

No. 880,143.

PATENTED FEB. 25, 1908.

G. E. HULSE.

MANTLE SUPPORT AND GLOBE HOLDER FOR INCANDESCENT LAMPS.

APPLICATION FILED FEB. 7, 1906.

Fig.2

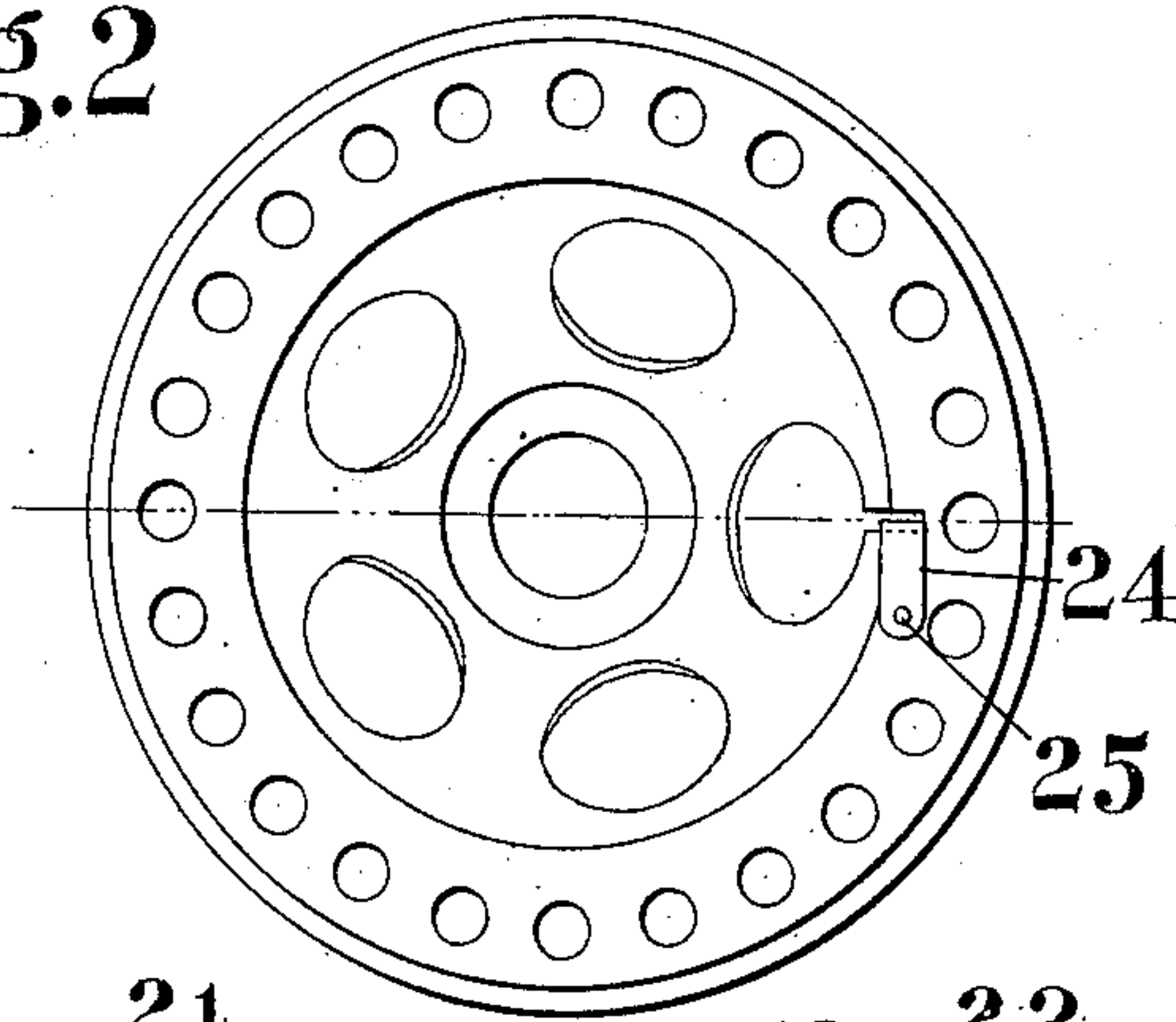


Fig.4

