Oct. 11, 1932. H. J. GRAHAM 1,882,185

LAMP

Filed April 15, 1929 3 Sheets-Sheet 1

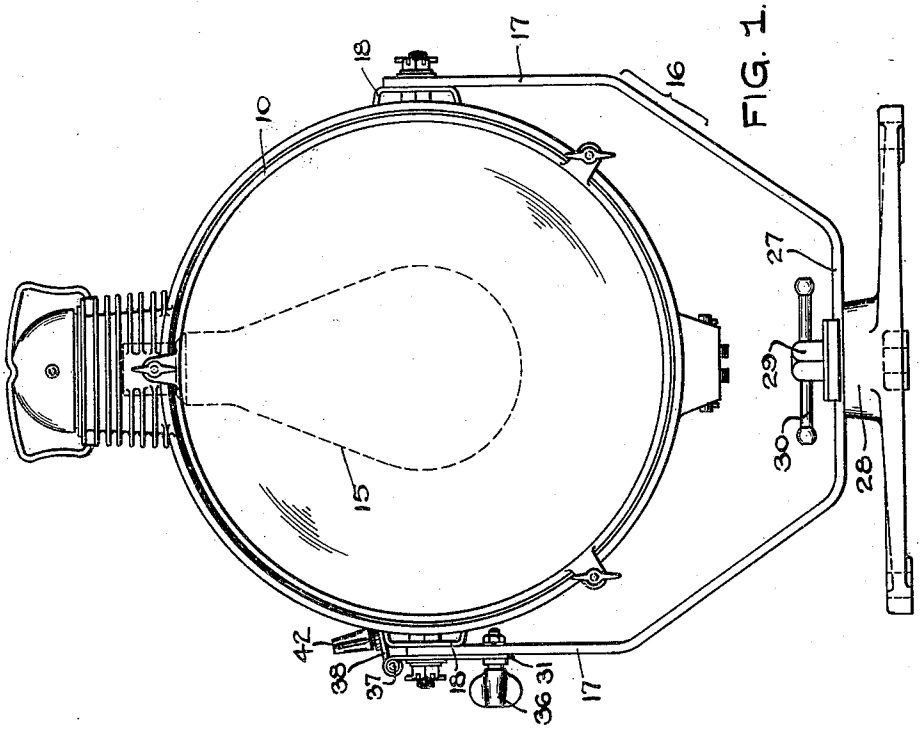


FIG. 1.

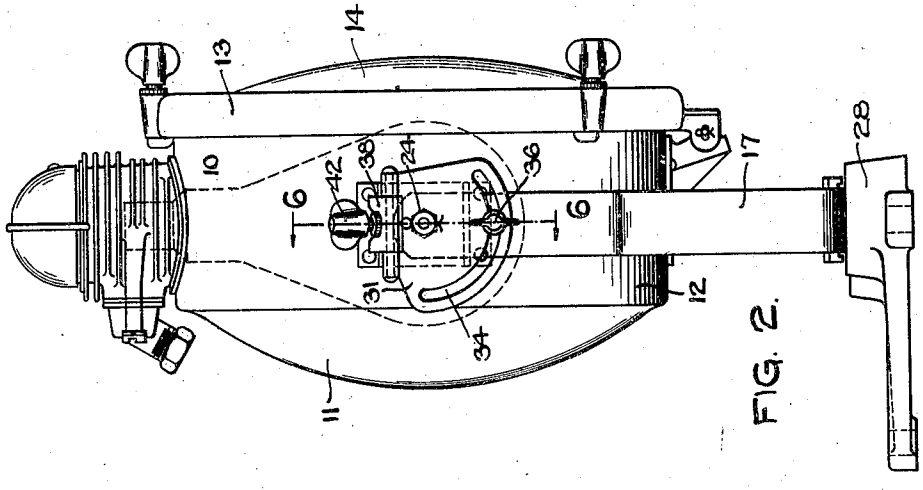


FIG. 2.

