June 23, 1953 N. R. SCHWARTZ 2,643,144

SWIVEL UNIT

Filed Aug. 3, 1950

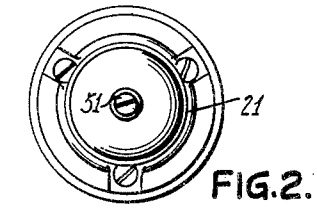


FIG. 2.

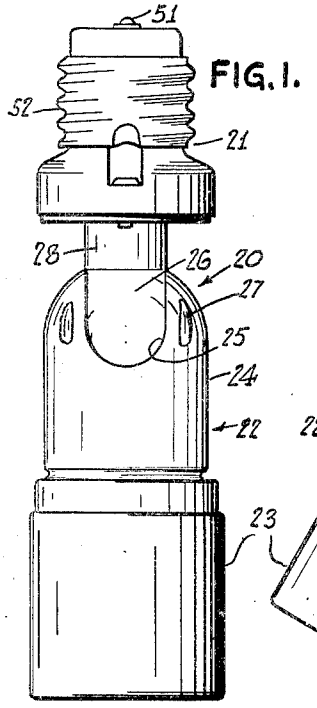


FIG. 1.

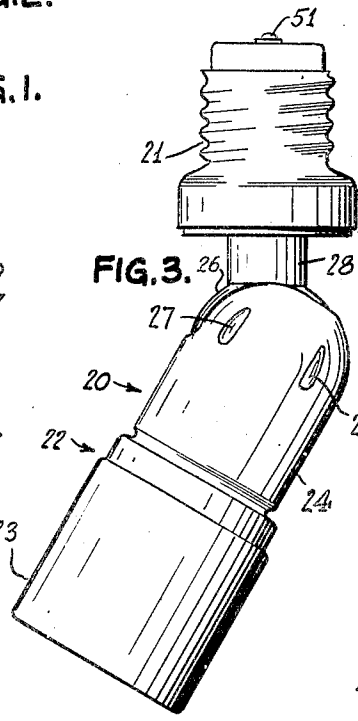


FIG. 3.

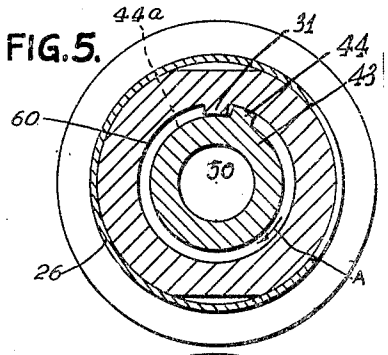


FIG. 5.

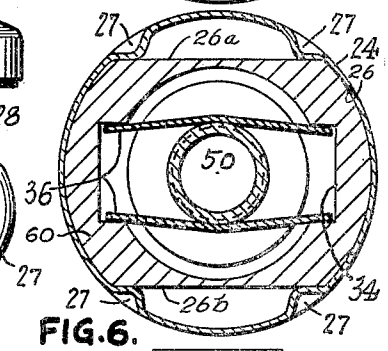


FIG. 6.

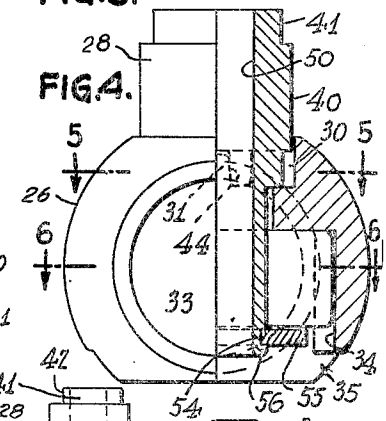


FIG. 4.

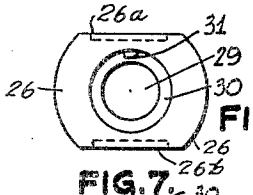


FIG. 8.

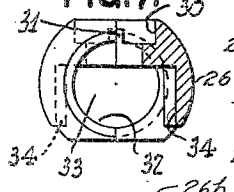


FIG. 7.

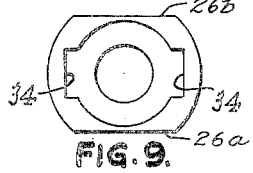


FIG. 9.

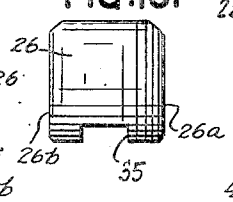


FIG. 10.

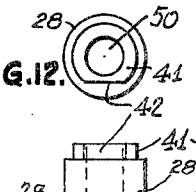


FIG. 12.

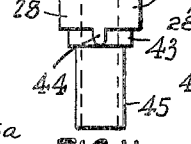


FIG. 11.

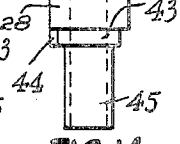


FIG. 14.

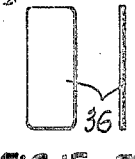


FIG. 15. FIG. 16.