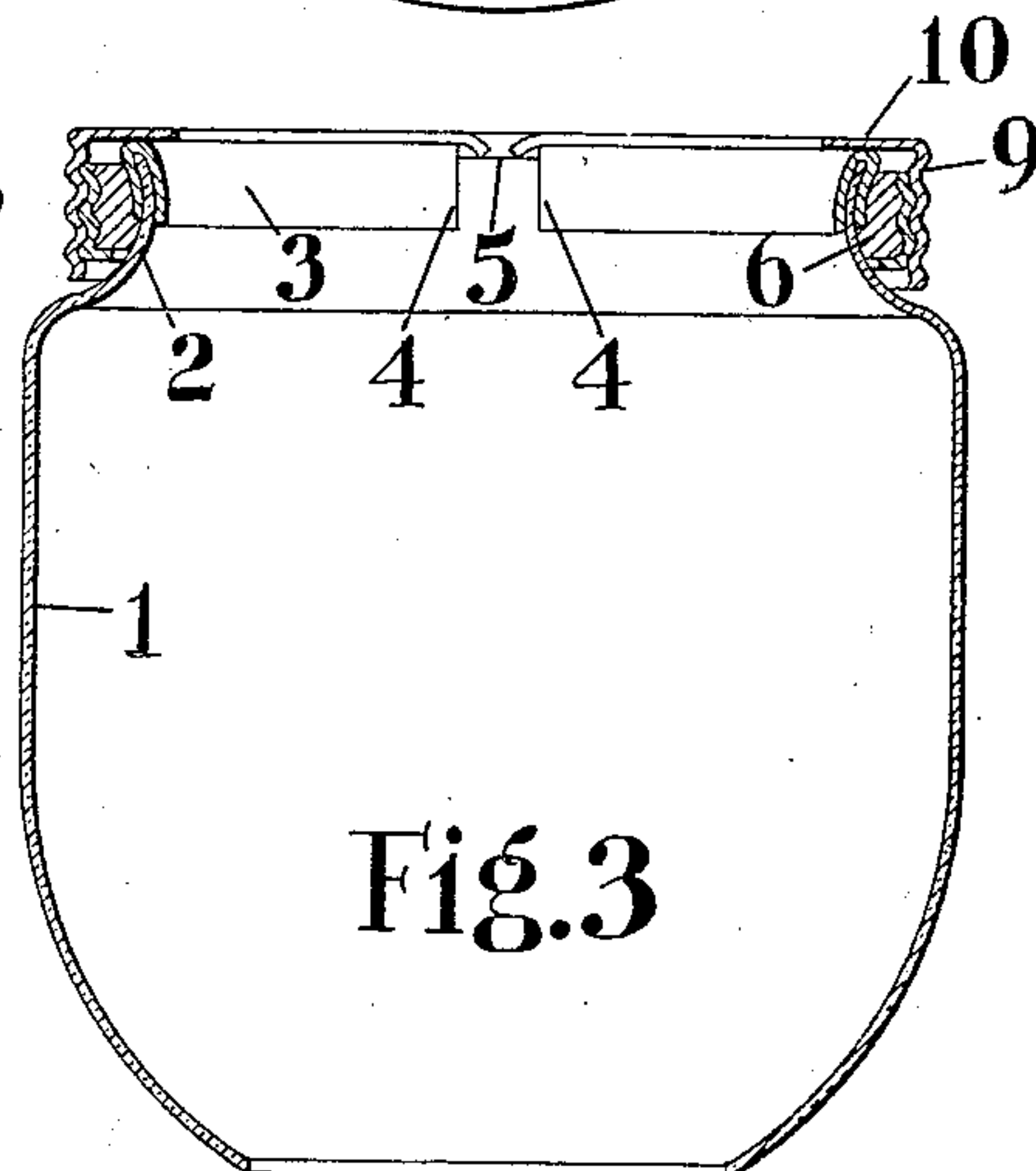
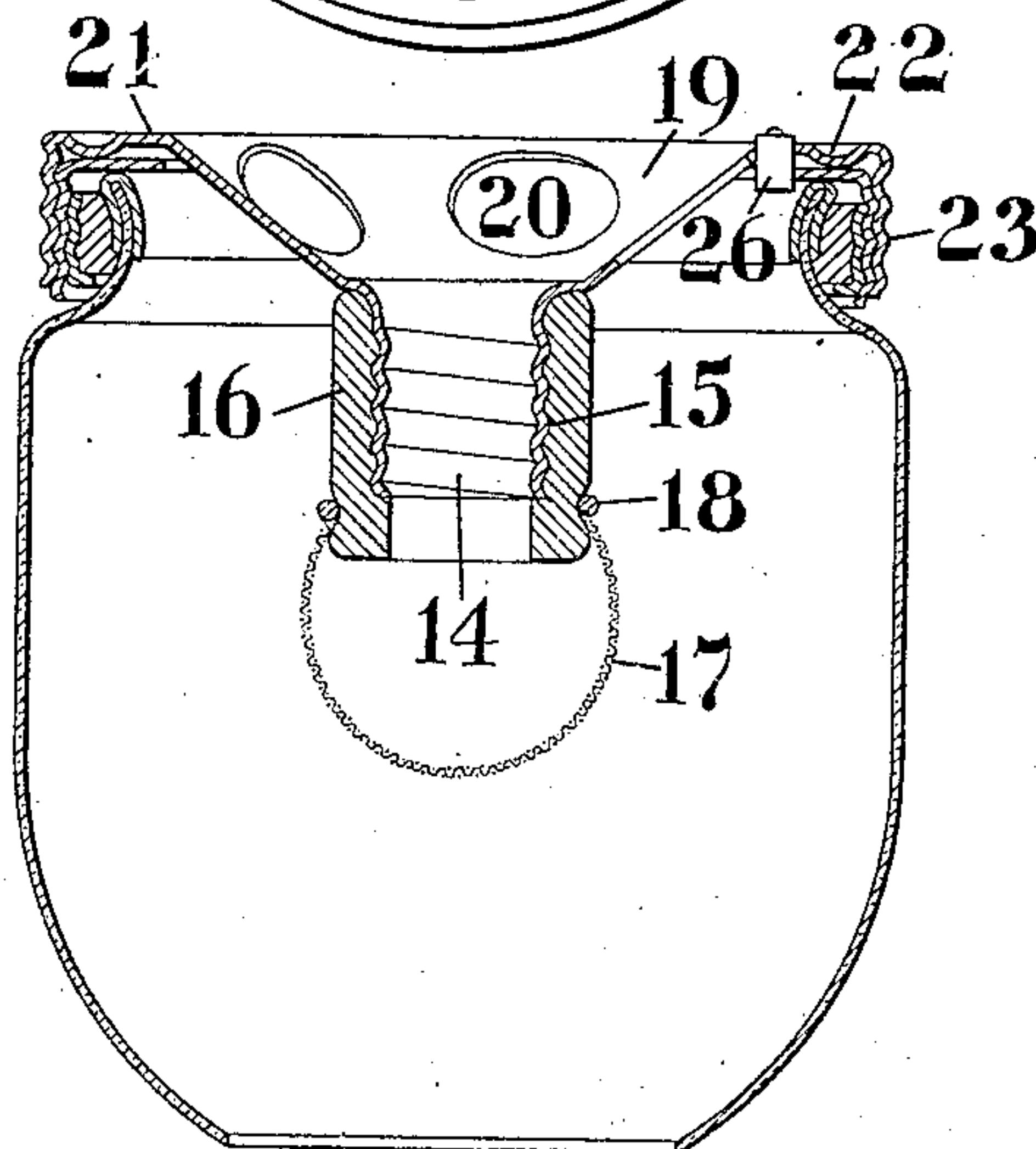
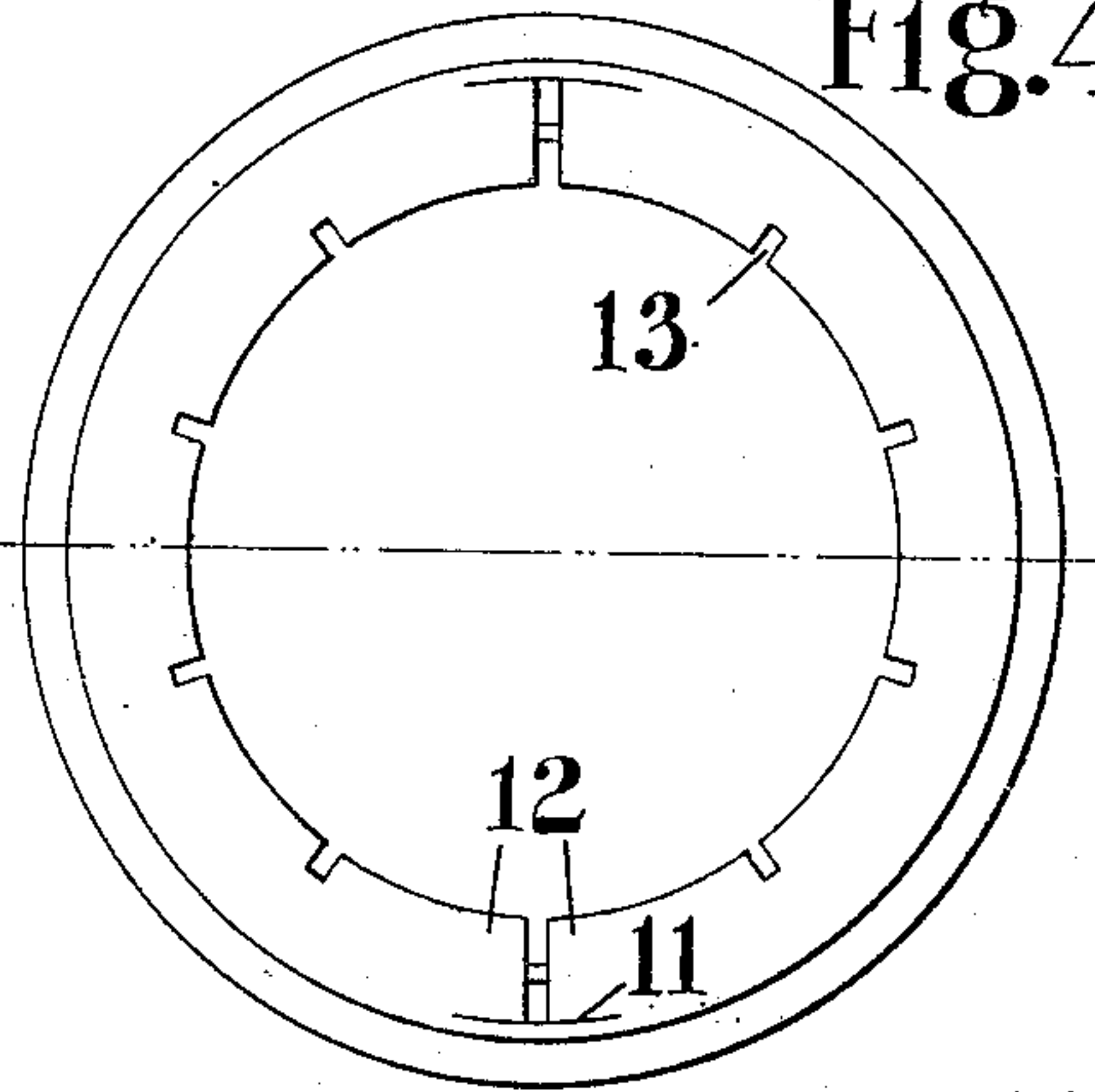


