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3-18-75 OR 3•871•752

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Habinger

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[54] EASILY CHANGEABLE FILTER HOLDER

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[52] **U.S. Cl.** **350/318**, 24/256, 350/251

[51] **Int. Cl.** **G02b 7/00**

[58] **Field of Search** ..... 350/311-319, 350/245, 251, 252, 257, 57, 58, 64; 240/151, 10.6 SD, 10.6 R, 46.59; 24/256; 285/365, 407

[56] **References Cited**

UNITED STATES PATENTS

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[57] **ABSTRACT**

A combination is disclosed which includes a housing for supporting a light source; support means removably secured to said housing for supporting a filter with respect to said housing, with said support means comprising a split ring-like member having first and second ends biased toward one another whereby said ring-like member frictionally engages said housing, and manually graspable release means for temporarily enlarging the aforenoted ring-like member whereby the ring-like member can be easily removed from such housing when it is desired to replace the filter supported thereby.

6 Claims, 3 Drawing Figures

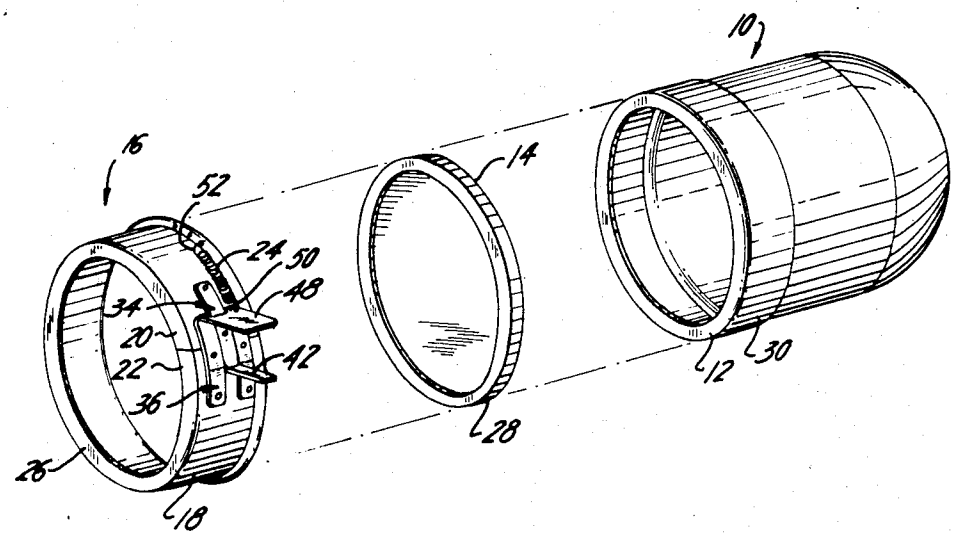


FIG. 1

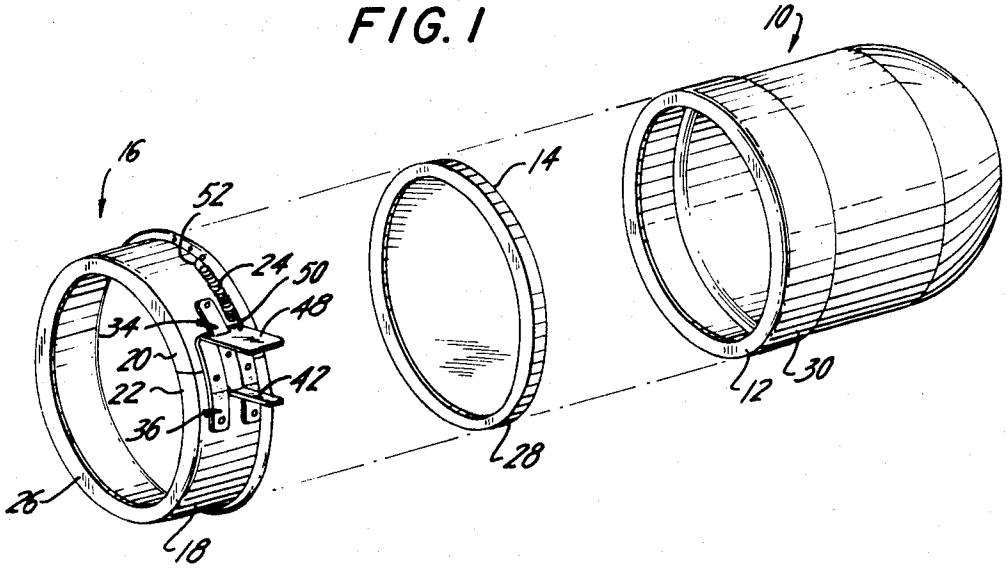
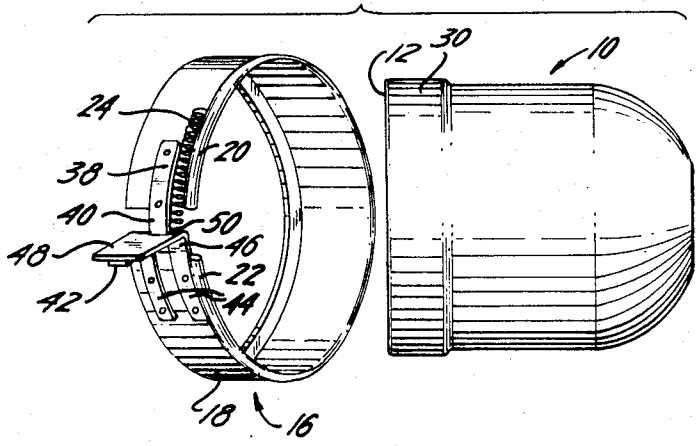


FIG. 2



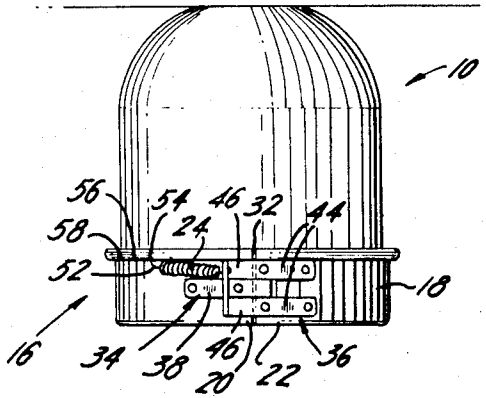


FIG. 3

EASILY CHANGEABLE FILTER HOLDER

FIELD OF THE INVENTION

This invention relates to lighting fixtures, and more particularly to a filter holder which can be easily removed from an associated light housing without the necessity of physically touching said housing.

BACKGROUND OF THE INVENTION

