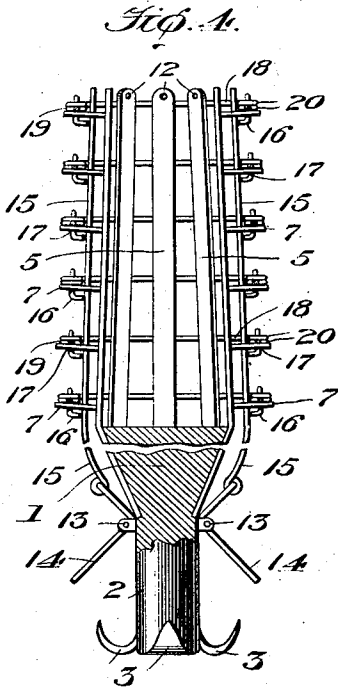
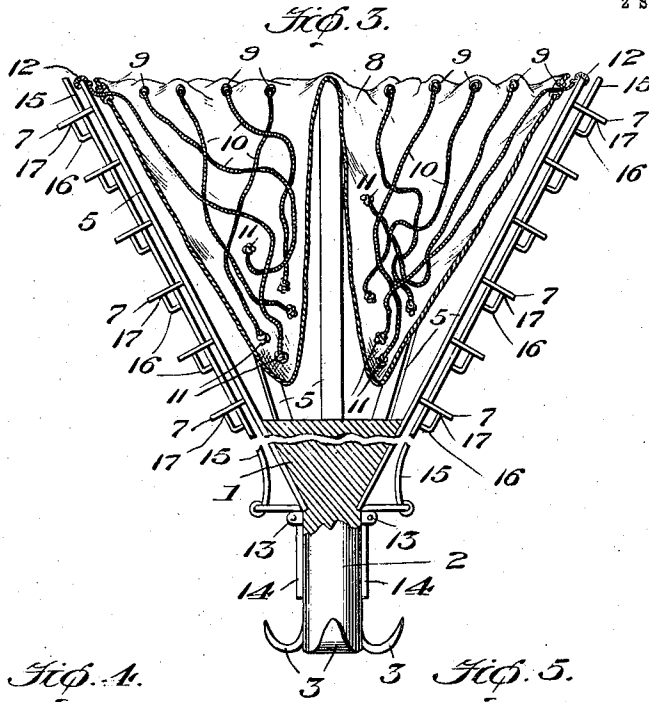
Inventor
Carl L. Willard
BY *[Signature]*
Attorney

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UNITED STATES PATENT OFFICE.

CARL L. WILLARD, OF DENVER, COLORADO.

PARACHUTE.

1,028,517.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed January 23, 1911. Serial No. 604,214.

To all whom it may concern:

Be it known that I, CARL L. WILLARD, a citizen of the United States, residing at Denver, county of Denver, and State of Colorado, have invented certain new and useful Improvements in Parachutes, of which the following is a specification.

The object of the present invention is the provision of a novel parachute which will be adapted to fold into compact and convenient form and later, when grasped by the aviator, automatically open out the umbrella or cloth and insure the distention of the latter by the air pressure.

The invention is carried out by the provision of spring-actuated members, an umbrella or cloth connected thereto and releasable locking means for securing the spring-actuated members and umbrella or cloth in folded condition, subject to instant and automatic release on the grasping of the parachute by the aviator, thereby permitting the spring-actuated members to expand and sufficiently open out the cloth or umbrella so that it will be distended by the air pressure, a convenient embodiment of the invention being set forth fully hereinafter.

In the accompanying drawings: Figure 1 is a side elevation of the parachute as it appears in use; Fig. 2, a cross-section taken just above the body or support; Fig. 3, an enlarged partially sectional and partially broken away side elevation showing the manner in which the hood or umbrella folds within the spring-actuated members, the latter being open; Fig. 4, a view like Fig. 3, the hood being omitted, and the spring-actuated members closed, showing the confining devices; and Fig. 5, a detail view of a modified construction of the spring-actuated members.

The lower part of the parachute has a body 1 and handle 2 preferably formed integral, the former being preferably rounded on its under face and the latter being preferably cylindrical and provided with one or more hooks 3 which the aviator may engage with his belt or clothing, if desired when making a descent. Suitably secured at 4 to the rounded under face of said body 1 are a plurality of springs 5, which may be flat and sunk in grooves 6 in the body, if desired. When extended these springs appear as in Figs. 1 and 3, and when contracted as in Fig. 4. The springs are provided with lugs 7 at intervals of the height thereof.

