April 4, 1961 F. C. BAKER 2,978,574

SHIELD-SUPPORTING MEANS FOR LIGHT FIXTURE

Filed June 30, 1959 2 Sheets-Sheet 1

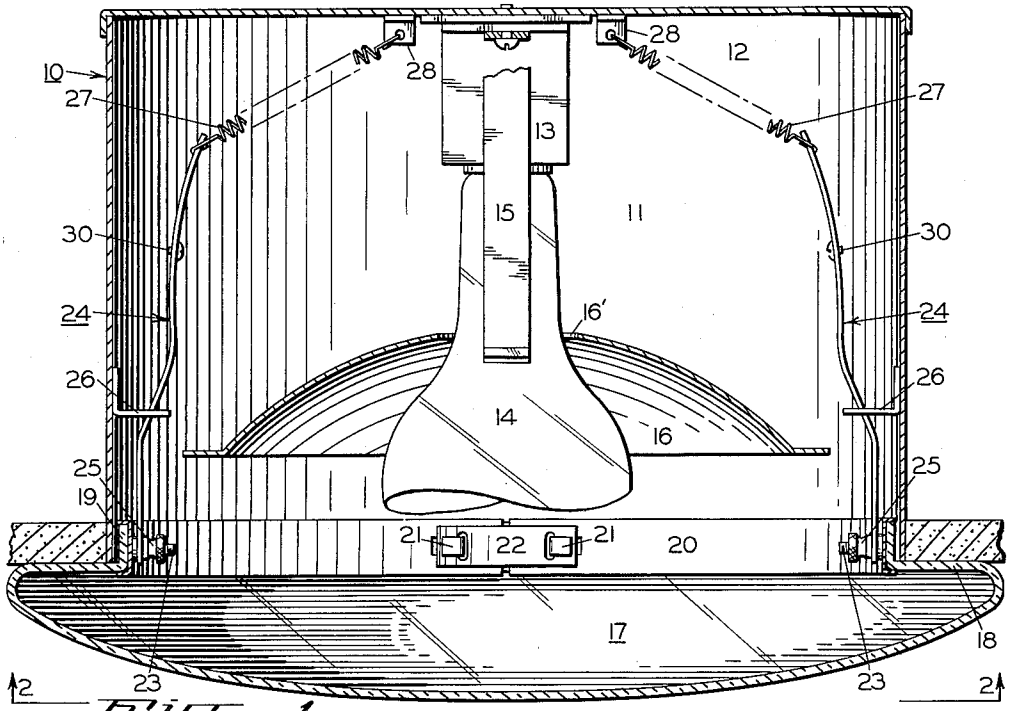


Fig 1

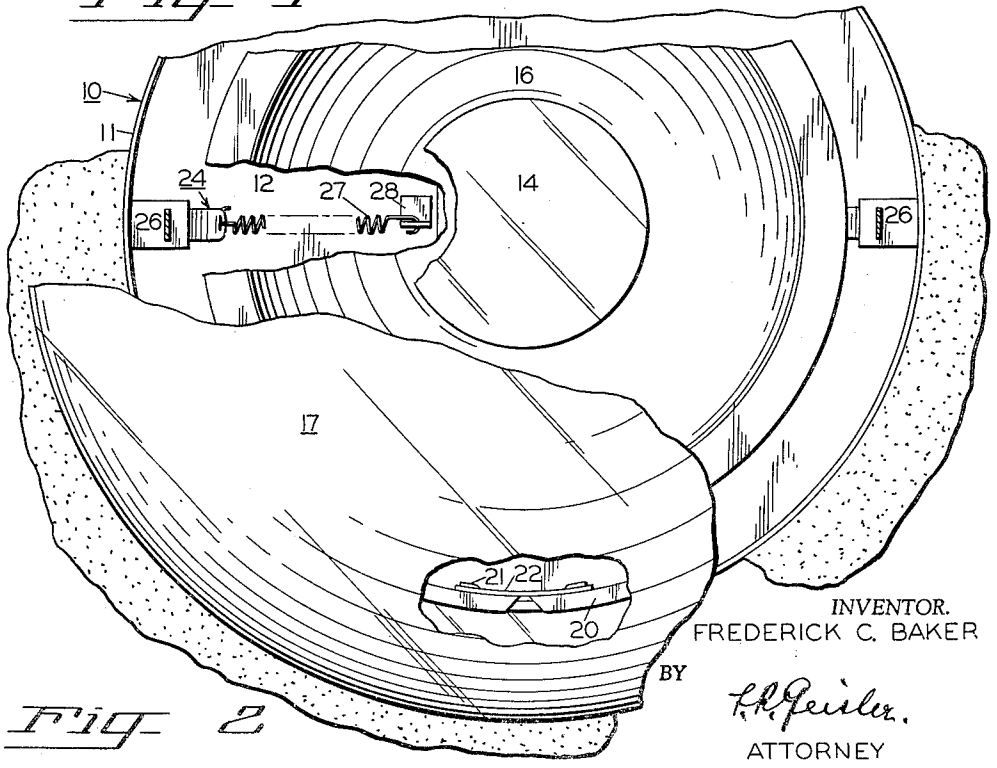


Fig 2

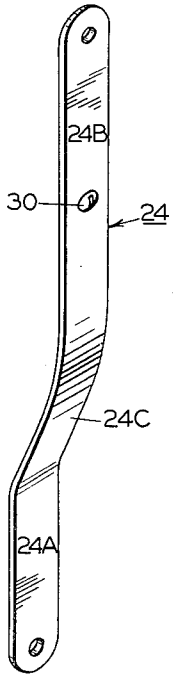
