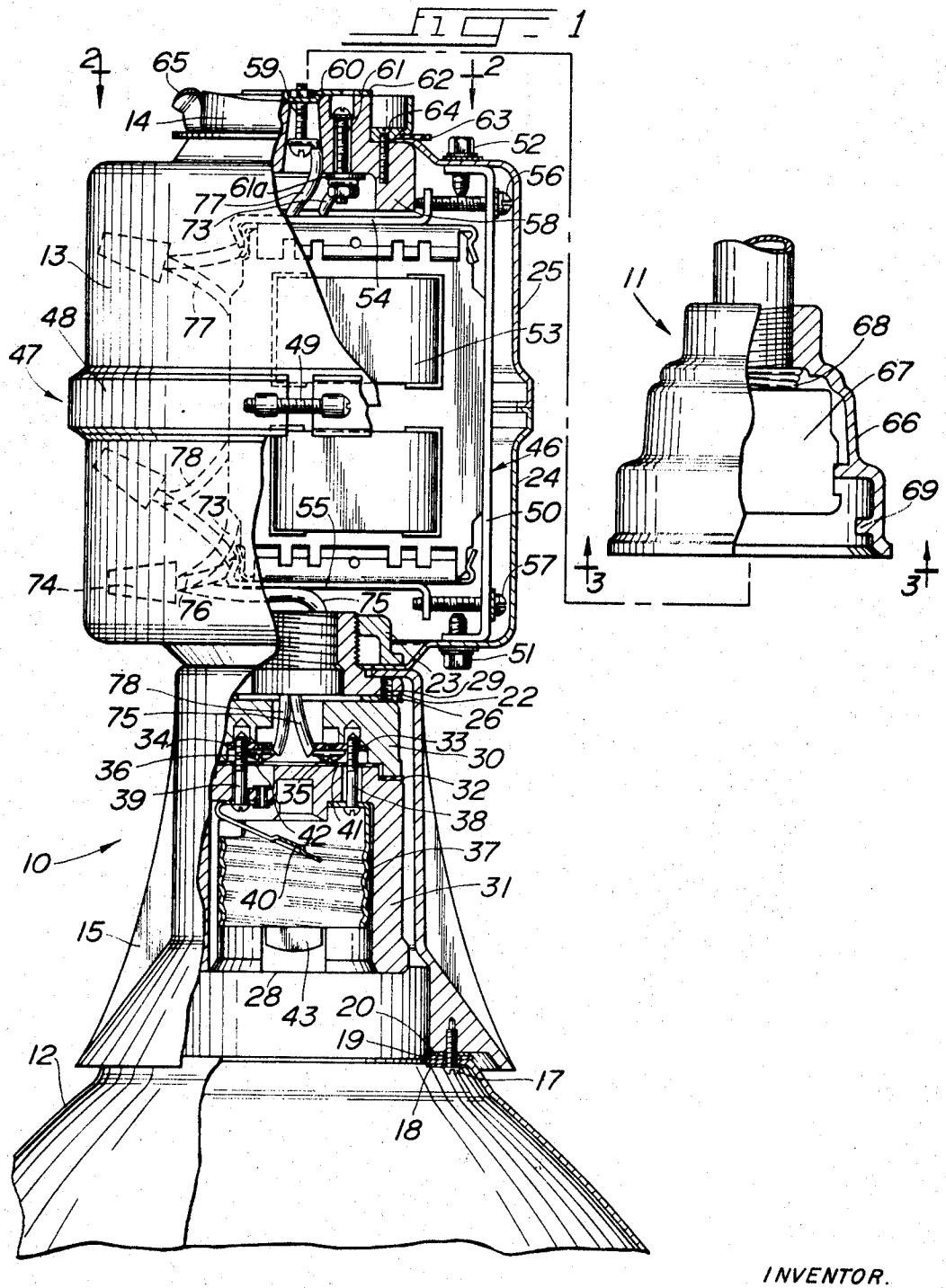
March 18, 1969 T. DRISKELL 3,433,887

LIGHTING FIXTURE WITH QUICKLY REMOVABLE BALLAST ASSEMBLY

Filed June 6, 1966 Sheet 1 of 2

FIG. 1



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LIGHTING FIXTURE WITH QUICKLY REMOVABLE BALLAST ASSEMBLY

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FIG - 2

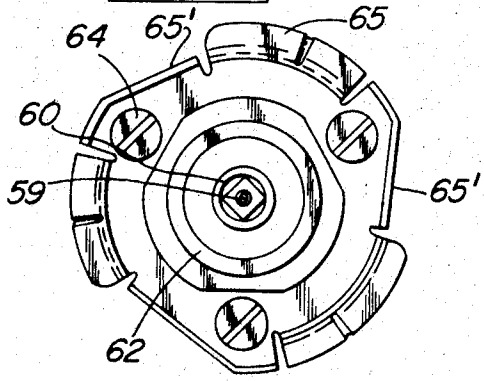


FIG - 3

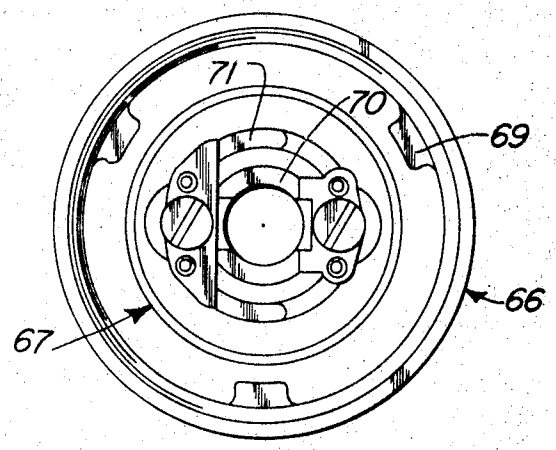
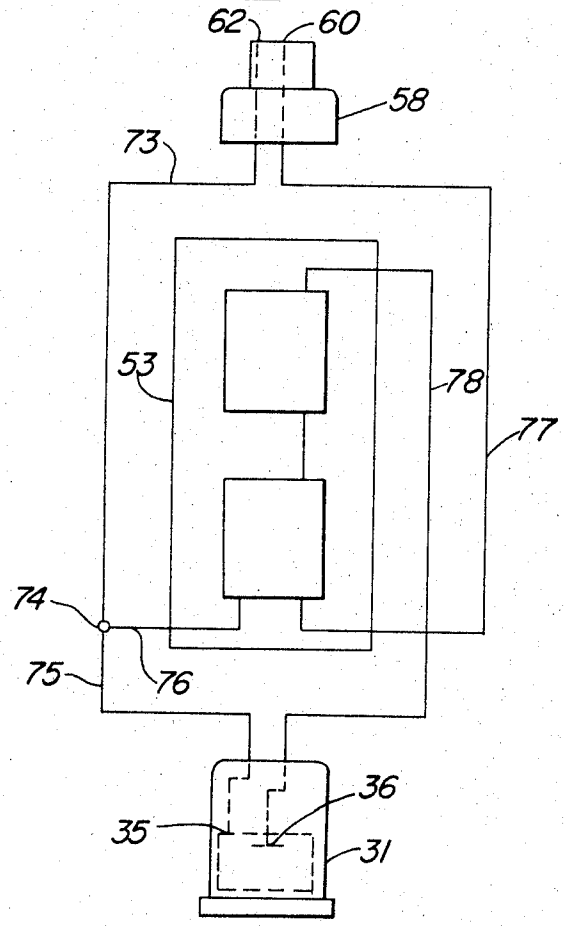


FIG - 4



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Patented Mar. 18, 1969

3,433,887

LIGHTING FIXTURE WITH QUICKLY REMOVABLE BALLAST ASSEMBLY

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U.S. Cl. 174—63 4 Claims
Int. Cl. H02b 1/10

ABSTRACT OF THE DISCLOSURE

A plurality of inwardly facing lugs are integrally formed of the hood of mounting means for a lighting fixture of the type which comprises a ballast and a lampholder. The ballast is supported by a ballast enclosure. A plurality of outstanding bayonets attached to the ballast enclosure are adapted to engage the lugs and thereby connect the ballast holder to the hood. The bayonets are relieved to permit the ballast holder to be disconnected from the hood. An arrangement of annular electrical terminals on a terminal assembly base mounted to the ballast enclosure and horseshoe electrical contacts on a receptacle terminal base supported within the hood permits the electrical circuit for the lighting fixture to be made at the line side of the ballast when the ballast enclosure is connected to the hood and to be broken thereat when the ballast enclosure is disconnected from the hood.

