

F. ZIEGENFUSS.
 SEARCH LIGHT PROJECTILE.
 APPLICATION FILED MAY 23, 1911.

1,003,082.

Patented Sept. 12, 1911.

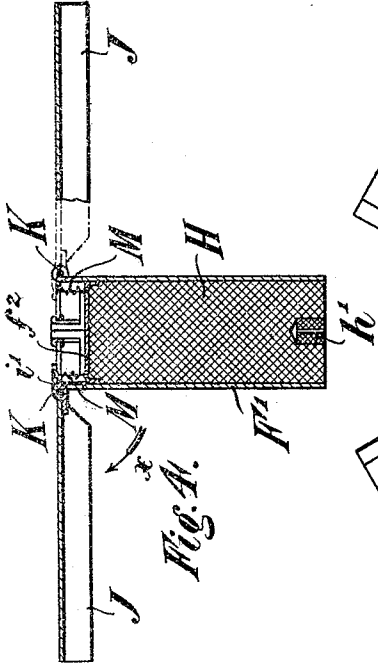


Fig. 4.

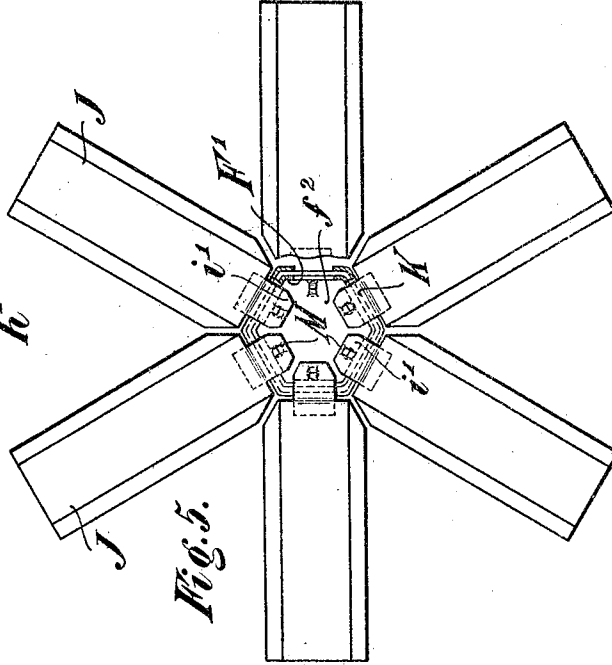


Fig. 5.

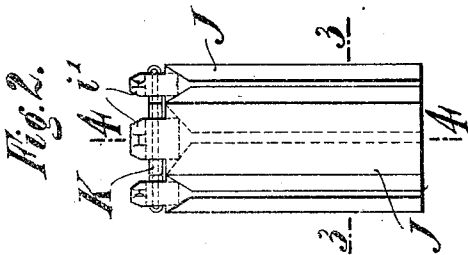


Fig. 2.

Fig. 3.

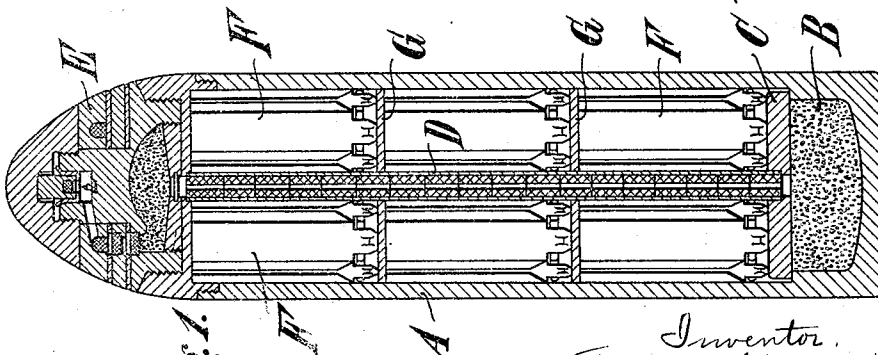
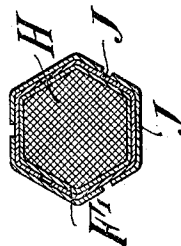


Fig. 1.

Witnesses
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SEARCH-LIGHT PROJECTILE.

1,003,082.

Specification of Letters Patent.

Patented Sept. 12, 1911.

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To all whom it may concern:

Be it known that I, FRIEDRICH ZIEGENFUSS, a subject of the Emperor of Germany, and a resident of Essen, Ruhr, Germany, have invented certain new and useful Improvements in Search-Light Projectiles, of which the following is a specification.

This invention relates to searchlight projectiles, provided with a parachute, and the object of the invention is to construct projectiles of this kind in which the "candle" or illuminating body is very compact but at the same time made to hold as large a quantity of illuminating matter as possible.