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LAMP

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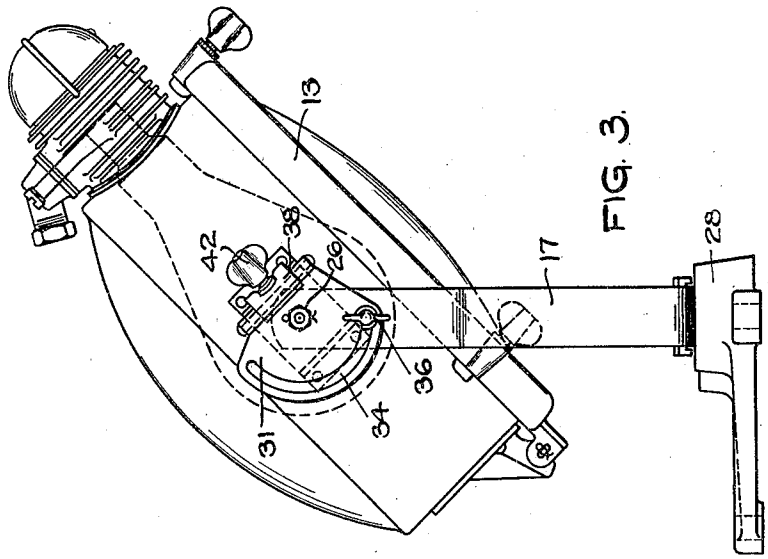


FIG. 3.

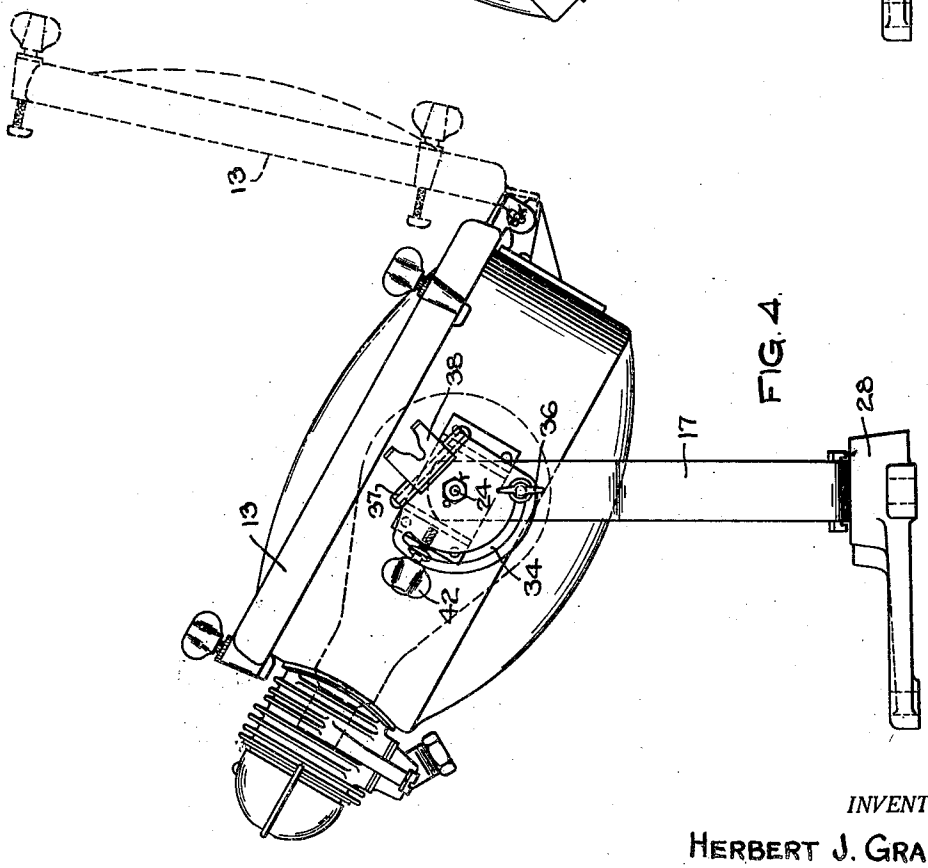


FIG. 4.

