Oct. 6, 1953 A. F. VANDENBERG 2,654,828

LAMP WITH REMOVABLE REFLECTOR UNIT

Filed Nov. 19, 1951 2 Sheets-Sheet 1

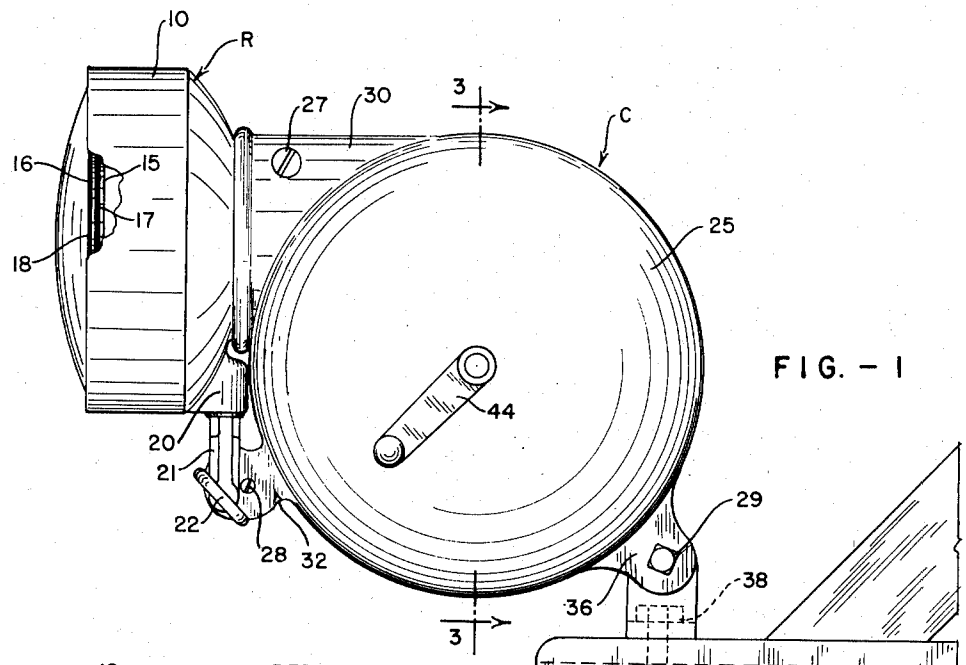


FIG. - 1

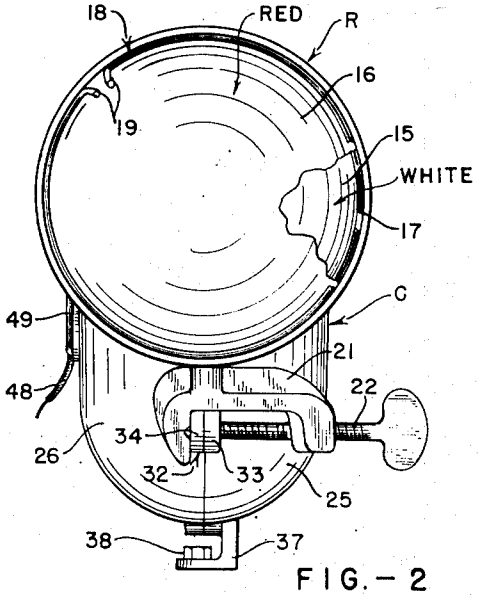


FIG. - 2

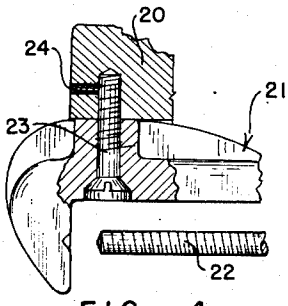


FIG. - 4

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LAMP WITH REMOVABLE REFLECTOR UNIT