Fig.1

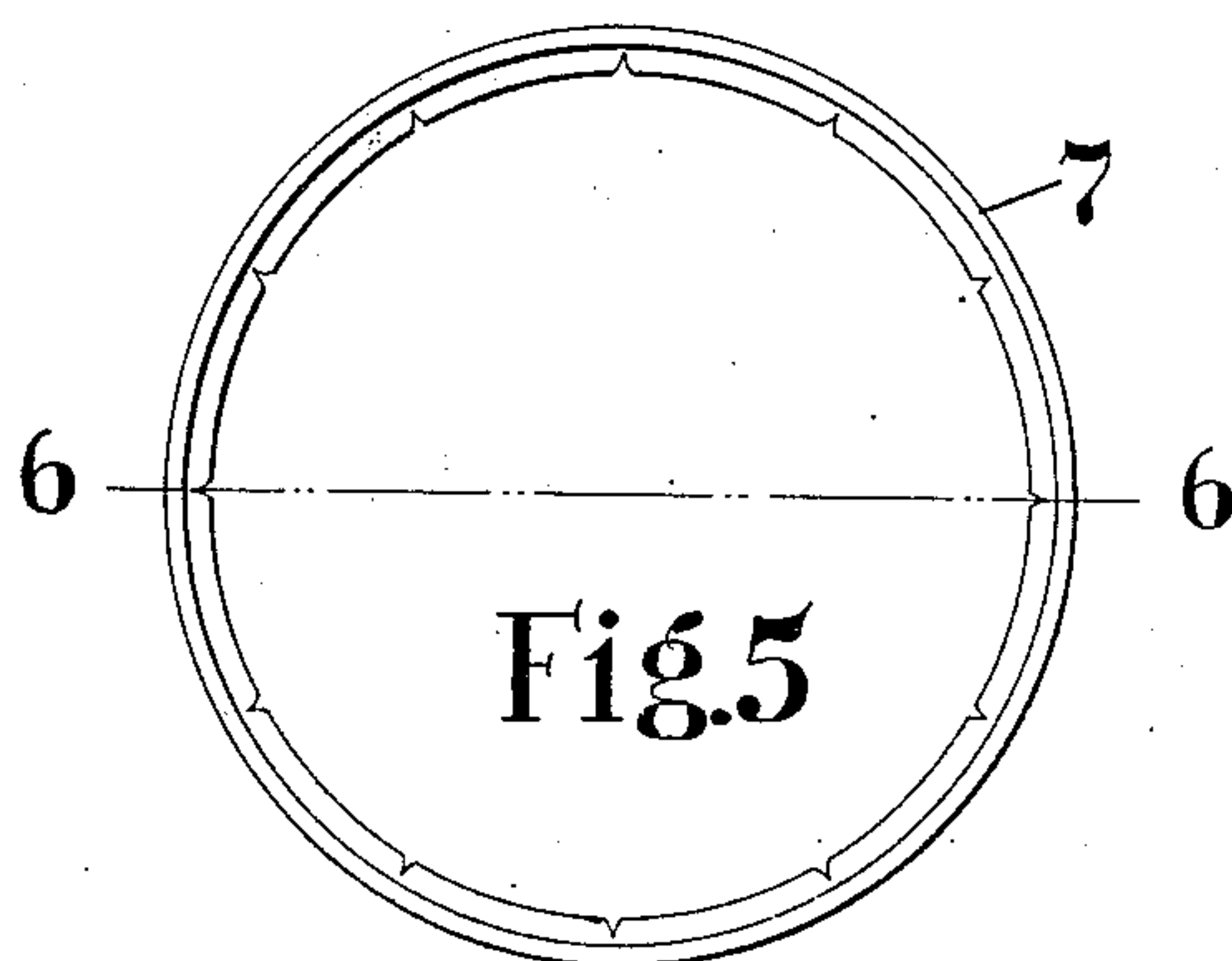


Fig.5



Fig.6

WITNESSES:

J. H. C. Sumner,

Alberta Nathan

INVENTOR

G. E. Hulse
BY
Warfield & Sons
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE E. HULSE, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE SAFETY CAR HEATING & LIGHTING COMPANY, A CORPORATION OF NEW JERSEY.

MANTLE-SUPPORT AND GLOBE-HOLDER FOR INCANDESCENT LAMPS.

No. 880,143.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed February 7, 1906. Serial No. 299,853.

To all whom it may concern:

Be it known that I, GEORGE E. HULSE, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Mantle-Supports and Globe-Holders for Incandescent Lamps, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention broadly relates to illuminating apparatus, but it more particularly refers to improvements in a gas lighting system whereby, in addition to certain other advantageous features, the various parts going to make up the same are so devised that they may be more conveniently assembled into one or more unitary structures, each well adapted for being readily handled as a whole. However, as the invention is applicable with peculiar advantages to mantle systems, particularly when of the inverted type, it will be conducive to clearness to disclose a preferred embodiment thereof in such connection.