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SHIELD-SUPPORTING MEANS FOR LIGHT FIXTURE

Filed June 30, 1959 2 Sheets-Sheet 2

Fig. 5



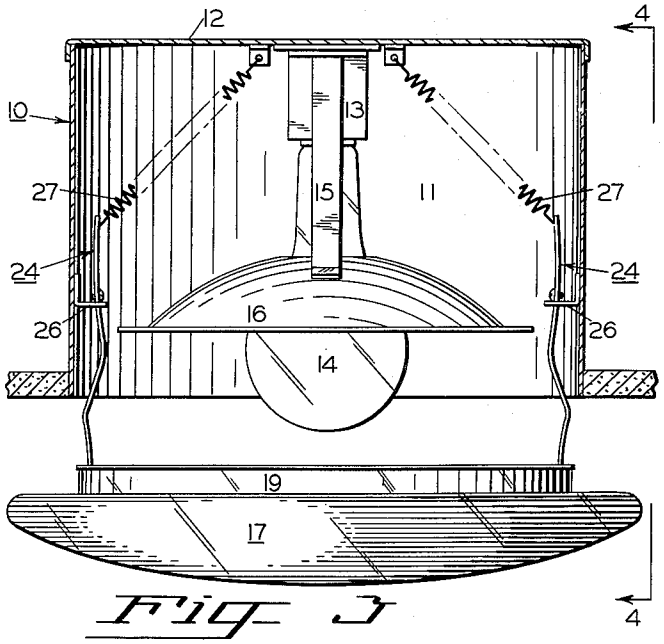
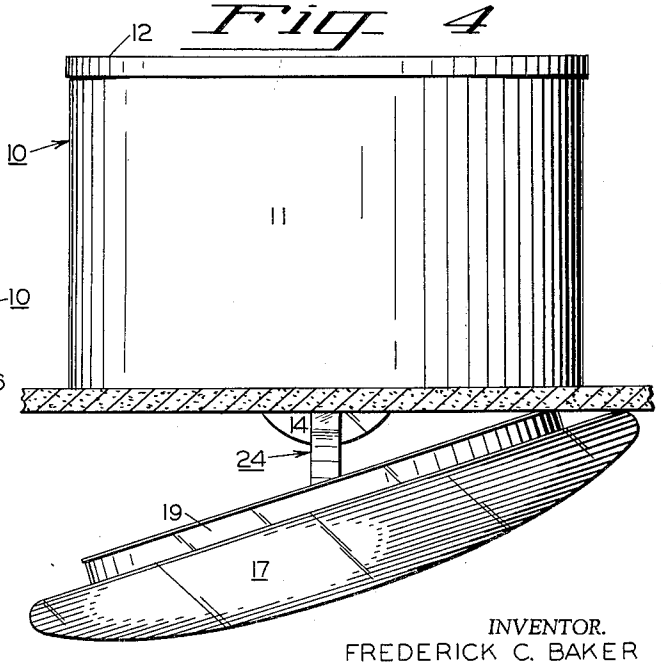


