

L. McNAMEE.
 SHOCK ABSORBER FOR SEARCH LIGHTS.
 APPLICATION FILED OCT. 25, 1910.

1,000,834.

Patented Aug. 15, 1911.

Fig. 1.

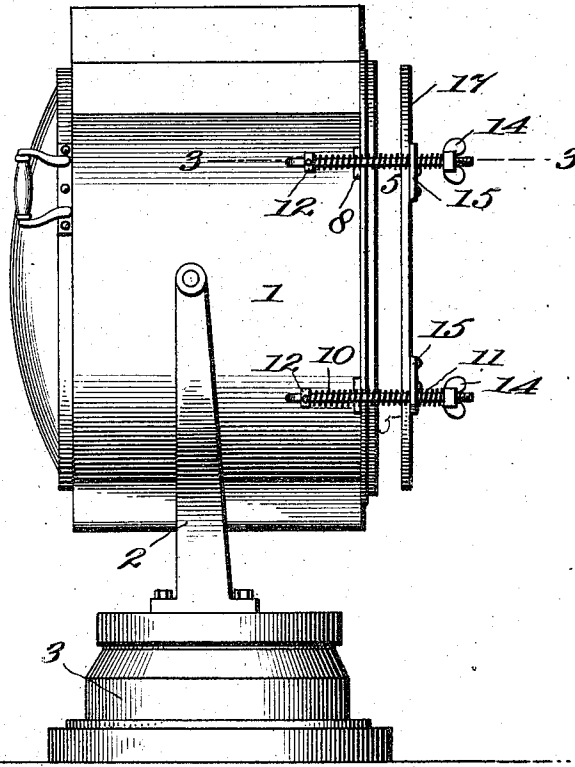


Fig. 2.

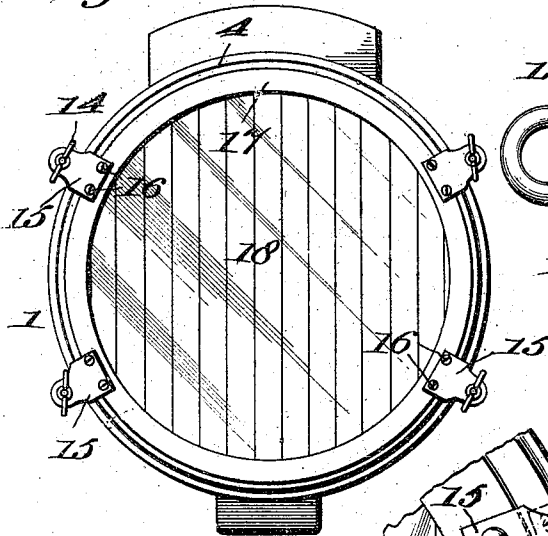


Fig. 3.

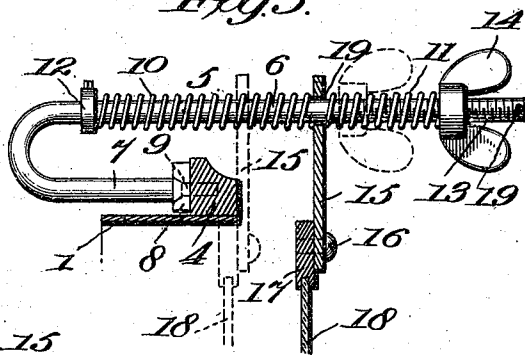
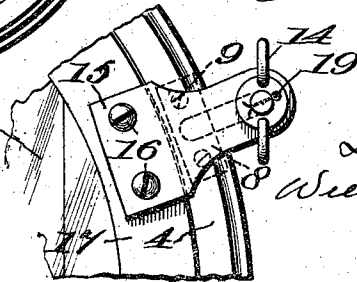


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

LUKE McNAMEE, OF THE UNITED STATES NAVY.

SHOCK-ABSORBER FOR SEARCH-LIGHTS.

1,000,834.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed October 25, 1910. Serial No. 589,082.

To all whom it may concern:

Be it known that I, LUKE McNAMEE, lieutenant commander, United States Navy, a citizen of the United States, at present attached to the U. S. S. *Connecticut*, have invented certain new and useful Improvements in Shock-Absorbers for Search-Lights; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to shock absorbers for search lights, and has for its object to prevent the destruction of the lens portion or other frangible portions of said lights on board warships during gun fire.

To these ends the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views:—Figure 1 is a side elevational view of a search light made in accordance with my invention; Fig. 2 is a front elevational view of the parts shown in Fig. 1 with the cradle removed; Fig. 3 is an enlarged detailed sectional view on the line 3—3 of Fig. 1; and Fig. 4 is an end view of the parts shown in Fig. 3.

As is well known, the glass strips or lenses with which search lights are equipped are often broken when exposed to the shocks and concussions incident to gun fire, and the cause of this breaking is probably due to the mechanical vibrations which are transmitted through the supports of the search light, as well as to the changes in pressure between the inside and outside air due to the rarefactions of the outside air accompanying the discharge of the gun. It is probable that this latter agency is the more destructive of the two. My invention, however, by the means now disclosed completely obviates this destructive effect, as has been abundantly proved in actual practice.