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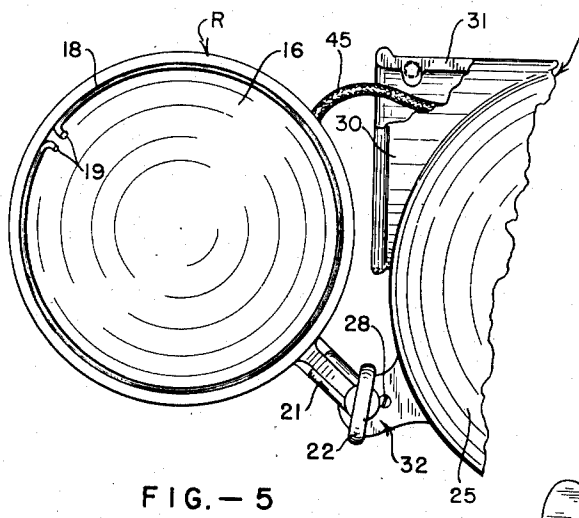


FIG. — 5

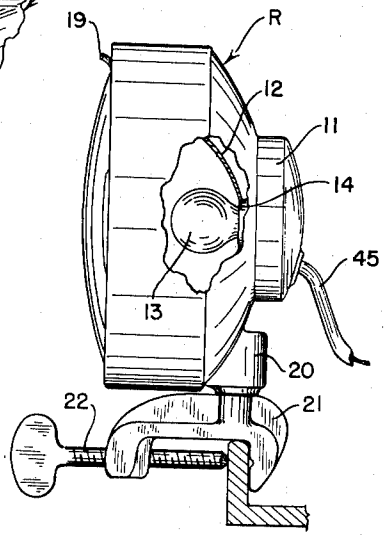


FIG. — 6

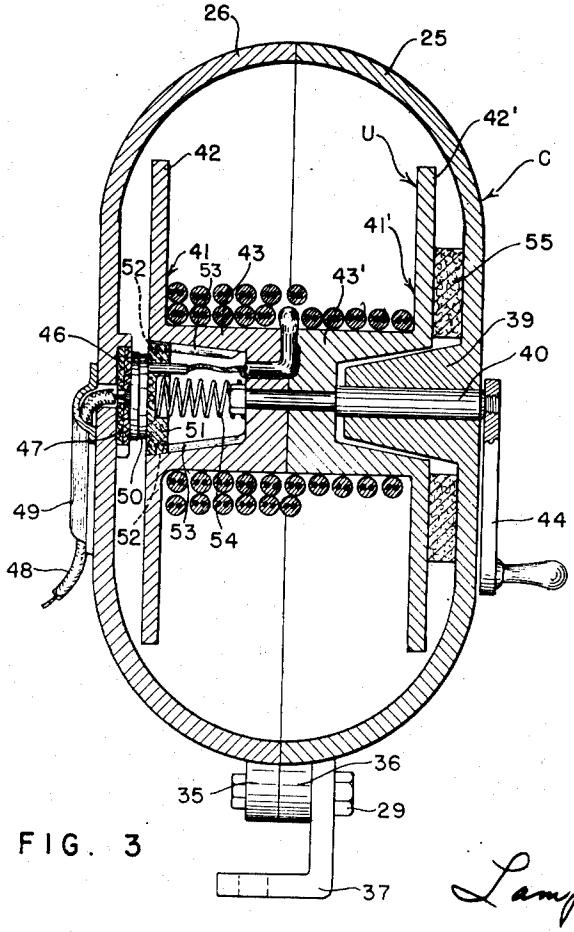


FIG. 3

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LAMP WITH REMOVABLE REFLECTOR UNIT

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6 Claims. (Cl. 240—8.18)

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This invention relates to electric lamps and more particularly such lamps which have separable units, one of which carries a reel for a cord and the other a reflector and a bulb so that the two units can be mounted together or the reflector unit can be separated from the reel unit and placed at some other position where light is desired remote from the reel unit without the necessity of moving both units. Such lamps have many uses, particularly on vehicles when it may be desired to have light at different times on the front, rear or any other point of the vehicle.

One of the objects of the invention is to provide in a lamp of the type referred to, means for detachably connecting the reel unit and reflector unit together and also permitting the mounting of the reflector unit at any remote point when desired.