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LAMP

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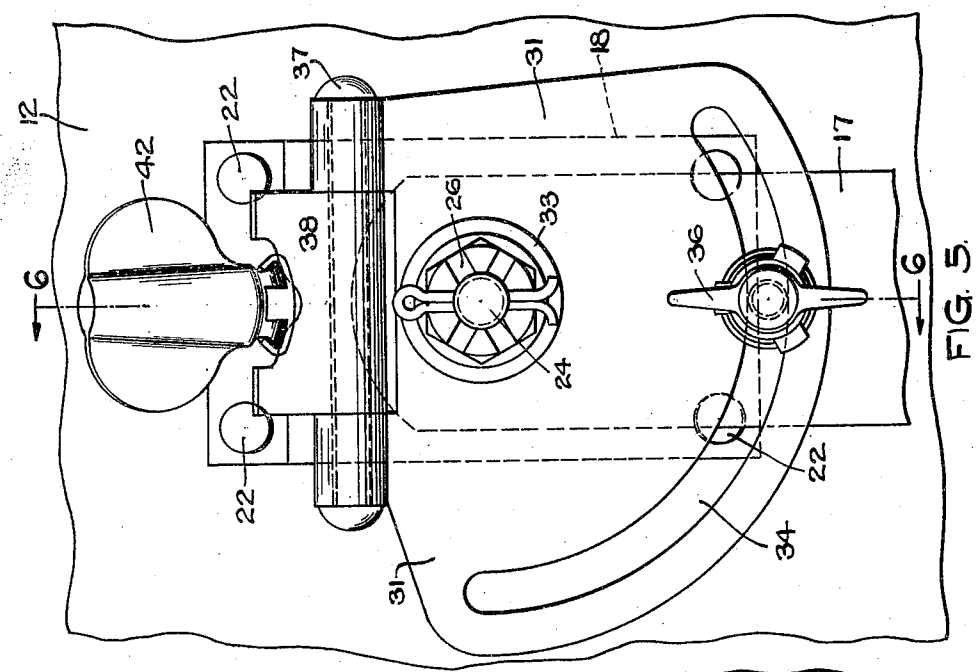


FIG. 5.

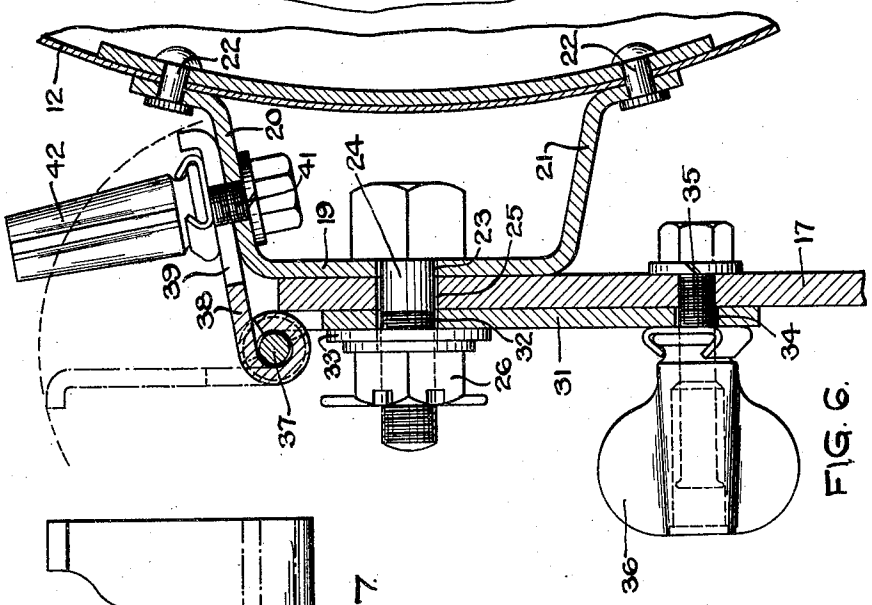


FIG. 6.

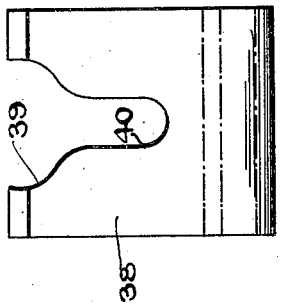


FIG. 7.

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Patented Oct. 11, 1932 1,882,185

UNITED STATES PATENT OFFICE

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LAMP

Application filed April 15, 1929. Serial No. 355,182.

This invention relates to electric lamps and more particularly to electrically operated flood lights, search lights, headlights and the like, which are intended for the projection of light over comparatively great distances or areas.

