

C. R. STEWART.  
 SELF ADJUSTING PARACHUTE ARROW.  
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915,314.

Patented Mar. 16, 1909.

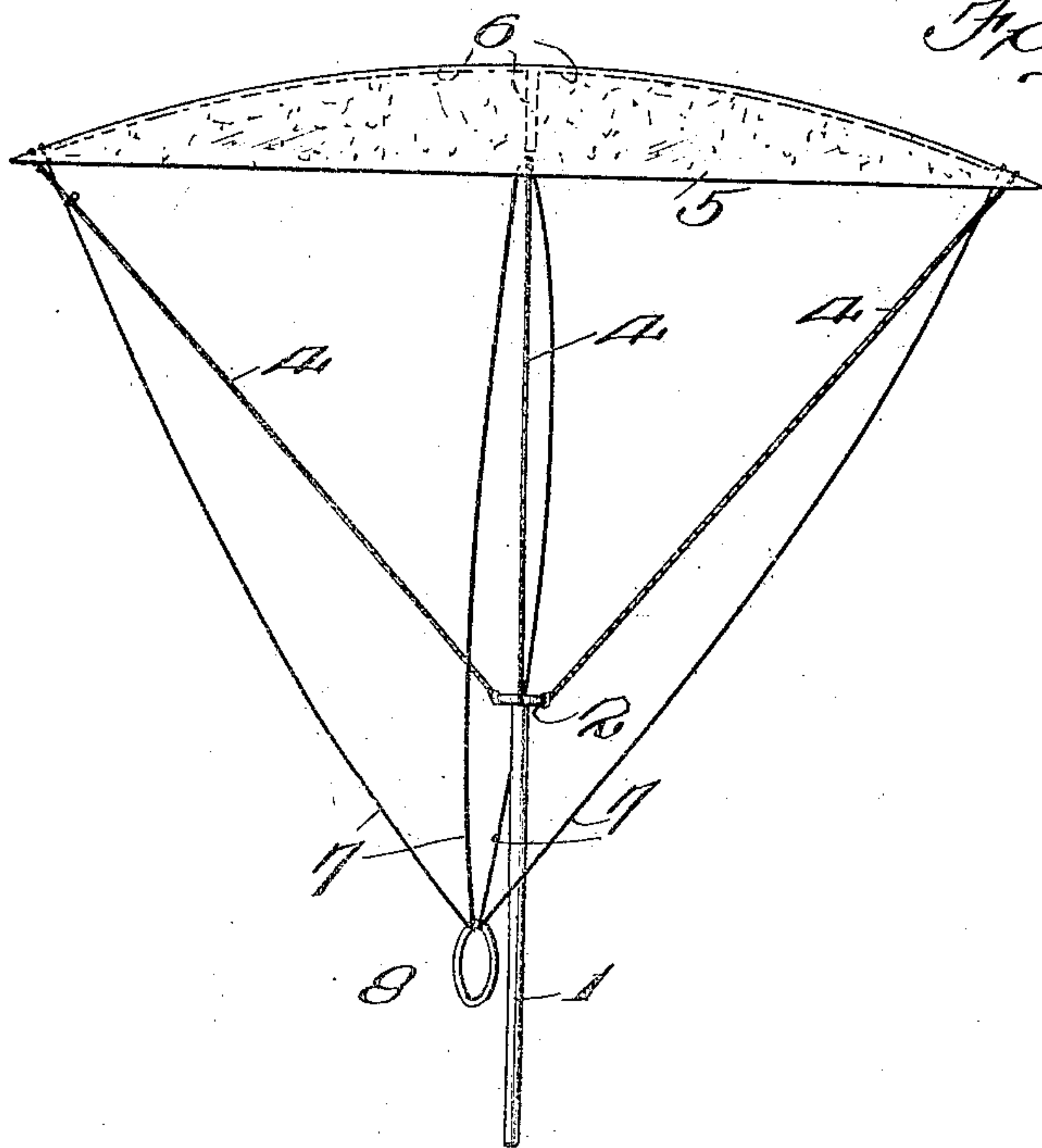


Fig. 1.