A further object is to produce a lamp of the type referred to which is so constructed that means including a single clamp structure carried by the reflector unit is employed to connect both units rigidly together, connect both units together so that the reflector unit can have movement on the reel unit to any of innumerable positions, or permit the reflector unit to be mounted on a support away from the reel unit and have movement to innumerable positions with respect to the said support.

Another object is to produce in a lamp having a removable reflector unit an improved reel unit for an electrical cord so as to permit the reflector unit to be placed at a remote point and more particularly improved means for conducting electricity to the cord wound on and off and also for establishing means for frictionally holding the reel in any rotated position.

Yet a further object is to produce in a lamp an improved reflector unit for association with a reel unit for an electrical cord.

A still further object is to produce an improved clamp structure for an electrical reflector unit which will permit the mounting of the reflector unit on various support means in a quick and simple manner and also be capable of being positioned to direct a beam of light in innumerable directions.

Other objects of the invention will become apparent from the following description taken in connection with the accompanying drawings showing a preferred embodiment, by way of example only.

In the drawings:

Figure 1 is a side view of a lamp with the reflector unit in rigid mounted condition with the reel unit;

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Figure 2 is a front end view of the lamp shown in Figure 1;

Figure 3 is a sectional view through the reel unit, said view being taken on the line 3—3 of Figure 1 and showing the electrical connection structure between the reel cord and the conductor connected to the source of electricity, which connection also functions as a means for establishing friction to prevent free turning of the reel;

Figure 4 is a view partly in section showing the pivotal friction connection of the clamp to the reflector unit housing; and

Figures 5 and 6 are views showing different manners of use of the reflector unit after it is removed from its rigid connection with the reel unit.

My improved lamp, as shown by the drawings, comprises two main units, a reflector unit R and a cord and reel unit C. The reflector unit has a housing 10 of general cylindrical shape provided on its rear side with a smaller cylindrical portion 11 (see Figure 6). Within the housing is a reflector 12 of a shape to properly concentrate the rays from a light bulb 13 mounted in an electrical socket 14 at the center of the reflector. The reflector unit is provided with two lenses made from suitable material. The inner lens 15 is clear and the outer lens 16 is red. The inner lens is held in the cylindrical portion of the housing 10 by a split wire ring 17 fitting into a suitable groove, and the red lens is held by a similar split wire ring 18 fitting into a suitable groove. The ring 18 has its ends provided with fairly long extensions 19 to permit easy grasping between the thumb and finger so they can be squeezed toward each other to contract the ring and allow it to be withdrawn from its holding groove. The red lens can then be removed. With both an outer red lens and an inner white lens, the lamp can be conditioned either as a white light or a red light, depending upon which is desired. The red lens, when attached, is rigid and cannot be broken off as it might be if it were hinged on.

The reflector unit housing carries an integral boss 20 to which a clamping structure is mounted, as best shown in Figure 4. The clamp structure comprises a clamp member 21 of a general U-shaped form, in one leg of which is threaded a bolt 22 having a wing head, thus providing a thumb screw. The inner end of this bolt is arranged to cooperate with the other leg of the

clamp so that by screwing up the nut the clamp can be attached to a member which may be positioned between the head of the bolt and the leg opposite the head. The clamp member **21** is arranged for pivotal mounting on the boss **20** and this is accomplished by a pivot screw **23** threaded into the boss. The pivot screw is held in any adjusted position by a small set screw **24** carried by the boss, all as shown in Figure 4. By screwing up the pivot screw, any desired amount of friction can be obtained between the clamp and the boss so that the reflector unit can be frictionally held in any desired position it may be placed. The full purpose of the clamp on the reflector unit will later become apparent.

The reel unit C is formed from two complementary cup-shaped sections **25** and **26**, held together by two screws **27** and **28** and a bolt **29**. The sections have similar semi-cylindrical extensions **30** and **31** to provide a cylindrical opening into the housing C at the front top side thereof. The diameter of this cylindrical opening is slightly greater than the smaller cylindrical porion **11** on the rear of the reflector unit so that the cylindrical portion can have a fairly close fit in the opening of the reel unit. The already mentioned screw **27** for holding the housing sections together passes through two suitable lugs carried by the two semi-cylindrical extensions **30** and **31**.