In gas lighting apparatus, especially of that type employing a depending inverted mantle, it is necessary at certain intervals to have access to the various parts of the apparatus in order that the shades and other parts may be polished and that fractured or worn-out features may be replaced by new ones. However, as the mantle is of a very fragile nature and, as such, is not adapted to receive rough handling, it is customary to protect the same by one or more shades, and it is, therefore, highly desirable to so connect the parts that they may be detached from one another with the least possible disturbance or trouble to the mantle. This desideratum is of great importance in transportation service, since the cars are stationary for a brief period only, during which the necessary repairs must be made. It will be apparent that the expedition with which this operation is accomplished will be promoted by an easy detachment of the various parts.

Accordingly, this invention has in view, among other objects, the provision of a means whereby the mantle and globe or shade may be simultaneously applied to and removed from the main part of the apparatus and otherwise handled as a unit, without going through any difficult operations.

Another object contemplated by this invention is to provide a normally combined mantle and globe holder, which may be disassembled without difficulty into its component structures and which, when assembled, will constitute a self-contained device in which all the parts are positively retained together in an interlocking relation.

Another object of this invention is to devise a means for attaching the globe or shade to its holder, which will be simple in nature and inexpensive to manufacture, while adapted to accomplish its desired ends in a very effective manner.

Another object of this invention is to devise a means for preventing assembled parts from becoming disengaged through excessive or unavoidable vibrations or the like.

Another object within the purpose of this invention consists in a holder especially adapted to carry a globe in such a manner that it will be positively secured against working loose under the vibrations accruing to railroad service and yet be clamped with such delicacy that the fragile globe will not be crushed or ruptured.

Another object is to provide an instrumentality of the class specified which, from a mechanical standpoint, will, in usage, possess a high degree of efficiency and effectiveness, and which, structurally considered, will be of the greatest possible simplicity, being composed of but few parts, all adapted for being made at a minimum of cost and individually so formed as to be capable of being readily assembled into a neat and compact arrangement for accomplishing the purposes intended.

Other objects and advantages will be in part obvious and in part pointed out hereinafter.

With these and other ends in view, this invention accordingly consists in the features of construction, combination of parts, and arrangement of elements hereinafter more explicitly set forth as an exemplification of the underlying principles involved in the invention.

In order that this invention may be more fully understood and made comprehensible to others skilled in its relating arts, drawings illustrating a convenient means of carrying out the same are appended as a part of this specification, and, while the controlling principles of the invention may be otherwise

applied by modifications falling within the scope of the claims, the herein disclosed embodiment is that which will ordinarily be preferable to employ in practice and is regarded as representing substantial improvements over the many implied and obvious variations of the same. In such drawings, it is to be noted that like numerals refer to corresponding parts throughout all the figures, of which—

Figure 1 is a median vertical section showing one embodiment of this invention in which all the parts are assembled in an interlocking relation to form a unitary structure.

Fig. 2 is a top plan view of Fig. 1 showing certain details not clearly apparent in the foregoing figure. Fig. 3 is a vertical section showing the holder and shade completely assembled to form a unitary structure adapted for being attached to the mantle support shown in Fig. 1. Fig. 4 is a top plan view of Fig. 3 showing certain features, such as the interlocking details, not clearly appearing in Fig. 3. Fig. 5 is a plan view of the packing retaining ring, while, Fig. 6 is a section of the same device taken along line 6—6 of Fig. 5.

In carrying out this invention, a suitable shade or globe is usually employed for the purpose of protecting the fragile incandescent mantle and, while various styles and types of shades may be employed to advantage, it is preferable to make use of a type analogous to that indicated on the drawings by 1, which is contoured to provide a grooved rim 2, which will ordinarily be of less diameter than the body portion of the globe. It is of advantage to have the edge of such reduced rim flare outwardly, or otherwise, to form a flange or head in the manner shown. To such outer edge is preferably applied a protecting strip 3 which may be of a relatively soft and ductile material, so as to be capable of being readily applied to the shade, as by overlapping and straddling the edge, as shown on the drawings. The meeting ends 4 of such strip are, however, preferably spaced a slight distance apart so as to expose a portion 5 of the edge of the globe. The purpose of such arrangement is to afford a suitable seat for positively engaging spring clips, as will be later described.