1 designates the barrel of a search light of any well known construction supported in a cradle 2 on a stand 3, while 4 represents the usual strengthening band on the front end of the barrel to which is attached a plurality of guide rods 5. These guide

rods are preferably bent upon themselves to form a long arm 6 and a short arm 7, and the short arm is preferably provided with a flange 8 which is rigidly secured to the rear side of the band 4 as by the screws 9. On the long arm 6 of the guide rods I preferably mount a long spiral spring 10 and a short spiral spring 11. An adjustable sleeve 12 is also mounted on the inner portion of the arm 6 in order that one end of the spring 10 may bear thereagainst, while the extreme end of the said arm 6 is screw-threaded as at 13 to receive a nut 14 against which one end of the short spring 11 may bear. Between the springs 10 and 11 are located plates 15 provided with holes 19 through which the arms 6 pass, and these plates are securely held as by screws 16 to the front door 17 of the search light, and which door carries the glass strips or lenses 18 to be protected.

19 represents pins passing through the ends of the rods in order to prevent the butterfly nuts from jarring off and becoming lost.

Normally when the search light is in use and the guns are not being fired, the butterfly nuts 14 are set up and the door is kept closed against the barrel as indicated in dotted lines in Fig. 3. But when gun fire is to take place, the butterfly nuts are slacked off thereby permitting the door under the influence of the springs 10 to be forced outward and away from the barrel for the space of say half an inch or an inch, as indicated in full lines in Figs. 1 and 3. When the door has been thus opened, and gun fire takes place, the shocks that are mechanically transmitted through the supports of the search light are absorbed by the springs 10 and 11, and therefore the lenses or strips 18 are protected from such shocks. On the other hand, while the door is open, there is a free communication between the inside and the outside air, and therefore any rarefactions or condensations which occur on the outside of the search light, due to gun fire, will likewise occur on the inside of said search light, and therefore the frangible portions of the said search light will be subjected to like strains and stresses from within as well as from without, so that all danger of breakage from this latter cause is obviated.

As above stated, actual tests of this in-

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vention on board war-vessels has proved that search lights equipped therewith will remain uninjured during heavy gun fire.

It is obvious that those skilled in the art may vary the details of construction and arrangement of parts without departing from the spirit of my invention and therefore I do not wish to be limited to such features except as may be required by the claims.

What I claim is:—

1. In a search light provided with a body portion, the combination of a door provided with a frangible part and a plurality of springs adapted to hold said door out of contact with said body portion, to permit the pressure on each side of said door to be equalized for absorbing the shocks incident to gun fire, substantially as described.

2. In a search light provided with a body portion, the combination of a door provided with a frangible part, a spring cushioning means coacting with said door adapted to hold it out of contact with said body portion to permit the pressure on each side of said door to be equalized, and adapted to absorb the shocks incident to gun fire; and means for adjusting the compression of said cushioning means and thereby preventing said frangible part from being destroyed, substantially as described.

3. In a search light provided with a body portion, the combination of a door provided with a frangible part; a plurality of supports having coiled springs adapted to hold said door out of contact with said body portion, to permit the pressure on each side of said door to be equalized and adapted to absorb the shocks incident to gun fire; and means for adjusting the compression of said springs, substantially as described.

4. In a search light provided with a body portion, the combination of a door having a frangible part; a shock absorber comprising a plurality of springs mounted between said door and the said body portion; a plurality of springs mounted on the outside of said door, all of the said springs adapted to absorb the shock incident to gun fire; and means adapted to adjust the tension of all

of said springs and thereby permit the door to be opened or closed, substantially as described.

5. In a search light having a casing the combination of a door provided with a frangible part; a rod mounted on said casing; a plurality of springs mounted on said rod; and connections between said rod, springs and door, whereby the pressure on each side of said door may be equalized during the shocks incident to gun fire, substantially as described.

6. In a search light having a casing the combination of a door provided with a frangible part; a plurality of rods mounted on said casing; a plurality of springs mounted on each rod; connections between said door, springs and rods whereby the pressure on each side of the said door may be equalized during the shocks incident to gun fire; and adjusting means for regulating said springs and for opening and closing said door, substantially as described.

7. In a shock absorber for search lights, the combination of a barrel; a plurality of rods mounted on said barrel; a door mounted on said rods; a plurality of springs mounted on each rod; connections carried by said door located between said springs on each rod; and a nut on the end of each rod to regulate said springs, whereby the mechanically transmitted shocks may be absorbed by said springs and the latter may force open said door to permit equal pressures inside and outside of said barrel, substantially as described.

8. In a search light the combination of a door provided with a frangible part; and adjustable spring actuated means for providing an air gap for equalizing the atmospheric pressure on both sides of said door during gun fire; substantially as described.

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

LUKE McNAMEE.

Witnesses:

E. WILKINSON,
B. H. DAILEY.