Below the cylindrical opening in the unit C there is a forwardly projecting lug **32** which is formed by two outwardly projecting parts **33** and **34** on the to sections of the housing. These two projecting parts are clamped together by the already mentioned screw **28** employed to hold the two casing sections together. Bolt **29** which is also employed to hold the two sections together, extends through two mating projecting parts **35** and **36** carried by the two housing sections. Bolt **29** is not only employed to hold the housing sections together, but also is used to clamp an L-shaped mounting bracket **37** to the cord housing. With this bracket the unit C of the lamp can be mounted upon any suitable support by means of a bolt **38**, all as indicated in Figure 1. The cord unit C can be pivotally adjusted with respect to the mounting bracket, due to the bolt connection between the housing and the bracket.

As best seen in Figure 3, the inside of the housing section **25** of the cord housing is provided with an inwardly extending integral boss **39** in which is rotatably mounted a shaft **40**, one end of which extends to the exterior of the housing section **25** and the other end extends inwardly beyond the end of the boss **39**. On the inner end of this shaft is mounted a reel U made from two similar sections **41** and **41'**. Section **41** has a side plate **42** and a hollow hub **43** extending laterally from one side of the plate. Section **41'** also has a side plate **42'** and a hollow hub **43'** which receives boss **39**. The hubs are clamped onto a shoulder of the shaft by a nut on its inner end so the reel can be rotated by the shaft. The outer end of the shaft is provided with threads for attaching thereto a crank **44** whereby the reel can be rotated by hand when desired.

The reel is arranged to have wound thereon a two-wire electric cord **45** of considerable length. One end of the cord is attached to the reel by being clamped between the two sections and the other end of the cord is arranged to be connected through the rear end of the reflector

unit to the socket **14** for the light bulb. One conductor of the wire at its reel end is turned back and also clamped between the sections to produce a ground.

In order that the reel may be rotated to allow for the winding on and off of the cord and yet permit a source of current to be continuously transmitted to the inner end of the cable, a special connecting structure is employed which is also shown in Figure 3. The inner side of the housing section **26** opposite the inner end of the shaft **40** carries a conducting plate **46** suitably insulated from the housing structure by insulating material **47**. To this conductor plate will be attached an electrical single wire conductor cord **48** extending to the outside of the housing section for connection to the source of electricity for lighting the lamp bulb. A protecting sheath **49** is also employed to cover the end of the cord **48** where it comes out of the housing section. Cooperating with the conductor disc **46** is a second conductor disc **50** which is mounted upon a disc **51** of suitable insulating material. The insulating disc **51** is arranged to be mounted in the open end of the hollow hub **43** of section **41** of the reel. The conductor disc and insulating disc are free to have movement axially of the reel, but are connected for rotation with the reel by the provision of recesses **52** in the periphery of the disc of insulating material, which recesses receive lugs **53** extending inwardly from the hub **43** of the reel section. The conductor disc **50** has connected thereto the ungrounded conductor wire at the inner end of the cable **45**, all as shown in Figure 3.

In order that the two electrical conducting discs will be maintained in engagement at all times, there is provided in the hollow hub **43** of the reel section **41** a coil spring **54**. It is interposed between the insulating disc **51** and the inner end of the shaft **40**, with said inner end of the shaft being reduced in diameter so the spring can fit thereover and be held in proper position. This spring, when the two sections of the housing and the reel are all mounted in position as shown in Figure 3, will be under compression and thus exert a force to hold the two conductor discs in constant engagement, yet permit the conductor disc **50** to rotate relative thereto and with the reel.