The present invention relates to lighting fixtures of the type requiring a ballast and having a lampholder, and more particularly to a lampholder and ballast assembly which are quickly removable from a source of line voltage.

In some known lighting fixtures requiring a ballast, the fixture is designed to be attached to a ballast permanently connected to a standard electrical wiring system. When these fixtures are removed for any reason, the ballast remains fixed to the source of line voltage and the normally higher voltage, ballast secondary is left dangerously exposed to anyone or anything coming in contact with such open circuit voltage. An accidental short across the open secondary normally results in damage to the ballast, and, more important, a short involving an individual can result in grave, if not fatal, injuries to such person.

It is an object of the present invention to provide an improved lighting fixture, which when removed leaves the primary wiring exposed rather than the ballast secondary voltage.

An additional object of the present invention is to provide a lighting fixture which is quickly disconnectable and easily repairable.

A further object of the present invention is to provide a lighting fixture which is simple in construction and readily mass produced.

In accordance with the present invention, a lighting fixture having the ballast connected to a lampholder provides a unitary lighting fixture assembly. A quick disconnect device is attached to the fixture on the line side of the ballast rather than the load side and the assembled ballast and lampholder are attached by such quick disconnect means to the building wiring. When the lampholder and ballast must be removed for any reason, the circuit is broken in the ballast primary rather than the secondary. This leaves only the primary wiring exposed rather than the normally higher ballast secondary open circuit voltage. When applicant's fixture is removed as hereinbefore described, an accidental short of the exposed

primary wiring will only blow a fuse or trip a breaker in the lighting circuit rather than result in damage to the ballast as a short of the ballast secondary wiring might do. Further, if difficulty develops in a ballast, the entire unit, being quickly removable, can be replaced with a spare unit and the defective fixture taken to a maintenance shop for repairs instead of requiring on-the-spot repairs of the defect.

A feature of the invention is that the ballast is connected to the lampholder and is disposed above such lampholder to provide a safe lighting fixture. Quick disconnect means connected to the primary side of the ballast mechanically associate the lighting fixture with a support and electrically associate the fixture with a source of electricity.

Other and further objects, features and advantages of the present invention will be apparent from the following description of an illustrated embodiment thereof, given for the purpose of disclosure, and taken in conjunction with the accompanying drawings in which like character references designate like parts throughout the several views and where:

FIGURE 1 is a partially exploded elevational view of one form of mounting means and a lighting fixture which comprises a ballast and a lampholder embodying the principles of the present invention, with portions being broken away to illustrate the interior thereof;

FIGURE 2 is a transverse view taken substantially along the line 2—2 of FIGURE 1, looking in the direction indicated by the arrows;

FIGURE 3 is a transverse view taken along the line 3—3 of FIGURE 1, looking in the direction indicated by the arrows; and

FIGURE 4 is a schematic diagram of an exemplary circuit for the lighting fixture illustrated in FIGURE 1.

Referring now to the several figures and first to FIGURE 1, a light fixture embodying the principles of the present invention is illustrated generally at **10** for attachment to a mounting means **11** which is operatively connected to a source of line voltage in a conventional manner.

The light fixture **10** comprises a reflector **12** for effective light control attached to a lampholder cover member **15** which, in turn, connects to a two-part ballast enclosure **13**. Quick disconnect mechanism **14** attached to the ballast enclosure **13** is adapted to be interconnected with the mounting means **11** to provide mechanical support for the lighting fixture **10**.

The reflector **12** is attached to cover member **15** by a plurality of screws **17** (one shown) passing through apertures near the top of the reflector in an annular flange thereof and into thread engaging means provided in the cover member **15**. The head of the screw **17** is separated from the reflector **12** by an insulating washer **18** and the reflector **12** is separated from the lampholder cover member **15** by an insulating washer **19** positioned adjacent the reflector and a metal washer **20** positioned adjacent cover member **15**.

A threaded coupling flange **22** having an axial bore extends through aligned openings in the lampholder cover member **15** and an adjacently positioned lower disconnectable part **24**. Means for clamping, illustrated as a clamp nut **23**, threads about the flange **22** and connects the member **15** and the part **24**. An upper disconnectable part **25** is attached to part **24** to define the ballast enclosure **13**.

