Sept. 27, 1966 R. K. MEYER 3,275,814

EXAMINATION LIGHT

Filed Aug. 8, 1963 2 Sheets-Sheet 1

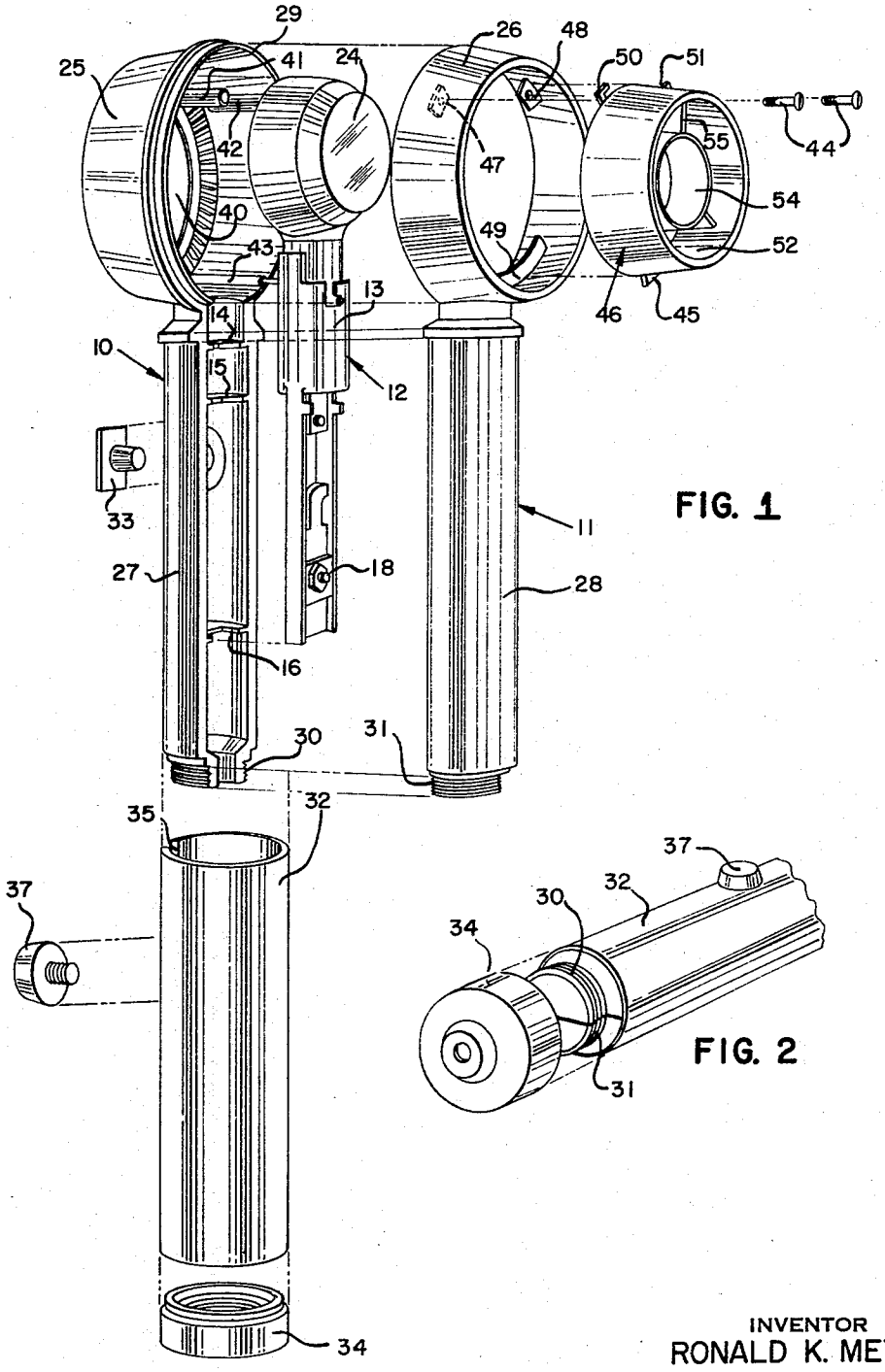


FIG. 1

FIG. 2

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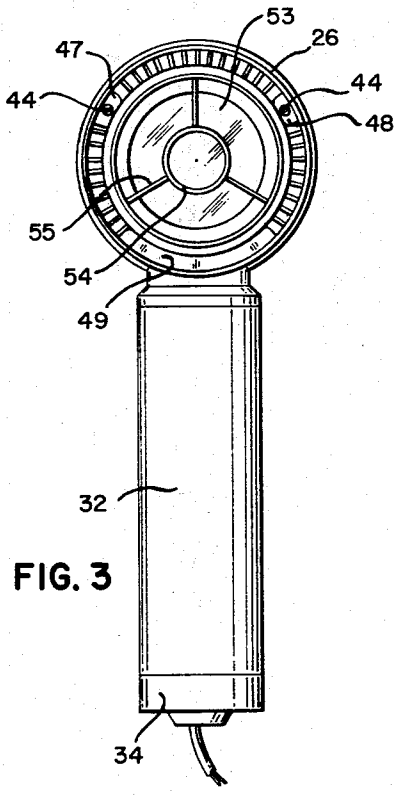


FIG. 3

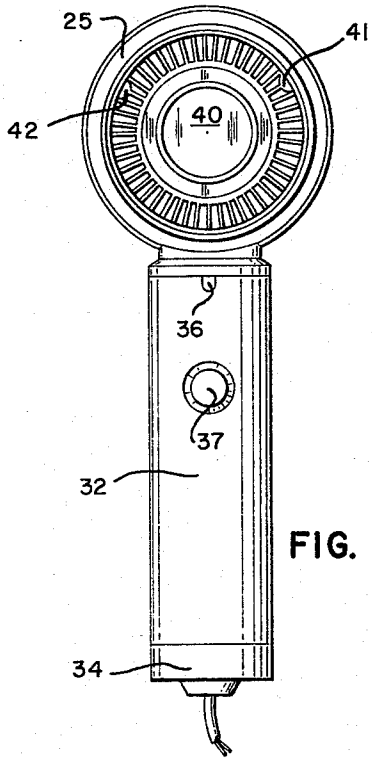


FIG. 4

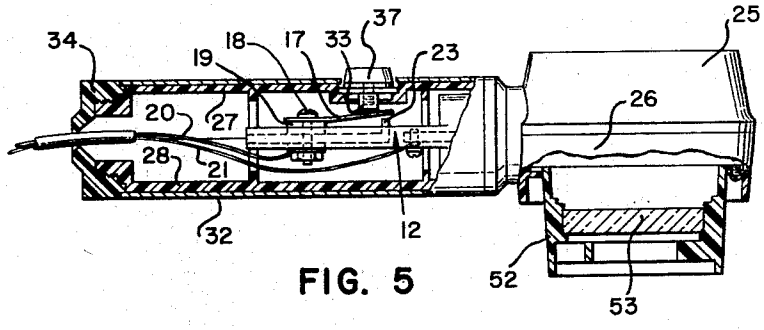


FIG. 5

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EXAMINATION LIGHT

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8 Claims. (Cl. 240—2.18)

This invention relates to the manufacture and construction of lighting devices and more particularly to a novel construction for a hand-held examination light.

In brief, the present invention comprises a two-part light housing and split sleeve holder, which is essentially held together by a tubular outer sleeve and a threaded end cap. A pair of screw connections are also employed within and on opposite sides of the lamp housing to assist in forming a unitary assembly. The same screw connections are employed for mounting a lens-holder in front of an examination light in a manner which permits air movement through the lamp housing. More especially, the lens holder is provided with slotted ears that may be engaged with the screw connections after they have been secured in place by merely rotating the lens-holder relative to the lamp housing.

Various objects of this invention include the provision of a hand-held examination light which is easy to manufacture, assemble and repair; an examination light having a lamp housing that allows air circulation therethrough to cool an examination lamp; and a lighting devise having a lens-holder that may be easily removed for cleaning or for replacement of a burned-out lamp.

