

Sept 17, 1957

V. OHARENKO  
SHOCK RESISTANT LAMP

2,806,942

Filed Sept. 14, 1955

2 Sheets-Sheet 1

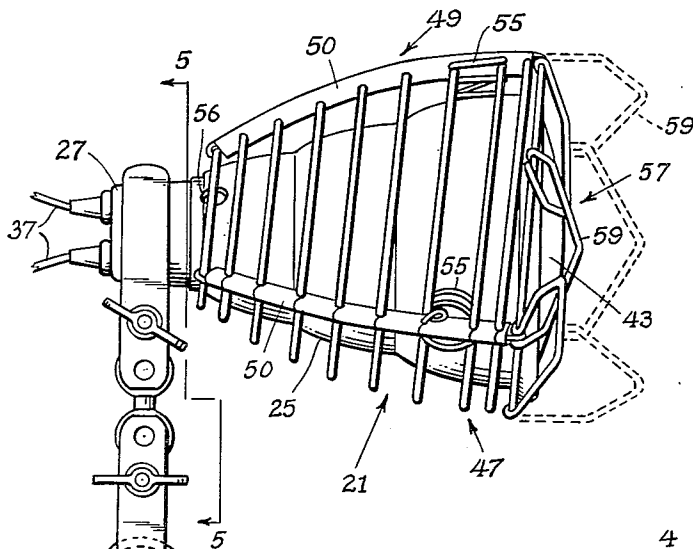


Fig. 1

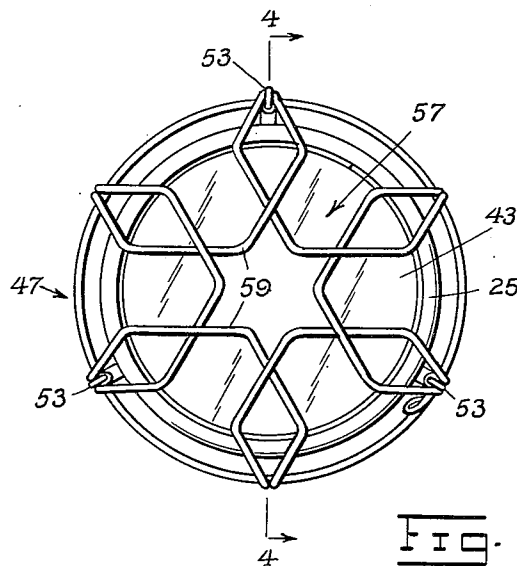


Fig. 2

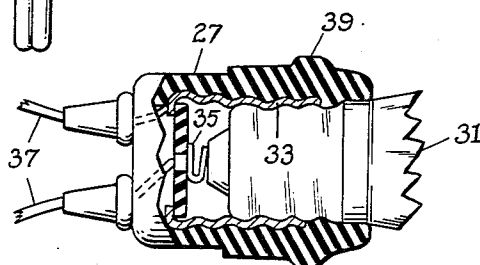


Fig. 3

INVENTOR,  
VLADIMIR OHARENKO  
BY *Edward H. Lumpston*  
HIS ATTORNEY.