Fig. 3

Fig. 4



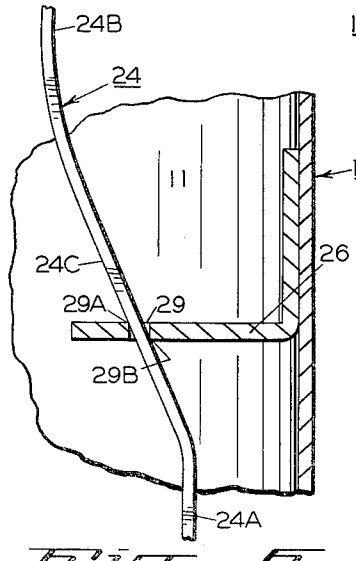


Fig. 6

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SHIELD-SUPPORTING MEANS FOR LIGHT FIXTURE

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3 Claims. (Cl. 240—146)

This invention relates to light fixtures in which the light shield is adjustably supported or suspended from the fixture in such manner as to enable the shield to be lowered from the fixture to provide access to the interior of the fixture as is required, for example, for replacing the light bulb within the fixture.

In particular the present invention relates to ceiling recessed light fixtures in which the fixture assembly, with the exception of the shield or lens, is located within the ceiling and above the plane of the ceiling, and with a translucent shield or lens normally held in place up against the ceiling by supporting means mounted above the ceiling and within the fixture, and the present application is a continuation-in-part of my application, Serial No. 748,498, filed under date of July 14, 1958, now abandoned.

Various supporting means for the shield in such ceiling recessed fixtures have heretofore been employed, most of which supporting means include hinged arm assemblies of one type or another combined with coil springs, wherein the tension of the springs is depended upon to hold the shield normally in the desired raised position while enabling the shield to be pulled down manually against the force of the springs into temporary lowered positions to afford access to the interior of the recessed fixture for replacing a lamp or for any other purpose.

An object of the present invention is to provide novel and simplified supporting means for the shield in such fixture assemblies which will involve fewer moving parts.

Another object of the invention is to provide improved shield-supporting means in which only a relatively small amount of coil spring tension is required for maintaining the shield in desired position, and in which consequently lighter coil springs can be used, and in which a loss of spring tension over a period of time will not impair the functioning of the supporting means.

A further object of the invention is to provide novel shield-supporting means for recessed ceiling lighting assemblies which, when the shield is pulled down manually to lowered position, will cause the shield to remain in such lowered position until it is manually pushed back up into raised position.

An additional object is to provide a simplified shield-supporting means which will accommodate itself to slight variations in the mounting of the fixture within the ceiling recess or in the thickness of the ceiling surfacing.

The manner in which these objects and other advantages are attained with the novel and improved shield-supporting means of the present invention will be readily understood from the following brief description and explanation with reference to the accompanying drawings, in which:

Fig. 1 is a sectional elevation of a ceiling recessed light fixture assembly containing the shield-supporting means of the present invention, the translucent shield or lens for the assembly being shown in the normal or raised position;

Fig. 2 is a fragmentary bottom plan view taken on line 2—2 of Fig. 1, with portions of the shield and portions of the light reflector shown broken away for clarity;

Fig. 3 is a sectional elevation, similar to Fig. 1, but drawn to a smaller scale, showing the position of the shield when manually pulled down to lowered position;

Fig. 4 is an elevation taken from the right of Fig. 3, and thus on the line indicated at 4—4 in Fig. 3, but showing the shield tilted on its support arms, after being lowered, so as to provide greater access to the interior of the fixture;

Fig. 5 is a perspective view, drawn to a larger scale, of one of the two supporting straps on which the shield is mounted; and

Fig. 6 is an enlarged fragmentary sectional elevation showing a portion of one of the two shield-supporting straps together with a sectional elevation of the mounting bracket by which the supporting strap is frictionally engaged at all times.

In Figs. 1 to 4 inclusive C indicates the ceiling. The fixture assembly includes a box or housing indicated in general by the reference character **10** which is permanently installed in any suitable manner in the ceiling, the housing in this instance being shown as having a cylindrical side wall **11** and a top wall **12**. A light socket **13** (Figs. 1 and 3) of conventional type is secured to the top wall **12** and in turn supports the usual light bulb **14**. A pair of brackets, secured to the top wall **12** on opposite sides of the socket **13**, one of them being shown at **15** in Figs. 1 and 3, support a light reflector **16** of more or less standard type, the reflector being provided with a central opening **16'** to accommodate the light bulb **14**.