In the photographic profession, it is, or course, well known that high-intensity lamps are frequently used to facilitate the taking of pictures. It is equally as well known that a variety of filters are employed in connection with such lamps and that such filters must be frequently interchanged to obtain particular results. Accordingly, those in the industry have devised various arrangements for supporting a filter with respect to a lamp enclosure in such a manner that the filter may be removed and changed at will. Typical prior art arrangements are representatively shown in U.S. Pat. Nos. 2,616,030; 2,621,283; 2,785,291; 2,878,374; and 2,943,187. Such prior art structures, however, suffer from various drawbacks, including the difficulty of manipulation, complexity of mechanism, and high cost of manufacture.

Additionally, it will be appreciated that an enclosure such as a reflective bowl for a high-intensity lamp becomes very hot when the lamp is being used. This problem further complicates the problem of moving and changing filters associated therewith since it is virtually impossible and extremely dangerous to touch the lamp enclosure during the filter changing operation. Unfortunately, various ones of the prior art schemes for interchanging filters have the further drawback of requiring the operator to hold the lamp enclosure during the filter changing operation.

SUMMARY OF THE INVENTION

In contradistinction to the prior art, the instant invention provides a simple arrangement for quickly and easily changing filters on a lamp enclosure without the necessity of touching such lamp enclosure. As will be described in greater detail, at the heart of the instant invention is a split ring-like member which supports a filter with respect to the lamp enclosure and which includes manually graspable release means for temporarily enlarging the ring-like member when it is desired to remove same from the lamp enclosure and change the filter carried thereby.