One embodiment of the invention is represented in the drawing, wherein:—

Figure 1 is an axial section of the projectile; Fig. 2 is a single "candle" or illuminating body with closed parachute; Fig. 3, a section on lines 3—3 of Fig. 2 seen from above; Fig. 4, a section on line 4—4 of Fig. 2 and seen from the left, with open parachute, and parts of the details left out. Fig. 5, a top view of Fig. 4, partly in section.

The search light projectile represented in Fig. 1 is practically constructed as a base chamber shrapnel. A represents the shell, B the bursting charge, C the ejecting disk, and D the ignition tube, connecting the time-fuse E with the bursting charge B. The "candles" or illuminating bodies F are arranged around the ignition tube D in several layers separated by diaphragms G in the shell chamber.

The candles F are constructed in the following manner: The lighting material H fills completely the housing F^1 and is provided with a match h^1 (Fig. 4) consisting of a small quantity of powder. As shown in Fig. 3 this housing F^1 is a hollow prism, open at one end, and of hexagonal cross-section. The open end of the housing, being closed by a diaphragm f^2 , has attached to it, by means of the hinges K, six wings J, having a cross-section that is made to conform to the shape of the candle housing F^1 . The wings J are subject to the tension of the helical springs M (Fig. 4), at one end attached to the diaphragm f^2 of the housing F^1 and at the other end secured to the tongues i^1 of the wings J. The said springs M have a tendency to spread the wings J out into their operative position, moving

them in the direction of the arrow x (see 55 Fig. 4). With the wings spread out as shown, the coils of the springs M are close together, forming a stop for the wings, so that no further movement is possible. As a consequence the wings will remain in their spread out position, even with the air-resistance acting upon them during the falling of the "candles." Said "candles" are stored in the chamber of the projectile in such a position that the end to which the wings J are hinged are turned toward the base of the projectile (Fig. 1). The wings will then be folded (see Figs. 2 and 3) in such a manner, that three alternate wings are laid close to the walls of the housing F^1 , while the other wings are folded on top of the first ones, each covering about half of its right and left neighbor, thus completely covering the side walls of the housing F^1 . The wings are then held in this folded position by the side-walls of the chamber provided for each candle.

In operation, the time-fuse is set so that the bursting charge will not be ignited until the projectile is on the descending part of the trajectory. After the ignition of the charge B the "candles" will be thrown out by means of the ejecting disk C. By the flame from the ignited charge B, first the match h^1 and subsequently the lighting material H of each separate candle will be ignited. When the candles have been liberated, the wings J will be spread out as indicated in Fig. 4, actuated by the springs M. The ejection of the candles F taking place on the descending part of the trajectory, and as a consequence, the rear end, which is the hinged end of the candle, being situated higher than the forward end, the unfolding of the parachute is considerably facilitated. This will be evident from the circumstance, that the end of the candle carrying the wings is turned toward the base of the projectile during its flight. After the ejection from the shell, the candles fall slowly to the ground, while the lighting material is burning, having the position indicated in Fig. 4.

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

1. A search light projectile, comprising a plurality of illuminating bodies and means

for sustaining said bodies in the air after liberation, said means comprising a plurality of wings.

2. A search light projectile, comprising a plurality of illuminating bodies and means for sustaining said bodies in the air after liberation, said means comprising a plurality of wings constructed to fold around the illuminating bodies while said bodies are deposited in the projectile chamber.

3. A search light projectile, comprising a plurality of illuminating bodies and means for sustaining said bodies in the air after liberation, said means comprising a plurality of wings constructed to fold around the illuminating bodies while said bodies are deposited in the projectile chamber, and to unfold when liberated from the projectile chamber.

4. A search light projectile, comprising a plurality of illuminating bodies and means for sustaining said bodies in the air after liberation; said means comprising a plurality of wings hinged at one end of the illuminating body and constructed to fold when the illuminating body is housed, and to unfold when the illuminating body is liberated.

5. A search light projectile comprising a plurality of illuminating bodies, the cross-section of said illuminating bodies, forming a polygon, in combination with a plurality of wings, corresponding in number with the number of sides in said polygon, and the cross-section of said wings adapted to conform with the cross-section of said polygon.

6. A search light projectile comprising a shell body, a time-fuse and a busting charge in combination with a plurality of illuminating bodies shaped to conform with the shape of the cells of said shell body, a plurality of wings for said illuminating bodies constructed to fold around said illuminating bodies and conforming to the shape thereof, said wings constructed to unfold and sustain the illuminating bodies in the air, when liberated from said projectile on exploding the shell.

The foregoing specification signed at Barmen, Germany, this 10th day of May, 1911.

FRIEDRICH ZIEGENFUSS. [L. s.]

In presence of—

CHAS. J. WRIGHT,
ALFRED HENKEL.