Sept 17, 1957

V. OHARENKO  
SHOCK RESISTANT LAMP

2,806,942

Filed Sept. 14, 1955

2 Sheets-Sheet 2

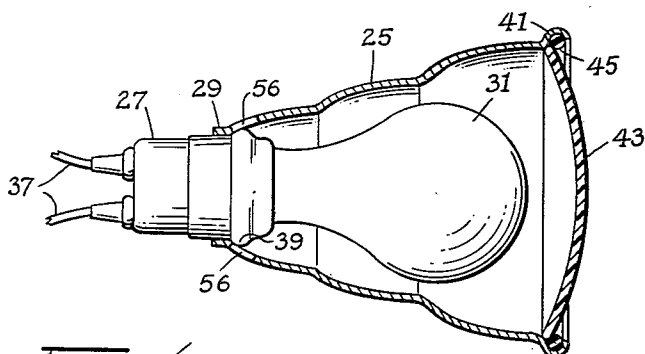


Fig. 4

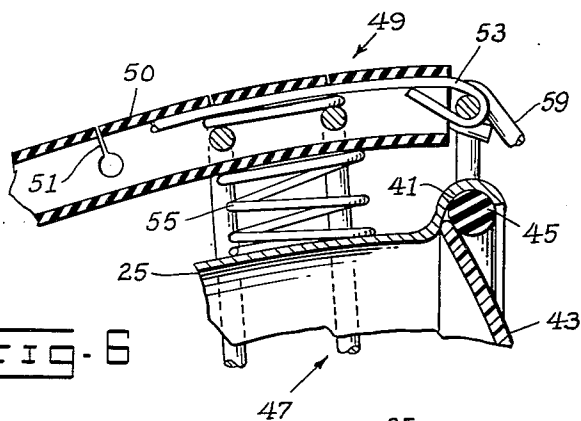


Fig. 6

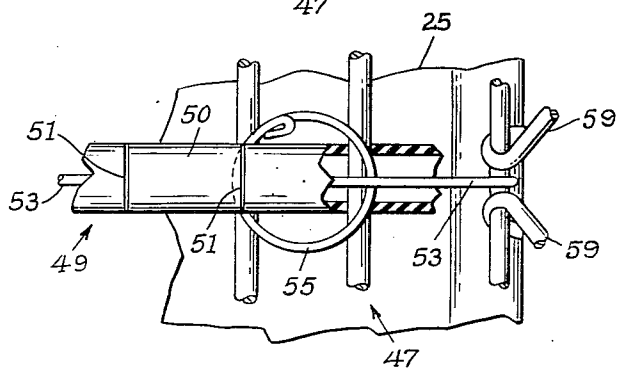


Fig. 7

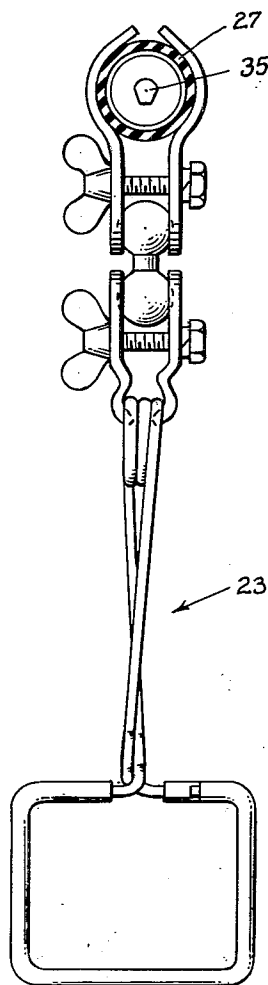


Fig. 5

INVENTOR.  
VLADIMIR OHARENKO  
BY *Edward H. Hampton*  
HIS ATTORNEY.

1

2,806,942

## SHOCK RESISTANT LAMP

Vladimir Oharenko, Chicago, Ill.

Application September 14, 1955, Serial No. 534,266

8 Claims. (Cl. 240—90)

This invention relates to electric lamps, and more particularly to portable electric lamps such as those used in automobile and other types of repair work. This invention is an improvement over my earlier invention disclosed in my copending application, Serial No. 337,988, now Patent No. 2,727,137.

One object of the present invention is to provide an improved lamp, having a rugged and efficient construction which may be readily and economically manufactured and assembled.

Another object is to provide a lamp of the above nature which is particularly well adapted to resist shocks and impacts so as to provide a safe and reliable lamp for use in automobile or other machinery construction and repair shops.

A further object is to provide a lamp having the above advantages, which is provided with a spaced protective guard which remains cool despite continuous use of the lamp.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a side elevation of a lamp embodying the present invention;

Fig. 2 is an end elevation of the lamp shown in Fig. 1;

Fig. 3 is an enlarged elevation, partly in section, of the bulb receptacle;

Fig. 4 is a sectional elevation substantially along the line 4—4 of Fig. 2, showing the lamp housing with the protective shield removed;

Fig. 5 is a sectional elevation substantially along the line 5—5 of Fig. 1;

Fig. 6 is an enlarged fragmentary sectional elevation showing the construction of the protective shield; and

Fig. 7 is a top plan view, partly broken away, of the protective shield, shown in Fig. 6.

The present invention, herein disclosed by way of illustration, preferably comprises a portable lamp housing shown generally at 21 (Fig. 1) and a clamping or supporting structure shown generally at 23 by means of which the lamp may be readily held in the desired position of angular adjustment so as to project or throw the beam of light in the desired direction.

Lamp housing 21 is particularly designed to resist shocks and impacts so as to provide an improved shock-resistant repair or trouble light especially adapted for use in automotive or other repair shops. To this end, the lamp housing comprises a reflector 25 (Figs. 1 and 4) preferably spun of a light-weight metal, such as aluminum or other suitable material. Reflector 25 is open at opposite ends thereof and flares outwardly towards the right hand end thereof, as shown in Figs. 1 and 4. A receptacle or socket 27, preferably of rubber or other resilient material, is frictionally fitted in the opening in the smaller end 29 of reflector 25, as shown in Fig. 4.