The hood or umbrella 8 is of some suitably strong and flexible fabric, being provided with a suitable number of reinforcing eyelets 9 at or near the periphery thereof through which loosely pass ropes 10 provided with knots or buttons 11 on their free ends and at their other ends connected to the free ends of the springs at 12. Preferably three of these ropes are connected to the extremity of each spring 5 and the eyelets 9 are preferably spaced at equal distances apart to equally distribute the strain.

Pivoted to the handle 2 at 13 are, preferably two, triggers 14 to which are connected rods or wires 15 which are of substantially the same length as the springs 5 and are disposed, as are also the triggers, at diametrically opposite points of the parachute. The wires or rods 15 are provided with hook-shaped engaging members 16 which pass loosely through apertures 17 in the lugs 7, the latter preferably corresponding in number to the members 16. This condition prevails only when the parachute is folded as shown in Fig. 4. When folded, confining wires 18 and 19 provided with loops 20 at their ends, pass around the springs 5 and the hood or umbrella 8, the loops 20 being disposed, in each instance, above the lugs 7 and around the hook-shaped members 16.

Normally, the tendency of the springs 5 is to assume the position shown in Fig. 3, the hood 8 being then half folded. The springs 5 are then brought together so as to completely encompass the folded hood whereupon the wires 18 and 19 are passed around the folded springs and hood and the loops 20 slipped over the members 16 which have previously been passed through the apertures 17 in the lugs 7, and thus the entire parachute is held in compact folded condition, the triggers 14 then extending outwardly a slight distance from the handle 2. When the parachute is to be used, the aviator grasps the handle 2 and in so doing presses the triggers 14 toward the handle whereupon the wires or rods 15 are drawn downwardly and the members 16 are drawn out of the apertures 17 so that the loops 20 are free, whereupon the springs 5 expand and thus present to the air a sufficient surface of the hood or umbrella to enable it to catch the air after a fall of a few feet and in so doing the eyelets 9 run along the ropes 10 until the knots or buttons 11 are encountered whereupon the parachute is in

the distended condition shown in Fig. 1. When the wires 18 and 19 are released they fly off of the parachute.

In Fig. 5, I have shown a modification of the manner of connecting the springs to the body. Instead of having the springs of resilient material, they may be rigid as shown at 5^a and passed through a cup-shaped metallic body 1^a and connected to spring coils 5^b which are secured to said body. The coils 5^b accomplish the expansion of the members 5^a just as well as if said members were springy themselves and secured to the body as heretofore set forth, but the members 5^a may also be of springy material as well as the spring coils 5^b. I wish it understood that my invention contemplates, in this respect, the use of spring-actuated members whether inherently resilient or extraneously spring-actuated, or both.

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

1. In a parachute, the combination with means for supporting the aviator, of spring-actuated members connected thereto, a foldable hood or umbrella, ropes having loose or running connections between the hood or umbrella and the spring-actuated members whereby the hood or umbrella may be distended and elevated above the spring-actuated members, and releasable means for holding the spring-actuated members in folded condition.

2. In a parachute, the combination with a support for the aviator, of spring-actuated members connected thereto, a hood or umbrella connected to the spring-actuated members, confining devices adapted to be positioned around the spring-actuated members to hold them in folded condition, and an operable device adapted for releasing said confining members.

3. In a parachute, the combination with a support for the aviator, of spring-actuated members connected thereto, a hood or umbrella connected to the spring-actuated members, confining devices adapted to be positioned around the spring-actuated mem-

bers to hold them in folded condition, said confining devices being disposed at intervals so as to hold the spring-actuated members at numerous points, and an operable device adapted for releasing said confining devices.

4. In a parachute, the combination with a support for the aviator, of spring-actuated members connected thereto, a hood or umbrella connected to the spring-actuated members, sectional confining devices adapted to embrace the spring-actuated members and disposed at intervals thereabout, rods having members adapted to releasably engage the confining devices, and hand operated means for shifting the rods to cause release of the sectional confining devices.

5. In a parachute, the combination with a support for the aviator, of spring-actuated members, a hood or umbrella connected thereto, sectional confining devices having eyes, rods having members passing through said eyes to hold the confining devices around the spring-actuated members, lugs on the spring-actuated members against which the confining devices are adapted to abut, and operating means for the rods.

6. In a parachute, the combination with a support for the aviator, of spring-actuated foldable members connected thereto, and a foldable hood or umbrella connected to the spring-actuated members in such manner that it may be folded or collapsed within said members.

7. In a parachute, the combination with a support for the aviator, of spring-actuated foldable members connected to and normally extending upwardly and outwardly from the said support, and a foldable hood or umbrella connected to the spring actuated members in such manner that it may be folded or collapsed within said members.

In testimony whereof, I hereunto affix my signature in presence of two witnesses.

CARL L. WILLARD.

Witnesses:

B. B. SWEGLE,
LENA L. WILLARD.