Mounted within the cover member **15** is a lampholder assembly **28** which comprises a terminal base **30** assembled to a base portion **31**. Screws **29** (one shown) pass through apertures in the terminal base **30** and into thread engaging means provided in the threaded flange **22**. In-

sulating washers 26 disposed on the screws 29 separate the flange 22 from the terminal base 30. An annular washer 32 separates the base portion 31 from the terminal base 30. For electrical contact, a pair of terminals 33 and 34 comprising conventional threaded terminal posts 35 and 36, respectively, are attached to the terminal base 30 in a conventional manner.

A threaded shell 37, which is adapted to receive the threaded portion of a light bulb (not shown) is attached to the base portion 31 in a conventional manner. A pair of laterally spaced axial tension members 43 are attached to the base outside of the shell 37 in a conventional manner and are biased radially inwardly at their outer free ends to grip the sides of the light bulb for preventing the bulb from accidentally unthreading from shell 37. The free ends of the tension members 43 are adapted to threadingly engage the threaded portion of the light bulb. A leaf spring center contact 40 for contacting the center post of the light bulb is mounted internally of the threaded shell 37 to the base portion 31 in a conventional manner. A pair of screws 38 and 39 pass through apertures in the bottom portion of the base 31 and into threading engagement with means formed of the terminals 33 and 34. Insulating washers 41 and 42 threaded on the screws 38 and 39, respectively, separate the base portion 31 from the terminals 33 and 34. It can be seen that the screws 38 and 39 mechanically attach the base portion 31 to the terminal base 30 via the terminals 33 and 34, that the screw 38 also provides electrical connection between the threaded shell 37 and the terminal post 35 via terminal 33, and that the screw 39 provides electrical connection between the leaf spring contact 40 and the terminal post 36 via the terminal 34.

A bracket and ballast assembly 46 is arranged for mounting inside the ballast enclosure 13. Means 47 for clamping the lower and upper disconnectable parts 24 and 25 together comprises a generally channel-shaped split ring 48. A threaded screw 49 passes through an aperture near one end of the split ring 48 and into thread engaging means provided at the other end of the split ring 48. The flange portions of the split ring 48 surround and engage adjoining complementary sections formed on the lower and upper disconnectable parts 24 and 25. When the ring 48 is drawn taut by the screw 49, the parts 24 and 25 are held together and prevented from longitudinally separating.

A mounting plate 50 is attached longitudinally between the ends of the lower and upper disconnectable parts 24 and 25 by washer-head fasteners 51 and 52, respectively. The fasteners 51 and 52 pass through apertures in the parts 24 and 25 and into thread engaging means formed in lug portions at the free ends of the mounting plate 50.

A conventional ballast 53 of the type required by a light bulb mounted in the lampholder 28 is attached to the mounting plate 50 by an upper hook strap 54 and a lower hook strap 55. Fasteners 56 and 57 passing through suitable apertures in the mounting plate 50 near the upper and lower end thereof and into thread engaging means formed of the straps 54 and 55 attach the ballast to the mounting plate and thereby mount the ballast within the ballast enclosure 13.

A terminal assembly base 58 mounts internally of the upper disconnectable part 25 and through a central aperture provided in the upper end thereof. The terminal assembly base 58 comprises a threaded center terminal 59 which is electrically connected in a conventional manner to an annular terminal 60 on the top of the terminal base 58. A ring terminal 62 spaced apart from and concentrically outside of the annular terminal 60 is connected by screws 61 to a retainer disc 61*a* on the inner face of the base 58. One of the screws 61 serves as a terminal post.

The quick disconnect mechanism 14 is provided with an annular central opening adapted for mounting about the portion of the terminal assembly base 58 which extends above the upper disconnectable part 25. An annular insulating gasket 63 is disposed between and separates the quick-disconnect mechanism 14 from the upper disconnectable part 25. A plurality of fasteners 64 passing through aligned apertures in the quick disconnect mechanism and the annular gasket 63 and into thread engaging means formed in the terminal assembly base 58 attach the quick-disconnect mechanism 14 to the ballast enclosure 13.

The quick-disconnect mechanism 14 is provided with outstanding bayonets 65 integrally formed thereof and adapted to engage with inwardly facing lugs 69 integrally formed of a hood 66 comprising the mounting means 11. Bayonet relieved portions 65′ are adapted to pass by the lugs 69 as the mechanism 14 is moved upwardly into the hood 66. A subsequent twisting motion engages and locks the bayonets above the lugs 69 so that the lighting fixture 10 is mechanically supported by the mounting means 11. The mounting means 11 further comprises a receptacle terminal base 67 conventionally attached to the mounting means 11 with a spring 68 therebetween to accommodate axial movement of the receptacle terminal base 67 within the hood.