The present invention is particularly adapted for use in connection with lamps such as flood-lights, locomotive head-lights, air-port lights and the like, all of which are commonly characterized by the fact that in each case the lamp body or housing is positionally adjusted with relation to its support to most effectively project the light rays in a predetermined direction. Once this initial adjustment between the lamp body and its support is obtained it is seldom disturbed unless altered circumstances necessitate a change in the direction of the light projection. However, even though there never is a change in the positional adjustment as initially effected it is always necessary, during the period of use of the lamp, to occasionally inspect, repair and clean the lamp, replace parts thereof and so on. To perform this maintenance work without disturbing the correct adjustment between the lamp body and its support is not always easy, this because of the fact that the adjustment is often such that the particular part of the lamp body which it is desired to reach is rendered inaccessible unless the lamp body be swung into a position other than its correctly set position. Once the lamp body is swung out of its adjusted position for purposes of inspection, repair or the like, it requires great care to reset it to its proper position and even then there is no assurance that the proper readjustment has been made.

It is accordingly among the principal objects of this invention to avoid the aforementioned difficulties by the provision of means operatively associated with an indexing device for locking the lamp body in a predeterminedly set position with relation to the support for said lamp body, said means being operable to permit the lamp body to be swung out of said position for purposes of inspection, repairs, replacement or the like.

A further object of the invention is the provision of a shiftable member adapted to be secured in a predeterminedly fixed relation to the lamp support, the lamp being rotatable freely upon said support, together with means carried by said shiftable member for locking engagement with the lamp whereby to prevent rotation of the latter with respect to its support.

It will be understood, of course, that the initial adjustment between the lamp body and its support must be effected at night in order to insure the most effective projection of light in a given direction. Should this adjustment be disturbed, as when the lamp is cleaned or inspected, it is ordinarily necessary to again reset the lamp body at night. It is accordingly a still further object of this invention to provide means whereby the lamp body may be reset to its predeterminedly adjusted position by daylight thus obviating the necessity of night work upon the lamp.

Other objects of the invention and advantages resulting therefrom will appear more fully hereinafter.

The invention consists substantially in the combination, construction, location, and relative arrangement of parts, all as will appear more fully hereinafter, as shown in the accompanying drawings and as finally pointed out in the appended claims. In the said accompanying drawings, which for purposes of illustration show the invention as embodied in one form of typical lamp,

Figure 1 is a front elevational view of a lamp embodying the features of the present invention;

Figure 2 is a side elevational view of the lamp looking toward the indexing mechanism, the lamp body being shown locked in position for projecting the light in a substantially horizontal direction;

Figure 3 is a side elevational view showing the lamp body locked in position for projecting the light downwardly and at an angle with respect to the horizontal;

Figure 4 is a side elevational view corresponding to that of Figure 3, the lamp body being unlocked with respect to its support

and thrown back into a position rendering it accessible for maintenance work to be performed thereon;

Figure 5 is an enlarged elevational view of the indexing and locking mechanism as operatively associated with adjacent parts of the lamp body and the support therefor;

Figure 6 is a vertical sectional view taken on the lines 6—6 of Figures 2 and 5; and

Figure 7 is an elevational view of the locking member per se.

Referring now to the drawings, it will be seen that the lamp body or casing 10 is substantially drum-shaped and comprises an annular wall 12, a rear wall 11 and a swingably mounted front door closure 13, the latter being provided with the usual lens 14. Housed within this lamp casing 10 is a suitable reflector (not shown) and an electric lamp 15 constituting the source of light which is projected through the lens 14 in a predetermined direction. Supporting the lamp body 10 for angular adjustment about a substantially horizontally disposed axis is a U-shaped bracket 16, the lamp body being pivotally mounted between the upstanding arms 17 of this bracket. As appears most clearly in Figures 1 and 6 the lamp body is provided upon diametrically opposed sides thereof with pivot fittings 18, each of which is characterized by a vertically disposed web 19 having upper and lower branches 20 and 21. The branches 20 and 21 of each fitting are rigidly secured to the annular wall 12 of the lamp body by rivets 22 or their equivalent and in such manner that the vertically disposed web 19 thereof is spaced outwardly from said wall. The webs 19 of the fittings are centrally apertured, as at 23, for permitting the passage therethrough of bolts 24 which latter project through aligned openings 25 provided in the upper portions of the bracket arms 17 and between which the fittings 18 are embraced. Nuts 26 threadedly engage the outwardly projecting ends of the bolts 24 whereby the webs 19 of the fittings are respectively held against the inner surfaces of the bracket arms 17, it being understood from the foregoing that the bolts 24 constitute relatively fixed bearings upon which the lamp body is supported for rotation about a horizontally extending axis.