Fig. 2.

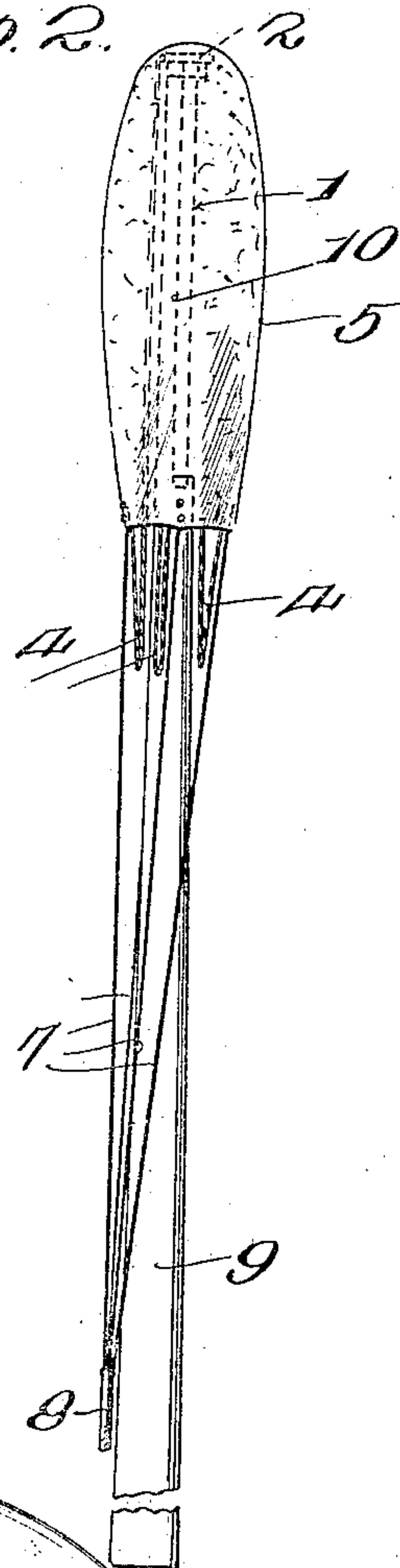
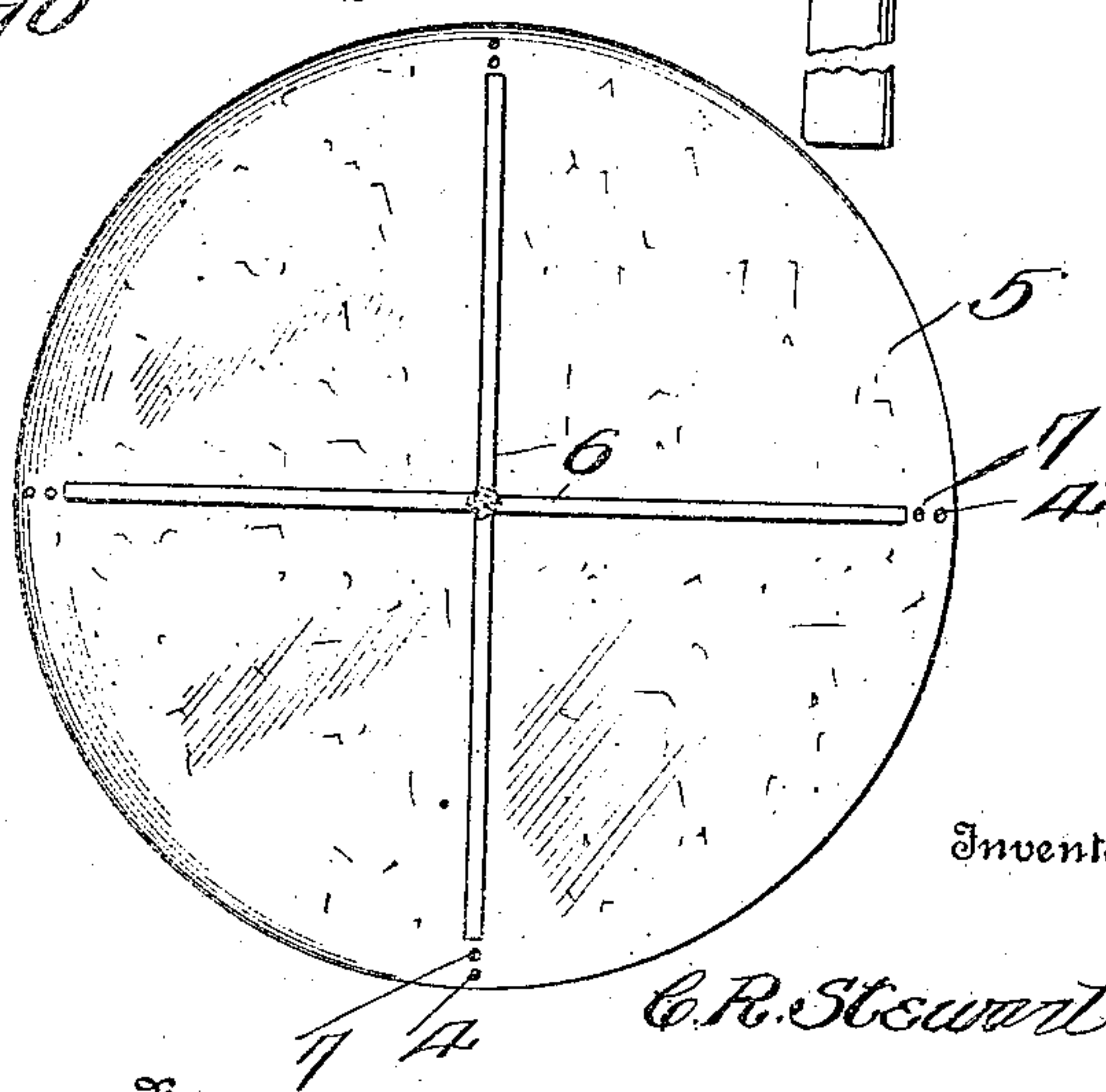