2

Receptacle 27 is adapted to support an incandescent bulb 31 and to that end it is provided with a conventional threaded contact member 33 and a center contact member 35. Receptacle 27 is also provided with suitable circuit means, including a pair of wires 37 extending outwardly therefrom, as shown in Figs. 1 and 4, for connection to a suitable source of electrical energy. One of wires 37 is connected to contact 33 while the other wire is connected to contact 35. A switch (not shown) may be included in this circuit to increase the convenience of operation.

Socket or receptacle 27 snugly fits within the opening formed in the smaller end 29 of the reflector and has a flange or lip 39 (Fig. 4) adjacent the inner end thereof which abuts against the inner surface of reflector end 29, as shown in Fig. 4, and prevents the receptacle from being pulled outwardly through the reflector. The frictional engagement between socket 27 and end 29 of the reflector is sufficient to hold the socket in position in the reflector, while at the same time it allows the reflector to yield or give relative to the receptacle, thereby absorbing impacts without transmitting the same to the receptacle or bulb.

Reflector 25 flares outwardly toward the right end thereof, as viewed in Fig. 4, and is provided with an annular curved seat 41 (Fig. 4). A light-transmitting member or lens 43 is mounted in seat 41 and is held in position closing the larger end of the reflector by a resilient annular ring 45 (Fig. 4). Ring 45 is preferably of natural or synthetic rubber or of suitable acid and oil resistant material such as Koroseal. Ring 45 engages the outer surface of lens 43 adjacent the edge thereof and at the same time engages the inwardly extending portion of seat 41 and thereby holds lens 43 in position, as shown in Fig. 4.

Lens 43 is preferably of shock-resistant light-transmitting material such as "Plexiglas" or "Lucite," or other suitable plastic material, and is capable of resisting heavy impacts. Lens 43 not only protects bulb 31 from being struck, but it also excludes dust or other foreign matter.

In order to cushion reflector 25 against impact, I preferably provide an external cushioning means such as a helical wire coil shown generally at 47 (Fig. 1) which preferably extends longitudinally along the lamp housing and is held in spaced relationship with the reflector, as hereafter pointed out. Adjacent turns of coil 47 are held in position by longitudinally extending resilient spacer members shown generally at 49 (Fig. 6).

Each of spacers 49 preferably comprises a length of resilient material 50 (Fig. 6) in the form of a coiled metal spring or tubular material such as Koroseal or other suitable material. Tube 50 extends longitudinally along coil 47 and is formed with a series of spaced transverse slits 51 which extend from the outer surface substantially midway through the tube, as shown in Fig. 6. Slits 51 are adapted to receive adjacent turns of coil 47, as shown in Figs. 1, 6 and 7. Spacers 49 and coil 47 are locked together by wires 53 (Fig. 6) and the bottom of slits 51. Wires 53 are inserted longitudinally through the spacers after the spacers are in position on coil 47 and pass above the turns of coil 47, as shown in Fig. 6. Thus, wires 53 prevent spacers 49 from slipping off coil 47 in an inward direction towards reflector 25, while the bottoms of slits 51 prevent spacers 49 from moving in the opposite direction. Each of wires 53 is preferably formed with a loop at the opposite ends thereof for connection with one of the turns of coil 47 at each end of the coil.

Coil 47 and spacers 49 are spaced from reflector 25 by means of a series of resilient members or springs 55 (Fig. 1). The outer ends of springs 55 are held in position in the respective spacers 49 in the same manner as the turns of wire coil 47, as shown in Figs. 6 and 7. Springs 55

are preferably not fastened at their inner ends to the reflector, but merely abut the outer surface of the reflector, as shown in Figs. 1 and 6. Coil 47 is spaced from reflector 25 at the smaller end of the reflector by spacers 49 which engage the outer surface of the reflector and hold coil 47 outwardly therefrom.

Thus, as a result of springs 55 and spacers 49, protective coil 47 is held in spaced relationship with the reflector for substantially the full length thereof. As a result, coil 47, spacers 49 and springs 55 all co-act to produce an impact absorbing shield or guard which will absorb and dissipate blows on the lamp housing, thereby protecting bulb 31. This is particularly advantageous when the lamp is used in automobile repair shops and the like where small tools or parts are apt to strike the lamp housing, or the lamp may fall on a non-yielding surface which, were it not for the presence of the above guard, would strike the reflector directly and possibly cause the fracture of bulb 31.