OBJECTS OF THE INVENTION

Accordingly, it is an object of the instant invention to provide a simple, easily operable arrangement for changing filters associated with a lamp enclosure.

Another object of the instant invention is to provide such an arrangement which can be easily operated without the necessity of touching the lamp enclosure.

Other objects of the instant invention as well as a further understanding thereof may be had by referring to the following description and drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIG. 1 is an exploded prospective view of the invention hereof.

FIG. 2 is a side view, partially in elevation and partially in prospective, further illustrating the invention hereof.

FIG. 3 is a side elevational view of the instant invention in its assembled condition.

DETAILED DESCRIPTION

Turning to the Figures wherein like numerals are used to designate like elements, FIG. 1 shows a typical light enclosure or housing **10**, frequently known as a reflective bowl, within which is appropriately supported a light source (now shown). As can be seen, the housing in generally cylindrical in nature and terminates in an outer annular portion **12** against which is urged the desired filter **14** in a manner to be further described.

The supporting arrangement for carrying the filter **14** and urging it against the outer extremity portion **12** of the enclosure **10** is broadly designated **16** and comprises a generally cylindrical split ring-like member **18** having first and second ends **20** and **22** which are normally biased toward one another to maintain the cylindrical shape illustrated. This bias may be maintained by the natural resiliency of the material comprising the split ring-like member, typically metallic, and, as will be further described, may be supplemented by an expansible biasing spring **24**.

As can best be seen in FIG. **1**, the split ring-like member **18** includes an inturned annular flange **26** for supporting the filter **14**. It will be appreciated that the rim **28** of the filter **14** will, in fact, be sandwiched between the aforenoted flange **26** and the extremity portion **12** of the enclosure **10** when the ring-like member **18** is removably secured to the enclosure **10** in the following manner.

It should be noted that the smallest diameter of the ring-like member **18** (when the first and second ends **20** and **22** thereof immediately confront one another) is slightly less than the diameter of the cylindrical end **30** of the enclosure **10**. In securing the filter supporting ring-like member **18** to the enclosure **10**, the operator simply telescopes it on the cylindrical end **30** thereof and, in so doing, the slight difference in diameters therebetween forces the ring-like member **18** to slightly open, such that a small space **32** (Fig. 3) will now exist between the confronting end portions **20** and **22**. Of course, the natural resiliency of the ring **18**, together with the additional biasing spring **24** to be further described, will attempt to return the ring-like member **18** to its initial smaller diametered configuration, and thereby frictionally retain the ring-like member **18** around the cylindrical portion **30**, thereby properly positioning the filter **14** with respect to the housing **10**.

The manually graspable release means for temporarily enlarging the ring-like member **18** when it is desired to remove the ring-like member **18** and change the filter **14** comprises first and second generally L-shaped members **34** and **36**, respectively. The first member **34** includes a base portion having a first segment **38** secured on the first end **20** of the ring-like member **18** and a second intervally extending segment **40** which freely overlaps the second end **22** of the ring-like member **18**. An outwardly directed leg portion **42** extends from the end of the aforementioned second segment **40**. In like fashion, the second L-shaped member **36** includes a base portion having first segments **44** secured to the second end **22** of the ring-like member **18** and

second segments **46** freely overlapping the first end of the ring-like member **18.** An outwardly directed leg portion **48** extends from the second segments **46.**

Because of the aforementioned relationship, it should be appreciated that when one squeezes the leg portions **42** and **48** toward one another in the direction of the arrows shown in FIG. **2,** the net result will be to urge the ends **20** and **22** of the ring-like member **18** away from one another to thereby temporarily further enlarge the diameter of the ring-like member **18** whereby it can be easily slid off the cylindrical end **30** of the housing **10.** Of course, once the ring-like member **18** has been removed from the housing **10,** the filter **14** can be removed and replaced with the entire filter-changing operation requiring only the squeezing of the projections **42** and **48** toward one another and not requiring the operator to handle the housing **10.**

To further bias the ends **20** and **22** of the ring-like member **18** toward one another, the aforenoted expansible spring **24** is provided. One end of the spring **50** is secured to the outstanding leg **48** and as best seen in FIG. **3,** the other end **52** of the spring **24** is secured to the ring-like member **18** by being inserted in a preselected one of a plurality of apertures **54, 56** or **58** in accordance with the amount of tension desired for the spring **24.** In this manner, the amount of frictional force developed on the cylinder portion **30** of the housing **10** can be easily varied.