The receptacle terminal base 67 (FIGURE 3) comprises an inner horseshoe contact 70 and a surrounding outer horseshoe contact 71 which are connected to a source of line voltage in a conventional manner so that contact 70 is a line or positive connection and contact 71 is a ground or negative connection. It can be seen that when the lighting fixture is assembled to the mounting means 11 via the bayonets and lugs 65 and 69, the contact 70 engages annular terminal 60 and the contact 71 engages ring terminal 62. Thus, electrical connection is effected between the line voltage provided through the mounting means 11 and the lighting fixture 10. As the quick disconnect means engages the mounting means 11, terminal base 67 is moved relatively inward against the bias of the spring 68. Thus, the mounting means 11 provides both a mechanical support and an electrical connection for the lighting fixture 10.

When the lighting fixture is disconnected, both mechanically and electrically from the mounting means, the ballast is disconnected from the primary wiring and the ballast is removed along with the lighting fixture, leaving only the primary wiring exposed. Any accidental short of the exposed primary wiring will only blow a fuse or trip a breaker in the lighting circuit rather than result in damage to the ballast as a short of the ballast secondary wiring might do. If any trouble develops in the ballast, the entire unit may be quickly removed and replaced with a spare unit and the defective unit taken to the maintenance shop for repairs instead of having to complete on-the-spot repairs.

An exemplary circuit for the lighting fixture of FIGURE 1 is shown schematically in FIGURE 4. The ring terminal 62 via line 73 connects at 74, such as with a wire connector, to the threaded terminal post 35 via line 75 and to the ballast 53 via ballast common lead 76. The annular terminal 60 connects to the ballast via ballast voltage lead 77 and the terminal post 36 connects to the ballast via ballast lamp lead 78.

Thus, the present invention provides a lampholder and ballast fixture, together with quick disconnect means carried thereon, so that the ballast is removable with the lampholder as a unit. When such lampholder and ballast are removed, the exposed open circuit is the relatively safe line circuit rather than an open circuit at the load end of the ballast as is now the case of any fixture comprising a ballast which remains at the fixture location when the lampholder is removed therefrom. Applicant's novel fixture is advantageous in that not only is a lower voltage exposed to personnel, but, in the event of any short circuit of the exposed wiring, only the blowing of a fuse or tripping of a circuit breaker results. A further advantage is that mounting means provided with suitable lugs

can be quickly converted from incandescent lighting to lighting fixtures requiring a ballast, such as with mercury lighting fixtures.

Although I have described my invention with respect to certain specific embodiments thereof, I do not wish to be thereby limited, as various modifications of my invention are intended to be encompassed within its true spirit and scope as indicated by the following claims.

I claim:

1. In a lighting fixture which comprises a ballast and a lampholder, the combination of a hood, a receptacle terminal base supported within said hood and comprised of a pair of electrical contacts, a ballast enclosure supporting said ballast, means for connecting said lampholder to said ballast enclosure, a terminal assembly base mounted to said ballast enclosure and comprised of a pair of electrical terminals, a plurality of inwardly facing lugs integrally formed of said hood, and a plurality of outstanding bayonets attached to said ballast enclosure and adapted to engage said lugs and thereby connect said ballast enclosure to said hood with said terminal assembly base associated with said receptacle terminal base such that each of said electrical terminals is engaged by one of said electrical contacts.

2. The combination of claim **1** wherein said lampholder, said hood, and said ballast enclosure are disposed generally along a common axis.

3. The combination of claim **2** wherein said ballast enclosure is capable of being twisted with respect to said hood and said bayonets are relieved to permit said bayonets to be disengaged from said lugs and said ballast enclosure to be disconnected from said hood.

4. The combination of claim **3** wherein said electrical terminals comprise respective inner and outer annular terminals coaxial with said common axis and said electrical contacts comprise respective inner and outer horseshoe contacts coaxial with said common axis and disposed to engage said respective inner and outer annular terminals when said terminal assembly base is associated with said receptacle terminal base.

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U.S. Cl. X.R.

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