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## SELF-ADJUSTING PARACHUTE-ARROW.

No. 915,314.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed November 5, 1908. Serial No. 461,164.

*To all whom it may concern:*

Be it known that I, CLARENCE R. STEWART, citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Self-Adjusting Parachute-Arrows, of which the following is a specification.

This invention comprehends certain new and useful improvements in toys of that type designed to be projected into the air as an arrow or dart and embodying a parachute which is collapsed or inoperative during the upward movement of the device, and which is intended to be automatically expanded by the pressure of atmospheric air, as the toy commences its descent, thereby retarding such descent and causing the device to return slowly and gracefully to the ground. However, the chief objection to toys of this character has been that the air would often not inflate the parachute to effect the expansion thereof when the device commenced its descent, hence the toy would fall to the ground with its parachute or sustaining means inoperative.

The object of this invention is a self-adjusting parachute arrow which embodies peculiar means for positively distending the parachute as the device remains poised at the height of its ascent, so as to insure the operation of the toy and obviate the disadvantages above noted, such expanding means being arranged to be held inoperative during the upward movement of the arrow, so that the parachute will remain collapsed and will thus offer a minimum resistance to the air.

With this and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe, and then point out the novel features thereof in the appended claims.

For a full understanding of the invention and the merits thereof and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a side elevation of a parachute arrow embodying the improvements of my invention, and showing my improved stock for projecting the arrow into the air; Fig. 2 is a similar view showing the position of the device preparatory to being launched from

the stock; and, Fig. 3 is a detail view of the parachute cover.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

An aerial toy constructed in accordance with my invention, embodies a shaft 1 which may be of any suitable material and of any desired construction or design, except that it is preferably provided at its upper end with a head 2 formed with an annular series of apertures to which a suitable number of suspension cords 4 are secured at one end. At their other ends, these suspension cords are attached in any suitable manner and at predetermined intervals, to the outer edge of a collapsible cover 5, so as to be adapted to suspend the shaft therefrom, said cover being made of cloth or similar material, and being arranged to be normally distended or expanded in the form of a parachute.