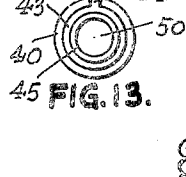


FIG. 13.

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UNITED STATES PATENT OFFICE

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SWIVEL UNIT

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4 Claims. (Cl. 287—87)

1

This invention relates to swivel units to which objects may be attached for angular or rotative adjustment.

When illuminating merchandise, or when for any other purposes, it is desirable to mount a lamp upon a swivel socket in such manner, that the lamp may be turned angularly or rotated on its axis and retained in any adjusted position.

With this in mind, it is the principal object of the present invention to provide a swivel unit to which a lamp may be attached, the swivel unit being so constructed that it will positively and instantly retain the lamp in any adjusted position.

It is a further feature of this invention to provide a swivel unit of this character, comprising broadly a housing which is adapted to retain a swivel ball therein, and a nipple engageable in the swivel ball, there being means provided between the swivel ball and the nipple to limit the rotative movement of the nipple at slightly less than one complete revolution in either direction.

A further purpose of the present invention resides in the provision of a swivel unit of this character, wherein pressure is exerted against the sides of the swivel ball to retain it in frictional engagement with the nipple.

A further feature of the present invention resides in the provision of means integral with the housing to retain the swivel ball in the housing.

Yet another purpose of the present invention resides in the provision of a washer at the lower end of the nipple to prevent rocking of the swivel unit when it is angularly or rotatively adjusted.

And a still further advantage of the present invention resides in the provision of a slot in the housing extending from the apex of the housing to a point therebelow, the lower edge of which is rounded to produce a firm and efficient structure.

These and other meritorious aims and advantages are attained by the novel construction, combination and arrangement of parts, hereinafter described and illustrated on the accompanying drawing, forming a material component of the present disclosure, and in which:

Figure 1 is a front elevational view of a swivel unit constructed in accordance with the present invention.

Figure 2 is a top plan view of the swivel unit illustrated in Figure 1.

Figure 3 is a side elevational view of a swivel unit, showing the swivel unit turned angularly with respect to its normal axis.

2

Figure 4 illustrates the swivel unit assembly, the view being partly in section.

Figure 5 is a sectional view of the device, the section being taken on line 5—5 of Figure 4.

Figure 6 is another sectional view of the device, the section being taken on line 6—6 of Figure 4.

Figure 7 is an elevational view in detail, partly in section, of the swivel socket.

Figure 8 is a top plan view of Figure 7.

Figure 9 is a bottom plan view of Figure 7.

Figure 10 is a side elevational view of Figure 7.

Figure 11 is a side elevational view of a nipple used in connection with the present invention.

Figure 12 is a top plan view of Figure 11.

Figure 13 is a bottom plan view of Figure 11.

Figure 14 is a side elevational view of Figure 11.

Figure 15 is a plan view of a spring member used in connection with the present invention; and

Figure 16 is a side edge view of the spring member illustrated in Figure 15.

Referring in greater detail to the present invention, the numeral 20 illustrates in general a swivel unit of the kind here under discusson. It consists broadly of an externally threaded screw portion 21, an intermediate swivel socket portion 22 and a lowermost internally threaded, bulb receiving socket 23.

Swivel socket 22 comprises a hollow cylindrical housing 24 having a rounded top, the housing 24 being provided from its apex to a point therebelow, with a slot 25, in which a nipple is adapted to be entered which will hereinafter be more fully described, and the lower end of slot 25 is rounded, as can be seen in Figure 1 of the drawing.

A hollow, substantially ball-shaped swivel member 26 is contained in the upper, rounded portion of housing 24, where it is retained in fixed position by a plurality of indentations 27 in housing 24. Swivel member 26 is substantially spherical in cross-section, and is provided on opposite sides thereof with substantially flat surfaces 26*a* and 26*b* respectively. Extending centrally through said swivel member 26 is a nipple 28 preferably made of one piece of material and provided with a central bore 29 throughout its length for the passage of electrical wires therethrough.

Swivel member 26 contains near its upper end a ring-like disc 60 having a central opening therein. Extending upwardly from the said disc 60 and along the inner wall of the said swivel member 26 is a narrow finger 31, the purpose of which will become more fully apparent as the descrip-

tion hereof proceeds. At its bottom, swivel member **26** is provided with an opening **32**. As has heretofore been mentioned, the said swivel member has two opposed rounded sides **26**, and two opposed somewhat flattened sides, respectively referred to by the numerals **26***a* and **26***b*. Sides **26** are closed, and sides **26***a* and **26***b* are partly open, as at **33** as is best illustrated in Figures 10 and 7 of the drawings respectively. The two oppositely arranged closed sides are each provided with a groove **34** each of which is provided to constitute a track for a flat spring **36**. In order to facilitate the insertion of the said flat springs **36**, each of the rounded surfaces **26** are provided with a cut-out **35** at the lower edge thereof.