The spring **54** not only serves to hold the two conductor discs together, but has the additional function of providing means for establishing a frictional resistance to turning of the reel so that the reel will not be "free running." This is accomplished by the provision of a fiber washer **55** mounted between the plate of the reel section **41'** and the inner side surface of the housing section **25**, with the washer being in surrounding relation to the boss **39** in which the shaft **40** is rotatably mounted. With this fiber washer, the spring **54** will be effective to press the side plate **42'** of reel section **41'** tightly against one side of the friction washer and the other side of the friction washer tightly against the inner surface of the housing section **25**. The fiber washer is free floating, having no attachment to either the reel or the housing. The spring **54** is so constructed that when it is under compression in the assembled structure, it will produce enough force to permit the reel to rotate when an appreciable pulling force is applied to the electric cord **45** to unwind it or an

appreciable turning force is applied to the crank **44** to wind it up.

From the foregoing description of my improved lamp it is believed to be apparent as to the manner of its use. The reel unit having the cord mounted therein is fastened to any suitable support by the mounting bracket, all as shown in Figure 1. Because of the bolt **29**, this unit can be adjusted about the axis of the bolt, as desired, to thus direct the beam of light from the reflector unit R up or down or horizontal, if such unit is rigidly mounted by the clamp in the reel unit C as shown in Figure 1. With such mounting the small cylindrical part **11** of the reflector unit will be placed in the cylindrical opening in the reel unit and the clamp member **20** will hold it therein by fastening the clamp to the lug **32** on the reel unit which is below its cylindrical opening. Under such conditions neither unit will be capable of relative movement with respect to the other. The bracket and attaching bolt **38** will also permit the lamp to be mounted, with the reflector unit directed in any direction around the axis of bolt **38**.

If it should be desired to have the reflector unit movable with respect to the reel unit and about the axis of the pivot screw **23** of the clamp, the bolt **22** of the clamp can be loosened and the reflector unit removed from the cylindrical opening in the reel unit following which the clamp will be again tightened onto the lug **32** in a position to place the axis of the pivot screw at the desired angle. With this mounting of the reflector unit on the reel unit, all as illustrated in Figure 5, the beam of light can be directed in various directions about the pivotal axis of the pivot screw **23** by merely turning the reflector unit. The reflector unit will stay in the set position because of the friction between the clamp and unit established by the tightening of the pivot screw. If the beam should need to be lowered or raised, such can be done by adjusting the clamp on the lug **32**. If this adjustment is too limited, then further adjustment can be had by adjusting the reel unit on the mounting bracket by means of bolt **29**. With all of these adjustments it is seen that the beam of light can shine in innumerable directions approaching universal.

If at any time it is desired to have light at a point not accessible with the reflector unit adjustably mounted on the reel unit, the reflector unit can be unclamped therefrom and clamped on any other suitable remote support within a distance permitted by the length of the cord **45**, all as illustrated in Figure 6. The reflector unit, when on a support remote from the reel unit, can be directed in innumerable directions, the same as when on the reel unit as shown in Figure 5. When the reflector unit is removed from the reel unit, the desired length of cord can be pulled off the reel and the reel will not overrun, due to the action of the friction washer between the reel and housing. When it is again desired to place the units together, the cord can be easily wound back on the reel by turning the crank **44**.

If it is desired to use the lamp as a warning signal, the red lens will be attached. Whenever white light is desired, the red lens will be removed. This red lens is preferably of the reflecting type so that if the bulb is not lighted any other light shining on the lens will produce a red reflection for warning purposes. The lamp thus has dual uses, such as for a head light, a tail light, a trouble light, a warning signal, etc.

When used on a vehicle, as shown, it will receive current from a battery by a single conductor. A double conductor could be employed, if it was desired to use the lamp with ordinary commercial electricity around a garage, barn, house, etc. It will be noted that the lamp structure is simple, yet rugged. A minimum of parts are used, thus making it economical to manufacture. It is also to be noted that the lamp is free of any vibration noises as all parts are under a pressure force by the coil spring. The action of this spring also steadies the reel and aids in supporting the reel through the friction washer.

Being aware of the possibility of modifications in the particular lamp shown and described as embodying my invention, all without departing from the fundamental principles thereof, I desire it to be understood that the scope of my invention is not to be limited except in accordance with the appended claims.