Thus, there has been described an extremely simple, easy to operate arrangement for changing filters employed in connection with lamps and floodlights. In addition to being extremely simple and inexpensive to manufacture, the supporting arrangement for the interchangeable filters is easily removable from the associated light housing without the necessity of handling the housing itself.

Although this invention has been described with respect to its preferred embodiments, it should be understood that many variations and modifications will now be obvious to those skilled in the art, and it is preferred, therefore, that the scope of the invention be limited, not by the specific disclosure herein, only by the appended claims.

What is claimed is:

1. In combination:

a housing for supporting a light source;

support means removably secured to said housing for supporting a filter with respect to said housing, said support means comprising,

a split ring member having first and second ends biased toward one another, whereby said split ring member frictionally engages said housing, said split ring member including an annular flange for supporting said filter, and said housing includes an outer extremity portion which urges said filter against said flange when said split ring member is frictionally engaged on said housing;

manually grapsable release means for temporarily enlarging said split ring member, whereby said split ring member can be easily removed from said housing, said manually graspable release means comprising first and second L-shaped members secured to said split ring member, said first L-shaped member including a base portion having one segment thereof secured to said first end of said split ring member and a second segment thereof freely overlapping said second end of said split ring member and an outwardly directed leg portion extending from said second segment; said second L-shaped member including a base portion having one segment thereof secured to said second end of said split ring member and a second seggment thereof freely overlapping said first end of said split ring member and an outwardly directed leg portion extending from said second segment; whereby urging said outwardly directed leg portions toward one another will cause the separation of said first and second ends and enlargement of said split ring member; and

further including expansible biasing means one end of which is secured to one of said outwardly directed leg portions and the other end of which is secured to said split ring member for normally urging said first and second ends toward one another.

2. The combination of claim **1** wherein said split ring member includes a plurality of securing means for securing said other end of said expansible biasing means so that said expansible biasing means may be adjustably positioned with respect to said split ring member, whereby the force generated by said expansible biasing means may be varied.

3. The combination of claim **2** wherein said securing means of said split ring member comprises a plurality of apertures spaced thereabout, and said other end of said biasing means is received in a preselected one of said apertures in accordance with the biasing force desired for said biasing means.

4. In combination:

a housing for supporting a light source;

support means removably secured to said housing for supporting a filter with respect to said housing, said support means comprising,

a split ring member having first and second ends biased toward one another, whereby said ring member frictionally engages said housing;

manually graspable release means for temporarily enlarging said split ring member, whereby said split ring member can be easily removed from said housing, said manually graspable release means comprising first and second L-shaped members secured to said split ring member, said first L-shaped member including a base portion having one segment thereof secured to said first end of said split ring member and a second segment thereof freely overlapping said second end of said split ring member and an outwardly directed leg portion extending from said second segment; said second L-shaped member including a base portion having one segment thereof secured to said second end of said split ring member and a second segment thereof freely overlapping said first end of said split ring member and an outwardly directed leg portion extending from said second segment; whereby urging said outwardly directed leg portions toward one another will cause the separation of said first and second ends and enlargement of said split ring member; and

further including expansible biasing means one end of which is secured to one of said outwardly directed leg portions and the other end of which is secured to said split ring member for normally urging said first and second ends toward one another.

5. The combination of claim 4 wherein said first and second ends of said split ring member are biased toward one another by the resiliency of the material comprising said split ring member.

6. The combination of claim 4 wherein said split ring member includes a plurality of securing means for securing said other end of said expansible biasing means so that said expansible biasing means may be adjustably positioned with respect to said split ring member, whereby the force generated by said expansible biasing means may be varied.

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