Moreover, the spacing of wire coil 47 from reflector 25 has the further advantage that it allows the reflector 25 to dissipate the heat of the bulb directly to the air without undue heating of coil 47. Thus, the wire guard protects the workmen from contacting the reflector which often becomes quite hot after extended periods of use, and provides a safe area where the lamp may be grasped for moving or adjusting the same. As a further aid in reducing the operating temperature of the lamp, reflector 25 is preferably provided with a series of vent openings 56 (Figs. 1 and 4), adjacent the smaller end 29 of the reflector.

In addition to the above impact absorbing guard, I preferably provide a second guard means shown generally at 57 (Figs. 1 and 2) which is adapted to extend inwardly across the larger end of reflector 25 to protect that end of the lamp housing, including lens 43. Guard 57 preferably comprises a series of substantially U-shaped wire members 59 which are attached at the opposite ends thereof to the most forward turn of wire coil 47, as shown in Figs. 1 and 2. Members 59 are preferably 6 in number and the right hand end of each member, as viewed in Fig. 2, extends under the left hand end of the adjacent member to the right, as shown in Fig. 2. Thus, there is an interweaving of members 59 as shown in Fig. 2, whereby a lifting force applied to any one of members 59 will readily move all of the members from their inwardly extending position, shown in solid lines in Figs. 1 and 2 to their outwardly extending position shown in dotted lines in Fig. 1. Similarly, members 59 may be moved, as a unit, back to their solid line positions.

Wire members 59 form a resilient guard for the larger end of the reflector and cushion the lamp housing against blows occurring from dropping or from other impacts against the front of the housing. In addition to forming a cushioning or impact absorbing shield, guard members 59 also prevent objects which might break lens 43 from contacting the lens or, in those cases where lens 43 is omitted, from directly contacting bulb 31 and possibly breaking the same.

Guard members 59 co-act with wire member 47, spacers 49 and springs 55 to form a unitary impact absorbing shield for cushioning the reflector and bulb against impacts resulting from the accidental dropping of the lamp. Additional protection results from the use of resilient socket 27 which is mounted in the smaller end of the reflector in such a manner that it may readily give or yield under impact.

The means for supporting and positioning the above lamp housing preferably comprises spring clamping mechanism 23, shown in Figs. 1 and 5. Clamping mechanism 23 is identical to that disclosed in my above co-pending application and reference is hereby made to that application for a complete description of the clamping mechanism.

Thus, it will be seen that my invention provides an

improved shock-resistant lamp which is particularly well adapted for construction or for repair work such as in the manufacture and repair of automobiles, farm equipment and other heavy machinery. My lamp may also be readily used in the building construction field as well as in numerous other fields where it is necessary to protect electric lights from damage by falling or from being struck by moving or flying objects. In my improved lamp the reflector is cushioned against side or end directed impacts by the resiliency and yielding action of the outer shield formed by wire coil member 47, spacers 49, springs 55 and wire guard members 59. In addition, further cushioning of the bulb is provided by the resilient mounting of receptacle 27. Thus, objects striking the lamp housing will have all or part of their force arrested and dissipated by the various cushioning and cradling members so that the bulb will not be broken and the lamp may be kept in use without valuable time being lost in replacing the bulb after each impact.

Thus, my invention provides an improved lamp having a rugged construction and capable of remaining in substantially continuous use despite heavy blows or impacts thereagainst. This means that the operator using the lamp may continue his work without being interrupted and without the necessity of having to lay down his tools or to stop his particular task to replace the bulb, as has been the case in the past with lamps heretofore known and used. Not only will this increase the operator's efficiency and reduce "lost time," but it results in further economy in that, a given set of circumstances, far fewer bulbs are broken so that the expenditure for bulbs is also materially reduced.

In addition to protecting the bulb from breaking, the protective cushioning shield formed by members 47, 55, 49 and 59 also protects the operator against being burned when he contacts the lamp. That is, the above shield members are either spaced from reflector 25 or have a limited area of contact therewith, so that the reflector is able to dissipate the heat of the bulb directly to the air without causing undue heating of the protective shield. As a result, the workmen may readily grasp the lamp by the shield for adjusting its beam or repositioning the lamp.