Other objects of this invention will become apparent in view of the following detailed description and the accompanying drawings.

In the drawings forming a part of this application and in which like parts are identified by like reference numerals throughout the same,

FIG. 1 is an exploded, perspective view of an examination light constructed in accordance with the teaching of this invention, said view illustrating a parts relationship of the light and the manner of its assembly;

FIG. 2 is a perspective view of the end of the light immediately before its end cap is threaded to the handle portion of the split sleeve housing;

FIGS. 3 and 4 are front and rear views, respectively, of the light as fully assembled; and

FIG. 5 is a side view of the light with its handle and portions of the lamp housing and lens-holder shown in longitudinal center section.

Referring to FIG. 1, there is shown a preferred embodiment of this invention in a hand-held examination light comprising a split sleeve handle and housing formed in two parts **10** and **11**. A lamp-holder **12** of standard design and including a bayonet socket **13** is adapted to be received within the handle portion of parts **10** and **11**. The lamp-holder is positioned and fixed in proper orientation by surface engagements between the holder and the housing. For this purpose, a number of ridges such as indicated by reference numbers **14**, **15** and **16** are formed within each part **10** and **11**.

Lamp-holder **12** is provided with a leaf spring **17** that is mounted thereto by a nut and bolt connection **18** and a grommet **19** made of insulating material. Electrical leads **20** and **21** are employed to provide connection from a power source to the leaf spring **17** and to the base contact of socket **13**, respectively. It will be evident that moving spring **17** against the holder contact **23** will complete a connection to the bayonet socket **13** and thus to the contacts of an examination lamp or bulb **24**. The operation and construction of lamp-holder **12** is essentially conventional and, therefore, forms no parts of the present invention, except as to the manner in which it is housed.

Parts **10** and **11** are preferably made of plastic material and may be formed in a molding die. The lamp housing portion of said parts comprises the circular collars **25** and **26** which are integrally formed with handle portions **27** and **28**, respectively. Upon assembly of the two parts, collars **25** and **26** are placed in coaxial relationship with the continuous offset rim **29** of collar **25** received within the rim of collar **26**. The lower ends of handle portions **27** and **28** are formed with complementary threads **30** and **31**, respectively, which become a single continuous helical thread after parts **10** and **11** are assembled around lamp-holder **12**.

Parts **10** and **11** are held in mated relationship by a cylindrical sleeve **32**, said sleeve being slipped over the lower ends of said parts after a switch actuating button **33** is placed in an external recess of part **10**. The assembly of parts is then secured by an end cap **34** that is threaded over complementary threads **30** and **31**. Sleeve **32** may be slotted near its upper end, as indicated by reference number **35**, to receive a boss **36** formed integrally with part **10**, as shown in FIG. 4. This provides means for dogging the sleeve to parts **10** and **11** and inhibiting its rotation. After sleeve **32** has been assembled over parts **10** and **11**, a finger contact button **37** is projected through an opening in said sleeve and threaded into button **33**, as shown in FIG. 5.

Collars **25** and **26** provide a lamp housing which protects the examination lamp **24** but also permits air movement into and through the housing from both ends. This is an especially desirable feature since examination bulbs are usually of high intensity and radiate much heat. Nevertheless, it is also necessary to provide a lamp enclosure that is well guarded to prevent contact with the lamp. Collar **25** is for this reason formed with a guard plate **40** having radial openings arranged about a center disc. Plate **40** may be formed as an integral portion of part **10** to avoid the separate step of assembling the plate to the lamp housing.

With particular reference to FIG. 1, collar **25** of part **10** is formed with projecting interior ridges **41**, **42** and **43**. Ridges **41** and **42** have threaded openings for receiving the ends of screws **44**, but ridge **43** has a blind end and merely forms a stop or point of contact for a tab **45** provided on a lens-holder **46**.