As appears in Figures 1 to 4 the bracket 16 is in turn mounted for rotation about a vertical axis, the transversely extending branch 27 of the bracket being secured in superposed relation upon a suitable supporting base 28 through the intervention of a clamp bolt 29 having an operating handle 30. Inasmuch as the lamp body is carried by the bracket, angular adjustment of the latter about a vertical axis (that is, with respect to the supporting base 28) makes possible the projection of light along any desired line extending radially from said vertical axis.

Attached to and overlying the outer surface of one of the arms 17 of the bracket 16 (in this instance that at the left of Figure 1) is a vertically disposed plate 31 of segmental form, said plate being apertured, as at 32, for passage of the laterally projecting bearing bolt 24. As appears most clearly in Figure 6 this plate 31 is suspended from the bearing bolt 24 and is clamped against the bracket arm 17 by the nut 26. Preferably a washer 33 is interposed between the nut 26 and the segmental plate 31. In addition to the aperture 32, the plate 31 is provided in its bottom portion with an arcuate slot 34 that is concentric with the aperture 32 and consequently with the pivotal axis of the lamp body.

Threadedly secured to the said bracket arm 17 and projecting outwardly through the arcuate slot 34 of the segmental plate 31 is a stud 35. The projecting end of the stud 35 is threaded to take a wing nut 36 or the like, the function of said wing nut being to securely clamp the segmental plate 31 against the bracket arm 17 whereby to prevent rotation of the former about the bolt 24 as a center. It will be understood, of course, that by merely loosening the wing nut 36 the segmental plate 31 may be shifted in clockwise or counter-clockwise direction, the ends of the arcuate slot 34 operating to limit the extent of such movement relative to the bracket arm to which the plate is attached. Thus, in Figure 2 the plate 31 is shown in one adjusted position relative to the bracket arm, while in Figure 3 the plate is shown in another adjusted position. The plate 31 constitutes the indexing device by means of which a predetermined adjustment between the lamp body 10 and its supporting bracket 16 may be obtained.

Hinged to the upper edge of the segmental plate 31, as by a suitable pintle 37, and adapted to overlie the upper branch 20 of the pivot fitting 18 is a leaf member 38. This leaf member 38, which is provided in its free edge with a comparatively wide notch 39, is swingable toward and away from said fitting 18, the arc of its movement being indicated by the dotted line of Fig. 6. It will be observed that the inner portion 40 of the notch 39 is considerably reduced in width. Suitably secured to and projecting upwardly of the upper branch 20 of the pivot fitting 18 is a threaded stud 41, said stud being so disposed that when the leaf member 38 is in the operative position shown in Figures 2, 3 and 6 it is closely embraced by the side walls of the reduced portion 40 of the notch 39. Threadedly engaging the projecting end of the stud 41 is a winged nut 42 which operates, when tightened upon its stud, to lock the leaf member in operative position. In order to swing

the leaf member upwardly and away from the pivot fitting of the lamp body it is merely necessary to back off the wing nut 42 to an extent sufficient to permit the widened portion of the notch 39 to pass freely over the said nut. It will be understood, of course, that the leaf member 38 is shiftable with the segmental plate 31.

The operation of the indexing device can now be described as follows. Figures 2 and 3 show two possible positioned adjustments of the lamp body relative to its supporting bracket, the former showing the lamp positioned for projection of light in a horizontal direction and the latter for projection of light in a downwardly inclined direction. To secure these or other adjustments, it is first necessary to lock the lamp body to the segmental plate 31 through the leaf member 38 so that the lamp body and said plate 31 may be rotated as a unit about the common axis of the bolts 24. Having determined the proper angular adjustment of the lamp body with respect to said axis, the segmental plate 31 is then clamped securely to the adjoining arm 17 of the bracket by means of the clamping nut 36, the lamp body being thus maintained in adjusted position due to the fact that it is locked to the segmental plate 31.