It will thus be seen that the invention accomplishes its objects and while it has been herein disclosed by reference to the details of a preferred embodiment, it is to be understood that such disclosure is intended in an illustrative, rather than a limiting sense, as it is contemplated that various modifications in the construction and arrangement of the parts will readily occur to those skilled in the art, within the spirit of the invention and the scope of the appended claims.

I claim:

1. A shock-resistant lamp housing comprising a reflector of generally conical shape, a bulb receiving receptacle mounted at one end of said reflector, resilient guard means outside said reflector, means extending between said reflector and said guard means for holding said guard means in spaced relationship with said reflector and for forming with said guard means an impact absorbing shield for said reflector and receptacle, and circuit means for connecting said receptacle to a source of electrical energy.

2. A shock-resistant lamp housing as specified in claim 1 in which said resilient guard means comprises a helical wire member and a plurality of longitudinally extending spacer members engaging adjacent turns of said wire member.

3. A shock-resistant lamp housing comprising a reflector of generally conical shape, a bulb receiving receptacle mounted at one end of said reflector, resilient guard means outside said reflector, a plurality of spaced resilient members extending between said reflector and said guard means for holding said guard means in spaced relationship with said reflector and for forming with said guard means an impact absorbing shield for said reflector

5

and receptacle, and circuit means for connecting said receptacle to a source of electrical energy.

4. A shock-resistant lamp housing comprising a reflector of generally conical shape, a bulb receiving receptacle mounted at the smaller end of said reflector, resilient guard means outside said reflector, means extending between said reflector and said guard means for holding said guard means in spaced relationship with said reflector and for forming with said guard means an impact absorbing shield for said reflector and receptacle, second guard means adjacent the larger end of said reflector, said second guard means extending inwardly across the larger end of said reflector, and circuit means for connecting said receptacle to a source of electrical energy.

5. A shock-resistant lamp housing comprising a reflector of generally conical shape, a bulb receiving receptacle mounted at the smaller end of said reflector, a light transmitting closure member for the larger end of said reflector, a retaining member engaging said closure member and said reflector for holding said closure member, resilient guard means outside said reflector, means extending between said reflector and said guard means for holding said guard means in spaced relationship with said reflector and for forming with said guard means an impact absorbing shield for said reflector and receptacle, and circuit means for connecting said receptacle with a source of electrical energy.

6. A shock-resistant lamp housing comprising a reflector of generally conical shape, a bulb receiving receptacle mounted at the smaller end of said reflector, a light transmitting closure member for the larger end of said reflector, a retaining member engaging said closure member and said reflector for holding said closure member, resilient guard means outside said reflector, means extending between said reflector and guard means for holding said guard means in spaced relationship with said reflector and for forming with said guard means an impact absorbing shield for said reflector and receptacle, a second guard means adjacent said larger end of said reflector, said second guard means extending inwardly across said closure member, and circuit means for connecting said receptacle to a source of electrical energy.

6

7. A shock-resistant lamp housing comprising a reflector of generally conical shape open at opposite ends thereof, a bulb receiving receptacle yieldably mounted at the smaller end of said reflector, resilient guard means outside said reflector, a plurality of spaced resilient members extending between said guard means and said reflector for holding said guard means in spaced relationship with said reflector and for forming with said guard means an impact absorbing shield for said reflector and said receptacle, and circuit means for connecting said receptacle to a source of electrical energy.

8. A shock-resistant lamp housing comprising a reflector of generally conical shape open at opposite ends thereof, a light transmitting closure member for the larger end of said reflector, a retaining member engaging said closure member and said reflector for holding said closure member, a bulb receiving receptacle yieldably mounted at the smaller end of said reflector, a helical wire member outside said reflector, a plurality of spacing members extending longitudinally of said wire member and engaging adjacent turns of said wire member, means positioned between said reflector and said wire member for holding said wire member and spacing members in spaced relationship with said reflector and for forming with said members an impact absorbing shield for said reflector and receptacle and circuit means for connecting said receptacle to a source of electrical energy.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |          |               |
|-----------|----------|---------------|
| 1,435,763 | Townsend | Nov. 14, 1922 |
| 1,692,892 | Floyd    | Nov. 27, 1928 |
| 1,711,993 | Erickson | May 7, 1929   |
| 2,167,184 | Phillips | July 25, 1939 |
| 2,265,830 | Woodhead | Dec. 9, 1941  |
| 2,526,729 | Carlson  | Oct. 24, 1950 |

##### FOREIGN PATENTS

|         |               |               |
|---------|---------------|---------------|
| 409,091 | Great Britain | Apr. 26, 1934 |
|---------|---------------|---------------|