A packing ring 6, preferably of some soft, resilient and non-conducting material, such as asbestos, is arranged to circumscribe the globe, preferably within the groove thereof, and is adapted to be adjustably wedged against the outwardly flaring ends by means of a movable retaining ring 7, which is screw-threaded in its body portion and provides an intumed ledge 8 against which the lower part of the asbestos packing ring will shoulder, thereby limiting the movement of said ring. In order that said retaining ring

may be adjusted through the desired vertical movement, an inclosure collar 9 has its cylindrical body portion in screw-threaded engagement with said ring and is provided on its top with an inwardly extending ledge 10 which, preferably, is adapted to bear against the turned-over upper edge of the protection strip 3, although it lies well within the scope of this invention to arrange said collar to bear against any other portion of the shade. It will be observed that, as a necessary consequence of this construction, a rotation of the inclosure collar will cause the retaining ring and intermediate asbestos packing to be tightly wedged together and effect a secure attachment of the shade, and, to avoid any inadvertent reflex movement of these parts, the collar is provided with a suitable locking means, and to this end, a circumferential slit 11 may be cut in the collar itself, whereby intumed spring clips 12 will be formed integral therewith. This expedient represents one of the possible embodiments of a feature of this invention which will be found to be inexpensive and, at the same time, effective. The ends of such clips take into the aforesaid seat and bear against the edge of the shade when brought to the position shown in Fig. 3, thereby serving to positively lock the respective parts against any undesirable rotation. It is to be noted, in this connection, that such incasing collar is also provided with a series of radial notches 13 on the inner edge of the annular ledge 10, thereby conveniently forming seats to be engaged by a suitable clip carried by the mantle support, as will be hereinafter set forth.

The foregoing parts are intended to be detachably mounted on the illuminating apparatus, and advantageously this may be done by attaching the same directly to the mantle support, which may be of any desired construction. The form illustrated on the drawings, however, will ordinarily be preferred and is accordingly shown as best disclosing the features of this invention. Such mantle support or spider, as it is sometimes termed, comprises a centrally located tubular end or hub 14 which is provided with circumferential threads 15, thereby furnishing a convenient means for detachably connecting the mantle supporting spool 16. As employed in this embodiment, the mantle shown by 17 is of the depending type and is secured to the spool by means of annular ring 18 or other convenient connection. The said tubular end at its upper end flares upwardly and outwardly, forming a conical shell 19 which is apertured, as indicated by 20, in order that the proper passage may be afforded for the escape of fumes. The upper periphery 21 of said shell is provided with a series of indents 22 and extends radially a sufficient distance to override the aforesaid collar, and at its extreme edges is turned

downwardly as indicated by 23, which portion is provided with threads designed to engage with the periphery of said collar. A stop 24, consisting of a resilient strip, is pivoted at 25 to said shell, and, at its upper end, extends downwardly, as shown by 26, through a suitable aperture into engagement with the aforesaid serration 13 in the collar, in order to restrain the parts against relative movement.

It will thus be seen that the invention herein disclosed is one well adapted to attain the various ends and objects apparent from the foregoing description. Thus, when assembled, the parts go to make up a unitary structure which may be handled with all the readiness of a structure in which all the parts are all permanently secured together. In case a fracture or disarrangement of the lighting features should take place, it is a simple matter to remove the whole from the illuminating bracket. When so removed, the device may be carried to the shop or repair room and there readily disassembled, so that parts may be replaced or repolished, as the case may be. It will furthermore be noted that the device is simply constructed and is adapted for being made at small cost, which is a matter of the utmost importance in this art. One of the characteristic features resides in the fact that the invention is peculiarly adapted for withstanding the rough usage of transportation or other work, in which jarrings and vibrations are ever present. The parts are all arranged in an interlocking relation so as to be perfectly secured against inadvertent detachment, without, on the other hand, interfering with a separation whenever it is so desired.

Among the many other eminent advantages secured as a result of this invention may be emphasized the fact that it is peculiarly applicable to transportation service of the manner in which the fragile shades are mounted. The interpositioning of the soft asbestos ring serves to evenly distribute the clamping strain throughout the entire contacting periphery of the shade and thus eliminate any localization of strain, which would tend to fracture the fragile shade. Furthermore, through the employment of non-conducting material, such as asbestos, the excessive heating of the shade is prevented, thus doing away with another prolific source of spontaneous cracking.

The arrangement as a whole possesses characteristic utility in its adaptation to inverted lamps because of the perfect mounting of the shade and mantle.

In this specification the term "shade" is employed in a broad sense as indicative of any expedient, such as the ordinary globe, in an auxiliary capacity serving to promote the utility of the incandescent features of the apparatus, as to protect the same or enhance the

distribution of light therefrom, and likewise the term "mantle" refers to various varieties of light-affording devices which are adapted to exercise their properties under the influence of gases in suitable condition for the purpose.

In carrying out this invention, details of construction may be varied from those shown and yet the essence of the invention be retained, some parts might be employed without others and new features thereof might be combined with elements old to the art in various ways, although the herein described type is regarded as embodying substantial improvements.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In gas lighting apparatus, a depending shade having at its upper end a peripheral groove, a ring interfitting with said groove and normally permanently secured to said shade, an overlying collar adapted to detachably engage with said ring to carry said depending shade, and a depending mantle support adapted to be engaged with and supported from the aforesaid collar.

2. In gas lighting apparatus, a depending shade having at its upper end a peripheral groove, a ring interfitting with said groove and normally permanently secured to said shade, a collar adapted to engage with said ring to carry said depending shade, means detachably engaging said parts to maintain them in interlocking relation, and a depending mantle support adapted to be engaged with and supported from the aforesaid collar.