As the preferred means for positively effecting the normal expansion of the cover 5, I provide ribs 6 which are composed of light flat springs that are secured to and extend diametrically of the cover, as shown, and normally exert the desired tension thereupon. It is to be understood that any suitable number of these ribs may be employed, although in the present instance, I have only shown the cover as equipped with two flat springs that are arranged at right angles to each other and cross at their middle points, as best seen in Fig. 3.

Secured at one end to the outer edge of the parachute cover 5, preferably in proximity to the terminals of the ribs, are a plurality of pull cords 7, to the other or free end of which is secured a thumb- or finger-piece 8 by means of which the operator may hold the parachute in collapsed position during the launching of the device into the air.

In the practical use of my improved aerial toy, in order to project the same into the air to effect the operation thereof, I preferably employ a stock 9 formed with a channel or groove 10 which leads from one end thereof, and within which the lower end of the shaft 1 is designed to be received and is retained therein through the instrumentality of one or more straps or bands 11. This stock 9 is held by the operator, and the finger-piece 8 is grasped and drawn downwardly, so as to lower the parachute cover 5 against the head



2 with the crossed portions of the springs or ribs bearing against the latter, the continued pull upon the finger-piece manifestly causing the springs or ribs to be bent downwardly to fold the same and the parachute cover 5 about the upper end of the shaft 1 and the stock 9. The stock is then given a quick upward movement and is brought to a sudden stop, the finger-piece being released simultaneously with such movement, and the momentum of the toy causing the same to be projected upwardly into the air, it being particularly observed that the parachute cover 5 is maintained in the collapsed condition in which it was projected or launched into the air, since the resistance of the air is sufficient to overcome the tension of the spring ribs. The toy then continues its upward flight until it reaches the highest point of its ascent, and as it remains poised, preparatory to descending, the resistance of the air is manifestly removed from the collapsed parachute cover 5, whereupon the spring ribs are released and return to their normal positions, to effect the positive distending or expanding of the parachute, so that the same will be filled with atmospheric air and the toy will thus descend slowly and gracefully to the ground. When the toy is descending, the suspension cords 4 are brought into use, and it will be manifest that the weight of the shaft 1 suspended therefrom will serve to maintain the toy in an upright position, even against considerably strong currents of air. It is to be understood that I do not limit myself to the form of parachute cover illustrated in the drawing, but may employ a cover of any approved size or shape, and may secure the springs thereto in any manner found most effectual in practice.

Having thus described the invention, what I claim is:

1. An aerial toy comprising a shaft, a parachute cover connected thereto, means for

normally exerting a tension upon the cover to positively expand the same, and means connected to the cover and independent of the shaft for holding the cover in collapsed condition against the tension of the expansion means.

2. An aerial toy comprising a shaft, a collapsible parachute cover, means for suspending the shaft from the cover, means for normally exerting a tension upon the cover to positively expand the same, and means connected to the cover and independent of the suspension means for holding the cover in collapsed condition against the tension of the expansion means.

3. An aerial toy comprising a shaft, a collapsible parachute cover, a set of cords secured to the shaft and the cover to suspend the former from the latter, means for normally exerting a tension upon the cover to positively expand the same, and a second set of cords connected to the cover and independent of the suspension cords and adapted to hold the cover in collapsed condition against the tension of the expansion means.

4. An aerial toy comprising a shaft, a collapsible cover, a set of cords secured to the shaft and the cover to suspend the former from the latter, means for normally exerting a tension upon the cover to positively expand the same, a second set of cords connected at one end to the cover and independent of the suspension cords and adapted to hold the cover in collapsed condition against the tension of the expansion means, and a finger-piece attached to the other or free ends of the last named set of cords.

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

CLARENCE R. STEWART. [L. s.]

Witnesses

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