In order to swing the lamp body into the position shown in Figure 4 without disturbing the proper positional adjustment between said body and its supporting bracket, it is merely necessary to back off the wing nut 42 as explained hereinbefore to permit the leaf member 38 to be swung into the inoperative position shown by the broken lines of Figure 6. The lamp body is then free to swing about the bearing bolts 24 independently of the supporting bracket 16 and the segmental plate 31, yet said bracket and plate are maintained in their predeterminedly set relation. Having performed whatever work is to be done on the lamp it is an exceedingly simple matter to swing the lamp body back into proper position such that the upper stud 41 may be again embraced by the notched leaf member 38. All that then remains is to tighten the wing nut 42.

It will be understood, of course, that various changes may be made from time to time without departing from the general spirit or principles of the invention and that said invention is equally applicable to structures differing in form from that described herein. It is accordingly intended to claim the invention broadly, as well as specifically, as indicated by the appended claims.

What is claimed as new and useful is:

1. In a lighting device, in combination, a lamp body, a support for said body arranged to permit angular movement of said body about an axis extending transversely thereof, an indexing member shiftable with respect to said lamp body and said support about said axis as a center, and a swingable detent carried by said shiftable means for quick-detachable engagement directly with said lamp body.

2. In combination, a lamp body adapted for angular adjustment about a fixed axis, indexing means for said lamp body including a pivoted member having a free end arranged for releasable engagement with said body, means for securing said indexing means in adjusted position, and means for securing said pivoted member to said lamp body, the latter being freely rotatable about said axis upon disengaging said pivoted member therefrom.

3. In combination, a relatively fixed support, a lamp body mounted upon said support for angular adjustment with respect thereto, a plate member carried upon said support, said member being also angularly adjustable with respect to the support and with respect to said lamp body, means for securing said plate member in a predetermined adjusted position, and means for quick-detachably connecting said plate member directly to said lamp body whereby any angular movement of the former will be imparted to the latter, said connecting means being operative to insure only a single positional relation between said lamp body and plate member.

4. In combination, a relatively fixed support, a lamp body rotatably carried thereby, a plate member adapted for rotation about the axis of rotation of said lamp body, said member being provided with an arcuated slot concentric to said axis, means carried by said support and projecting through said slot for securing said member in a predetermined angularly adjusted position with respect to said axis, a slotted member hinged to said plate member, the slotted portion thereof being adapted to engage said lamp body, and means carried by said lamp body and projecting through said slotted member for releasably securing said body to said plate member.

5. In combination, a lamp body arranged for rotation about a relatively fixed axis, and an indexing device operatively associated therewith, said device including a pair of hinged members, one of which is adapted for angular adjustment about said axis and the other of which constitutes a detachable connection between said angularly adjustable member and said lamp body.

6. In combination, a lamp body arranged for rotation about a relatively fixed axis, and an indexing device operatively associated therewith, said device including a member angularly adjustable about said axis and having a hinged extension, the free end of said extension being arranged to detachably engage said lamp body.

7. In combination, a lamp body arranged

for rotation about a relatively fixed axis and having an offset portion, an indexing device also arranged for rotation about said axis, said device including a hinged element adapted to overlie said offset portion of said lamp body, and means carried by said offset portion for detachably securing said hinged element to said offset portion whereby upon shifting said indexing device into a predetermined adjusted position a corresponding movement will be imparted to said lamp body, the latter being freely movable out of its adjusted position upon detaching said hinged element from said offset portion.

8. In a lighting device, in combination, a relatively fixed support, a lamp body pivotally carried upon said support and rotatable about a relatively fixed axis, a member rotatable with said body about said fixed axis, said body being provided with a radially extending stub shaft projecting through said support and member, means for securing said member in adjusted position, and means for quick-detachably interconnecting said lamp body and member independently of said stub shaft, said member being shiftable relatively to said lamp body.

9. In a lighting unit, in combination, a lamp body adapted for rotation about a relatively fixed axis, indexing means for establishing a predeterminedly fixed angular relation between said body and said axis, and means arranged independently of said body for securing said indexing means in adjusted position, said indexing means including a swingable element for connection to the body, said element being disconnectible from the body to permit the latter to be freely rotated about said axis.

In testimony whereof, I have hereunto affixed my signature.

HERBERT J. GRAHAM.