What is claimed is:

1. An electric lamp comprising a housing, a reel in said housing, a second housing carrying a reflector and an electrical socket for a light bulb, an electrical cord for winding on and off the reel and connected to the socket, means for connecting the cord to a source of electricity in a manner permitting it to be wound on and off the reel, means comprising a clamp structure carried by the second housing for attaching the two housings together or permitting their separation and the mounting of the second housing on a support other than the first housing, and means for pivotally mounting the clamping structure on the second housing.

2. An electric lamp comprising a housing, a reel in said housing, a second housing carrying a reflector and an electrical socket for a light bulb, a reel rotatably mounted in the first housing, an electrical cord for winding on and off the reel and connected to a source of electricity, and means comprising a clamp structure for attaching the two housings together or permitting their separation and the mounting of the second housing on a support other than the first housing, said clamp structure being permanently mounted on the second housing by means permitting the second housing to move relatively to the clamp against a frictional resistance.

3. An electric lamp comprising a housing having an opening, a reel in said housing, a second housing carrying a reflector and an electrical socket for a light bulb and being provided with a portion for fitting into the opening of the first housing, an electrical cord for winding on and off the reel and connected to the socket and extending through the first housing opening and onto the reel, means for connecting the cord to a source of electricity, and means comprising a clamp structure carried by the second housing for attaching the two housings together with the second fitted into the opening of the first, or in a position free of said opening or permitting their separation and the mounting of the second housing on a support other than the first housing.

4. An electric lamp comprising a housing having a cylindrical opening therein and provided with a projection on its outside adjacent the opening, a reel mounted in the housing, a second housing having a cylindrical portion for fitting the cylindrical opening, a reflector carried by the second housing and an electric socket for receiving a light bulb, a conductor cord connected to the socket and to the reel and windable on the latter, means for connecting the cord to a source

of electricity in a manner to permit the cord to be wound on and taken off the reel by a rotation of the reel, and a clamp structure pivotally carried by the second housing for cooperating with the projection on the first housing to hold the two housings rigidly together when the cylindrical portion of the second housing is in the opening of the reel housing or to permit pivoting of the second housing on the first housing when the second housing is mounted so that the cylindrical portion is free of the cylindrical opening.

5. In a reel type of electric lamp, a housing, a separable reflector unit, a reel unit for permitting the reflector unit to be placed at various remote points without undesirable cord lengths, said reel unit comprising a reel mounted for rotation, an electrical cord windable on the reel and having an end connected to the reflector unit, a conductor plate mounted on the inside of the housing, conductor means for connecting the plate to a source of electricity, a second conductor plate connected to the other end of the cord and mounted on the reel for rotation therewith but capable of movement axially of said reel, a spring carried by the reel and acting on the second plate to hold it in pressure engagement with the first plate, and means operable by the spring for establishing a frictional action between the reel and housing to frictionally hold the reel in any rotatable position it may be placed but having insufficient friction to prevent unwinding of the cord by pulling thereon.

6. In a reel type of electric lamp, a housing, a

separable reflector unit, a reel unit for permitting the reflector unit to be placed at various remote points without undesirable cord lengths, said reel unit comprising a reel, a shaft for rotatably mounting the reel on the housing, said reel having a hollow hub portion, an electrical cord windable on the reel and having an end connected to the reflector unit, a conductor plate mounted on the inside of the housing opposite the hollow hub portion, conductor means for connecting the plate to a source of electricity, a second conductor plate connected to the other end of the cord and mounted in the hollow hub portion of the reel for rotation therewith but capable of movement axially of said reel, and a spring positioned with the hollow hub of the reel and acting on the second plate to hold it in pressure engagement with the first plate.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,006,598	Schnaus	Oct. 24, 1911
1,073,013	Andres	Sept. 9, 1913
1,319,473	Grigsby	Oct. 21, 1919
1,390,939	Thurn	Sept. 13, 1921
1,656,648	Ritz Woller	Jan. 17, 1928
1,978,644	Metter	Oct. 30, 1934
2,013,733	Murphy	Sept. 10, 1935
2,424,719	Stoeck et al.	July 29, 1947
2,574,216	Lindgren	Nov. 6, 1951