An integral, translucent shield or lens, designated as a whole by the reference character **17**, is movably supported by the special supporting means mounted in the housing **10**. The shield **17**, like the special shield described in my U.S. Patent No. 2,826,684, issued under date of March 11, 1958, and entitled "Ceiling Recess Light Assembly," is so formed and shaped that, when it is in the normal raised position shown in Fig. 1, it hides all the rest of the fixture assembly from view. Thus the shield **17** has a bottom wall merging into an integral side wall which terminates in an inwardly-extending flange **18** which fits up against the ceiling and covers the border portion of the ceiling entirely surrounding the bottom of the housing and ceiling recess, as shown in Fig. 1. The diameter of the inner periphery of this inwardly-extending flange **18** is slightly less than the interior diameter of the housing **10** and the flange **18** terminates in an upturned rim or bead **19** which will be positioned within the bottom of the housing **10** when the shield is in the normal raised position as shown.

A channel ring **20** (Figs. 1 and 2) is secured in place around the inside of the rim **19** of the shield **17**, the ends of the ring having punched-out tongues **21** by which the ends are joined together through the medium of a connector plate **22**. The channel ring **20** carries a pair of inwardly-extending screws **23**, positioned at diametrically opposite points and rigidly secured to the ring. A pair of spring metal support straps **24** have their bottom ends pivotally attached to the screws **23** respectively and are held thereon by nuts **25**. Each support strap **24** extends upwardly through a slot in a bracket **26**, which bracket is welded to, or otherwise rigidly secured to, the inside wall of the housing **10**, the two brackets **26** being mounted at diametrically opposite points on the housing wall. The support straps **24** are slidable in the slots of their respective brackets. A pair of light coil springs **27** are attached to the upper ends of the support straps **24** respectively, the other ends of these coil springs being secured to brackets **28** fastened to the top wall in the housing **10** and located further inwardly.

The two spring metal support straps 24 are identical but are oppositely arranged. Each strap has a bottom portion 24A, which is substantially vertical when the shield is in the normal raised position shown in Fig. 1, an upper portion 24B, which would also be substantially vertical were it not for the inward pull exerted by the spring 27 attached to the top end of the strap, and in intermediate portion 24C, which is joined to the bottom and to the top portions 24A and 24B by a pair of reversely curved bends respectively, and which consists of a substantially straight portion sloping obliquely upwardly and inwardly at all times.

Each strap 24 extends through a slot 29 (Fig. 6) in the horizontal arm of its bracket 26, as previously mentioned, the width of the slot 29 being slightly greater than the thickness of the strap. The straps 24 are so arranged, and the brackets 26 are positioned at such distance from the bottom of the housing 10, that, when the shield 17 is in the raised position of Fig. 1 the intermediate obliquely-sloping portions 24C of the straps will be frictionally engaged by the slots 29 in the respective brackets 26. Thus, as shown more clearly in Fig. 6, when the intermediate obliquely-sloping portion 24C of each strap 24 passes through the slot 29 in its bracket 26, it will engage the upper and lower opposite edges 29A and 29B of the slot. This frictional engagement of these two edges of the slot 29 by the strap is increased by the inward pull exerted on the top of the strap by the coil spring 27, and this frictional engagement of the two shield-supporting straps 24 in their respective brackets 26 is sufficient to maintain the shield 17 in the normal raised position of Fig. 1 when the shield has been manually pushed up into such position. At the same time a downward manual pull exerted on the shield 17 will overcome the frictional engagement of the straps by their brackets and thus enable the shield to be pulled down to the lower position shown in Fig. 3. A pair of stops or screws 30 are mounted on the straps 24 to limit the extent to which the straps 24 can be pulled downwardly through their brackets and thus limit the extent to which the shield can be lowered from the ceiling and fixture housing. When the shield is in lowered position it can be tilted on the support straps to the position shown in Fig. 4, thus allowing greater access to the interior of the housing. Complete removal of the shield from the fixture assembly is also quickly and easily accomplished by unscrewing the nuts 25 on the two screws 23 and detaching the bottom ends of the support straps from the shield ring 20.

Due to the oblique upward and inward slope of the intermediate portion 24C of each strap 24 the frictional engagement of these portions of the straps (with the increase in the frictional engagement caused by the inward pull of the springs 27 at the top of the straps) will be sufficient to support the weight of the shield adequately when these portions of the straps are extending through the bracket slots. Consequently the shield, when pushed up sufficiently to cause these intermediate portions 24C of the straps to be engaged by the brackets 26, will remain in such position until manually moved. Thus the exact height of the brackets 26 from the face of the ceiling, or from the bottom of the housing 10, is not critical as long as the brackets are so positioned that the intermediate portions 24C of the straps will be passing through the brackets when the shield is in the desired normal raised position. This is an additional important feature since, in some installations due to some difference in the manner in which the housing 10 is mounted in the ceiling, or to some difference in the ceiling structure, the actual distance of the brackets 26 from the bottom face of the ceiling may vary. The intermediate portions 24C of the straps are of sufficient length to allow for some variation in the effective distance between the bottom face of the ceiling and the strap-supporting brackets 26.