3. In gas lighting apparatus, a shade having a flanged edge, a ring having a flange, packing intermediate said edge and flange, and interfitting therewith and thereby secured to said shade, an overlying retaining collar adapted to engage with said ring and having a top intumed edge adapted to abut said shade whereby, upon moving said collar, said ring may compress said packing, clips adapted to engage said shade, a collar adapted to be engaged with the aforesaid collar, and a stop carried thereby and resiliently positioned, whereby said parts are positively maintained against a relative movement.

4. In gas lighting apparatus, a shade having a peripheral groove, a ring interfitting therewith and thereby secured to said shade, a collar adapted to engage with said ring, means detachably engaging said parts to maintain them in interlocking relation, a mantle support adapted to be engaged with the aforesaid collar, and a releasable stop carried thereby and so positioned as to positively maintain said parts against a relative movement.

5. In gas lighting apparatus, a shade having a peripheral groove, a ring interfitting therewith and thereby secured to said shade,

a collar adapted to engage with said ring, clips adapted to engage said shade a collar to restrain said parts against moving, a mantle support adapted to be engaged with the latter collar, and a releasable stop carried thereby and so positioned as to positively maintain said parts against relative movement.

6. In gas lighting apparatus, a shade having a peripheral groove, a ring interfitting therewith and thereby secured to said shade, a collar adapted to engage with said ring and having a suitable shoulder adapted to abut said shade, clips adapted to engage said shade, a collar to restrain said parts against moving, a mantle support adapted to be engaged with the latter collar, and a stop carried thereby and resiliently positioned, whereby said parts are positively maintained against a relative movement.

7. In gas lighting apparatus, a shade of substantially cylindrical shape and converging at one end into a rim having a groove, a protecting strip straddling the edge of said rim whereby it is concealed at certain places and exposed at others to form a seat for locking clips, an asbestos packing in said groove, a ring inclosing said packing and adapted to wedge it against said shade, and a retaining member adapted to be engaged with said ring and affording a suitable abutment with said shade whereby said ring may be forced into the desired position, said member being cut away to form spring clips integrally extending therefrom and adapted to engage in said seat to restrain the parts against disengagement.

8. In gas lighting apparatus, a shade having at one end a rim, a ring adjacent said rim and adapted to be wedged thereagainst, a retaining member adapted to be engaged with said ring and affording a suitable abutment with said shade whereby said ring may be forced into the desired position, and releasable clips adapted to engage with said parts to restrain them against disengagement.

9. In gas lighting apparatus, a shade having at one end a rim, a packing abutting said rim, a ring inclosing said packing and adapted to wedge it against said shade, a retaining member adapted to be engaged with said ring and affording a suitable abutment with said shade whereby said ring may be forced into the desired position, and clips adapted to engage with said parts to restrain them against disengagement.

10. In gas lighting apparatus, a shade formed at one end into a rim having a groove and providing a seat for locking clips, a packing in said groove, a ring inclosing said packing and adapted to wedge it against said shade, and a retaining member adapted to be engaged with said ring and affording a suitable abutment with said shade whereby said

ring may be forced into the desired position, said member having spring clips adapted to engage in said seat to restrain the parts against disengagement.

11. In gas lighting apparatus, a shade converging at one end into a rim having a groove, a strip mounted on the edge of said rim and arranged to form a seat for locking clips, a packing in said groove, a ring inclosing said packing and adapted to be engaged with said rim and affording a suitable abutment with said shade whereby said ring may be forced into the desired position, said ring having spring clips adapted to engage in said seat to restrain the parts against disengagement.

12. In gas lighting apparatus, a shade converging at one end into a rim having a groove, a strip straddling the edge of said rim and arranged to form a seat for locking clips, an asbestos packing in said groove, a ring inclosing said packing and adapted to wedge it against said shade, and a retaining member adapted to be engaged with said ring and affording a suitable abutment with said shade whereby said ring may be forced into the desired position, said member being cut away to form spring clips integrally extending therefrom and adapted to engage in said seat to restrain the parts against disengagement.

13. In a device of the class described, a shade having a flanged edge, a packing abutting said flange, a ring having an inturned flange adapted to abut the side of said packing opposite to said flange to wedge the same against said shade, an overlying retaining collar adapted to engage with said ring and having a top inturned edge adapted to abut said shade whereby, upon moving said collar, said ring may compress said packing, clips adapted to engage said shade and collar to restrain said parts against turning, a mantle support adapted to be engaged with the aforesaid collar, and a stop carried thereby and resiliently positioned, whereby said parts are positively maintained against a relative movement.

14. In a device of the class described, a shade having a flanged edge, a packing abutting said flange, a ring having an inturned flange adapted to abut the side of said packing opposite to said flange to wedge the same against said shade, an overlying retaining collar adapted to engage with said ring and having a top inturned edge adapted to abut said shade whereby, upon moving said collar, said ring may compress said packing, oppositely extending spring clips carried by said collar and adapted to engage said shade to restrain said collar against turning relatively to said shade, a mantle support having a down-turned periphery in engagement with the aforesaid collar, and a stop carried there-

by and resiliently positioned, whereby said parts are positively maintained against a relative movement.