Cylindrical nipple **28** comprises at its upper end a relatively short stem portion **41**, one side of which may be flattened as at **42**; it is then provided with a sleeve portion **40**, said sleeve portion terminating in a constricted shoulder **43**, the diameter of which is illustrated as being equal to the diameter of stem **41**, said shoulder being provided with a stop lug **44**, the nipple finally terminating in a constricted sleeve **45**.

At their lower longitudinal edges, springs **36** rest upon a washer **55** in the interior of swivel member **26**, the several elements being held in operative engagement by turning over the lower edge **54** of nipple portion **45**, as at **56**.

Screw portion **21**, at its top, is provided with a conventional contact **51**.

It will be seen that there has been presented a very efficient and effective swivel unit for electrical lighting fixtures. Many important innovations will become apparent. For instance, the provision of stops **31** and **44** will prevent the device from being continually rotated in one direction, which would result in twisting and eventually breaking electrical wires in the swivel unit; the spring rests are so arranged, by the provision of grooves that, in mass production, springs can be inserted with great case and efficiency; pressure of the springs is exerted against the sides of the swivel ball, which positively prevents the slightest movement of the swivel ball; the indentations in housing **24**, at **27**, engage the edges of the open sides **26***a* and **26***b* respectively of the swivel member **26**, so that the swivel ball will be held in place firmly and rigidly; and the provision of the washer prevents even the slightest rocking of the device, so that it will be securely held in any adjusted position.

Many modifications can be made, and others will become apparent through use. For instance, instead of using four indentations **27**, it may be desirable to use only two, each of which would then have to be as wide as each of the openings **33** in sides **26***a* and **26***b* respectively of swivel member **26**; and whereas the swivel unit has been illustrated and described as being used in connection with electrical lighting fixtures, it could obviously be used in connection with other objects. It can be used effectively in connection with electrical fans, especially small automobile fans, cameras, microphones, display stands and a great many other objects. The only modification necessary would be the elimination of screw portion **21** and socket **23**, and the substitution therefor of more suitable connecting means.

Thus there has been discussed a highly efficient swivel unit in the best known form of its embodiment, but it is to be understood that this disclosure is not to be regarded as limitative or restrictive to the exact details shown and described, applicant reserving the right to make such changes in the construction of the device as might come within the scope of the appended claims without thereby departing either from the spirit or the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to secure by Letters Patent, is:

1. A swivel unit comprising a hollow cylindrical housing terminating in a rounded upper portion and having a slot extending from the apex of the housing to a point therebelow, a swivel member having a longitudinal opening through its center, said swivel member adapted to be retained in the rounded upper portion of said housing, said swivel member having two opposed partly open sides, means integral with said housing engaging said open sides to fixedly retain said swivel member in said housing, a nipple, said nipple extending upwardly through said swivel member and partly protruding upwardly therefrom, spring means located in said swivel member exerting pressure against its sides to retain said swivel member in frictional engagement with said nipple, a washer, said spring means resting thereon, and means integral with said nipple retaining said washer in adjusted position.

2. A swivel unit comprising a hollow cylindrical housing terminating at its upper end in a rounded upper portion and having a slot extending from the apex of the housing to a point therebelow, a hollow swivel member in said rounded upper portion, means integral with said housing engaging said swivel member retaining said swivel member fixedly in said housing, a one-piece nipple, said nipple rotatably engaged in said swivel member, means cooperating between said nipple and said swivel member limiting the rotative movement of said nipple, and spring means in said swivel member exerting pressure against the sides of said swivel member.

3. In a swivel unit, a hollow cylindrical housing terminating at its upper end in a rounded top and having a slot therein extending from the rounded top to a point therebelow, a hollow swivel member, said swivel member having two opposed partly open sides, said swivel member being retained in said rounded top, means integral with said housing engaging said open sides retaining said swivel member in said housing, a hollow cylindrical nipple in said swivel member, means cooperating between said nipple and said swivel member limiting the rotative movement of said nipple, a pair of springs, means in said swivel member on opposite sides thereof retaining said springs in said swivel member, a washer upon which said springs are seated edgewise, said nipple being formed with an integral shoulder at its lower edge upon which said washer is seated.

4. A swivel unit comprising a hollow cylindrical housing terminating at its upper end in a rounded upper portion and having a slot extending from the apex of said housing to a point therebelow, a hollow swivel member in said rounded upper portion, means integral with said housing retaining said swivel member in said rounded upper portion, a hollow cylindrical nipple, said nipple rotatably retained in said swivel member, a ring, said ring being in said swivel member near the upper end thereof, a narrow finger extending from said ring upwardly along the inner wall of said swivel member, a sleeve on said

nipple terminating in a constricted shoulder, means integrally formed on said shoulder cooperating with said finger limiting the rotative movement of said nipple in said swivel member, a pair of springs, means in said swivel member at opposite sides thereof retaining said springs in frictional engagement in said swivel member, a washer, said springs seated thereon, the lower edge of said nipple turnable upon itself retaining said washer in engagement with said springs.

NATHAN RODNEY SCHWARTZ.

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