The springs 27 are required to exert only a very moderate pull on the upper ends of the straps 24, since very little pull is necessary to increase the frictional engagement of the intermediate portions 24C of the straps with the slots in their brackets to the point where this is sufficient to withstand the weight of the shield. Heavier springs would serve no additional purpose and, on the contrary, would increase the manual force required to move the shield and straps against the frictional hold exerted by the brackets. Consequently in this supporting assembly lighter springs are used than are required in other assembles in which coil springs are employed which must be capable of carrying at least the entire weight of the shield. Also, since the coil springs are not required to exert any strong tension and not required to support any definite load, the functioning of this supporting assembly will not be impaired even though the springs should become stretched or weakened after the lapse of considerable time.

I claim:

1. In a light fixture assembly having a fixture housing with an open bottom face and a light shield normally held raised against the bottom of the housing for covering the open bottom face of said housing, a pair of shield-supporting, spring metal straps, each strap having one side of greatest width facing the center of said housing, means for securing said shield to the bottom ends of said straps at opposite sides of said shield respectively, a pair of brackets secured in said housing above said bottom ends of said straps respectively, each of said brackets provided with a slot, said straps extending through said slots, the minimum width of said slots being only slightly greater than the thickness of said straps, each strap so arranged and positioned as to extend up through the slot in its bracket closing obliquely upwardly and inwardly with respect to the plane of said slot when said shield is in normal raised position so as to engage a pair of upper and lower oppositely-positioned edges in its slot when said shield is in said raised position and have clamping frictional engagement with its slot, and spring means connected with the upper end of each strap exerting a force to increase the upward and inward oblique slope of the strap with respect to the plane of its bracket slot and thereby increase the clamping frictional engagement of the strap with its bracket.

2. In a ceiling recessed light fixture assembly having a fixture housing with an open bottom face mounted in a ceiling recess and a light shield normally held raised against the bottom of the housing for covering the open bottom face of said housing, a pair of shield-supporting, spring metal straps, each strap having one side of greatest width facing the center of said housing, means for pivotally securing said shield to the bottom ends of said straps at opposite sides of said shield respectively, a pair of brackets secured in said housing above said bottom ends of said straps respectively and at a spaced distance above the bottom of said housing, each of said brackets provided with a slot, said straps extending through said slots respectively, said pair of slots being substantially perpendicular to a common line joining said slots, the minimum width of said slots being only slightly greater than the thickness of said straps, each strap extending through the slot in its bracket sloping obliquely upwardly and inwardly with respect to the plane of the slot so as to have clamping frictional engagement with a pair of upper and lower oppositely-positioned edges in its slot, and a spring attached to the upper end of each strap exerting an inward pull on the strap so as to increase such clamping frictional engagement of the strap with its bracket.

3. In a light fixture assembly of the character described having a fixture housing with an open bottom face and a light shield normally held in raised position against the bottom of the housing for covering the open bottom face of said housing, a pair of shield-supporting, spring metal straps, each strap having one side of greatest width facing the center of said housing,

means for pivotally and removably securing the top of said shield to the bottom ends of said straps at opposite sides of said shield respectively, a pair of brackets secured in said housing above said bottom ends of said straps respectively and at a spaced distance above the bottom of said housing, each of said brackets having a substantially horizontal arm, each of said arms provided with a slot, said straps extending through said slots, said pair of slots being substantially perpendicular to a common line joining said slots, the minimum width of said slots being only slightly greater than the thickness of said straps, each strap having lower and upper portions and an intermediate portion connected to said lower and upper portions by reverse bends constituting obtuse angles, said intermediate portions being so located on said straps as to be in engagement with said

slots when said shield is in normal raised position, said intermediate portions of said straps sloping obliquely upwardly and inwardly to a greater extent than said lower and upper portions so as to have greater holding clamping frictional engagement with a pair of upper and lower oppositely-positioned edges in the slots of their brackets respectively, and a coil spring attached to the upper end of each strap and exerting an inward pull on the upper end of each strap, whereby to increase the clamping engagement of said intermediate portions of said straps with their brackets when said shield is in normal raised position.

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