A pair of ears **47** and **48** and an arcuate flange **49** are provided integrally and on the interior surface of collar **26**. Each ear has an opening for receiving a screw **44** therethrough and is located in general alignment with the openings of ridges **41** and **42**, respectively. Referring to FIG. 5 a small spacing is provided between each ear and its aligned ridge after collars **25** and **26** are placed in complementary relationship, and this spacing is approximately equal to the width of slotted ears **50** and **51** formed integrally with lens-holder **46**. It will be further evident that the ears **50** and **51** and tab **45** are located such that each is simultaneously received between the confining surfaces of a ridge on collar **25** and either on ear or the flange **49** of collar **26**, respectively. Such a mating relationship of parts is brought about by merely projecting lens-holder **45** in a direction coaxially toward collar **26** as suggested by FIG. 1, but at a time that slotted ears **50** and **51** are misaligned relative to the ears **47** and **48** of collar **26**. When the slotted ears are in a plane intermediate and equidistant from the ends of ridges **41**, **42** and the near surfaces of ears **47**, **48**, the lens-holder is rotated clockwise as viewed in FIGS. 1 and 3, until the slotted ears **50** and **51** come into lateral contact with screws **44**. Tab **45** at this time will occupy a position between flange **49** and ridge **43**.

The above described mounting construction provides means for easily removing lens-holder **46** to replace a

burned-out lamp **24**. Furthermore, it permits the use of a lens-holder having a smaller diameter than the inside diameter of collar **26**, thereby providing an open air passageway around the lens-holder and through said collar.

Lens-holder **46** comprises a collar portion **52** having a protective grille disposed in front of a lens **53**, said grille being defined by a circular sleeve **54** and radial supporting vanes **55**. Lens **53** may be mounted to the holder by any conventional method as to form a permanent part of a lens-holder assembly. The particular shape of the grille is important from the standpoint of permitting the passage of a maximum amount of light but preventing accidental contact with the lens, which is apt to be extremely hot from the beamed rays of the examination lamp.

Although a preferred embodiment of this invention has been illustrated and described, various changes may be made without departing from the spirit of the invention or the scope of the attached claims, and it is to be understood that each of such changes is contemplated.

What I claim and desire to secure by Letters Patent is:

1. In a lighting device the improvement comprising: a two-part longitudinally split sleeve, each of said parts having an integrally formed circular lamp housing at one end, the other end of said split sleeve defining a continuous helical thread when the two parts thereof are placed in mated relationship; a sleeve member for receiving said split sleeve therein; and a threaded cap matable with the threaded ends of said split sleeve.

2. The lighting device of claim **1** wherein said split sleeve and sleeve member are formed with alignable openings, and further including means extending through said openings for actuating a light switch disposed within said split sleeve, said means comprising a first button confined in an opening between surfaces of said split sleeve and said sleeve member, and an outer finger button threadedly connected to said first button.

3. The lighting device of claim **1** wherein said lamp housing comprises a pair of circular collars, each collar being formed integrally with respective parts of said two-part split sleeve, said collars being matable in coaxial relationship.

4. The lighting device of claim **3** and further comprising a lens-holder of smaller diameter than the inside diameter of said collars, means for mounting said lens centrally of said collars to provide an open air passageway around said lens-holder and through said collars.

5. The lighting device of claim **3** wherein one of said circular collars is formed with interior ridges, each ridge having a threaded opening, the other circular collar being formed with ears, each ear having an opening, said threaded openings and ear openings being respectively aligned and the surfaces of said ridges and ears being in spaced relationship when the two parts of said two-part split sleeve are mated; screws for joining said circular collars by threaded attachment to said threaded openings and engagement with said ears; a lens-holder of smaller diameter than the inside diameter of said collars, said lens-holder having slotted ears respectively engageable with said screws between connected ridges and ears by rotative movement of said lens-holder relative to said circular collars.

6. The lighting device of claim **5** and further comprising a finger guard formed integrally with one end of said lamp housing, said guard having radial openings smaller than a finger opening to permit the passage of air but prevent finger contact with a housed lamp.

7. The lighting device of claim **5** wherein said lens-holder comprises a collar having a protective grille disposed in front of a lens.

8. The lighting device of claim **7** wherein said grille comprises a circular sleeve supported centrally of said lens-holder and in front of said lens by radial vanes.

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