15. In a device of the class described, a shade having a flanged edge, a packing abutting said flange, a ring having an inturned flange adapted to abut the side of said packing opposite to said flange to wedge the same against said shade, an overlying retaining collar adapted to engage with said ring and having a top inturned edge adapted to abut said shade, whereby, upon moving said collar, said ring may compress said packing, oppositely extending spring clips carried by said collar and adapted to engage said shade to restrain said collar against turning relatively to said shade, a mantle support consisting of an upwardly and outwardly flaring conical shell having a down-turned periphery in engagement with the aforesaid collar, and a stop carried by said shell and resiliently maintained against said collar, whereby said parts are positively maintained against a relative movement.

16. In a device of the class described, a shade having a flanged edge, a protecting strip straddling the flange of said shade and arranged to provide a seat for the reception of locking clips, a packing abutting said flange, a ring having an inturned flange adapted to abut the side of said packing opposite to said flange to wedge the same against said shade, an overlying retaining collar adapted to engage with said ring and having a top inturned slotted edge adapted to abut the edge of said strip whereby, upon moving said collar, said ring may compress said packing, oppositely extending spring clips carried by said collar and adapted to engage within the aforesaid seat to restrain said collar against turning relatively to said shade, a mantle support consisting of a tubular end adapted to receive the mantle-bearing spool, said end flaring upwardly and outwardly to form a perforate conical shell having a down-turned periphery for engagement with the aforesaid collar, and a stop carried by said shell and resiliently maintained in a slot in said collar whereby said parts are positively maintained against a relative movement.

17. In a device of the class described, a shade having a flanged edge, a protecting strip straddling the flange of said shade and having its ends terminating at a distance from one another, whereby a portion of said shade is exposed to constitute a seat for the reception of locking clips, a packing bearing against said flange, a ring provided with screw threads on its periphery and having an inturned flange adapted to abut said packing and thereby wedge the same against said strip, an overlying retaining collar provided with a threaded interior adapted to engage with

said ring and having a top inturned, serrated edge adapted to abut the edge of said strip whereby, upon turning said collar, said ring may be forced against said packing, said inturned collar edge being cut away to form oppositely extending spring clips adapted to engage within the aforesaid seat to restrain said collar against turning relatively to said shade, a mantle support consisting of a tubular end adapted to receive the mantle-bearing spool, said end flaring upwardly and outwardly to form a perforate conical shell having a down-turned, screw-threaded periphery for engagement with the aforesaid collar, and a stop carried by said shell and resiliently maintained in a serration in said collar whereby said parts are positively maintained against a relative movement.

18. In a device of the class described, a shade having a rim having a groove of lesser diameter than the body of said shade, a protecting strip straddling the edge of said rim and having its ends terminating at a distance from one another, whereby a portion of said shade is exposed to constitute a seat for the reception of locking clips, a packing of asbestos circumscribing said rim within the groove thereof, a ring provided with screw threads on its exterior periphery and having an inturned, serrated bottom edge, said ring inclosing said packing and adapted to be moved to wedge the same against said rim and strip, an overlying retaining collar provided with a threaded interior adapted to engage with said ring and having a top inturned, serrated edge adapted to abut the edge of said strip, whereby, upon turning said collar, said ring may be forced against said packing, said inturned collar edge being cut away to form oppositely extending spring clips adapted to engage within the aforesaid seat to restrain said collar against turning relatively to said shade, a mantle support consisting of a central threaded, tubular end adapted to receive the mantle-bearing spool, said end flaring upwardly and outwardly to form a perforate conical shell having a down-turned, screw-threaded periphery for engagement with the aforesaid collar, and a stop carried by said shell and resiliently maintained in a serration in said collar, whereby said parts are positively maintained against a relative movement.

19. In a device of the class described, a shade of substantially cylindrical shape open at either end and converging at the upper end to form a grooved rim of lesser diameter than the body of said shade, a protecting strip straddling the edge of said rim and having its ends terminating at a distance from one another, whereby a portion of said shade is exposed to constitute a seat for the reception of locking clips, a packing of asbestos circumscribing said rim within the groove

thereof, a ring provided with screw-threads
on its exterior periphery and having an in-
turned, serrated bottom edge, said ring in-
closing said packing and adapted to be moved
5 to wedge the same against said rim, an over-
lying retaining collar provided with a thread-
ed interior adapted to engage with said ring
and having a top intumed, serrated edge
adapted to abut the edge of said strip where-
10 by, upon turning said collar, said ring may
be forced against said packing, said intumed
collar edge being cut away to form oppositely
extending spring clips adapted to engage
within the aforesaid seat to restrain said col-
15 lar against turning relatively to said shade, a
mantle support consisting of a central,

threaded, tubular end adapted to receive
the mantle-bearing spool, said end flaring
upwardly and outwardly to form a perforate
conical shell having a down-turned, screw- 20
threaded periphery for engagement with the
aforesaid collar, and a stop carried by said
shell and resiliently maintained in a serration
in said collar whereby said parts are posi-
tively maintained against a relative move- 25
ment.

In testimony whereof I affix my signature,
in the presence of two witnesses.

GEORGE E. HULSE.

Witnesses:

A. C. MOORE,

J. A. DIXON.