United States Patent

Marx

[15] **3,700,887**

[45] **Oct. 24, 1972**

[54] **LATCH AND HINGE STRUCTURE FOR DIFFUSER OF FLUORESCENT LIGHT FIXTURE**

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[22] Filed: **Oct. 6, 1971**

[21] Appl. No.: **186,863**

[52] **U.S. Cl.** **240/147**

[51] **Int. Cl.** **F21v 17/00**

[58] **Field of Search** .240/51.11 R, 78 R, 78 LD, 146, 240/147, 149

[56] **References Cited**

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Primary Examiner—Joseph F. Peters, Jr.
Attorney—Harris, Kern, Wallen & Tinsley

[57] **ABSTRACT**

A combination hinge and latch structure for the diffuser of a fluorescent light fixture, comprising at each end of the fixture two transversely spaced, transversely pivotable latch members on the housing of the fixture spring biased into engagement with two latch elements on the diffuser. The latch members are provided at their lower ends with transversely-outwardly-facing hooks and transversely-outwardly-facing cam surfaces which extend upwardly from the hooks to transversely-outwardly-facing notches in the latch members. The latch elements are engageable with the hooks to support the diffuser in a lowered position, and are slidable upwardly along the cam surfaces into the notches to support the diffuser in a raised position. When the diffuser is in its lowered position, one latch element of each pair can be disengaged from the corresponding hook to permit the diffuser to swing downwardly for access to the interior of the housing. Fingers on the latch members transversely outwardly from the notches therein are engageable with the diffuser to prevent unhooking of one side of the diffuser when the other side thereof is unhooked.

3 Claims, 5 Drawing Figures

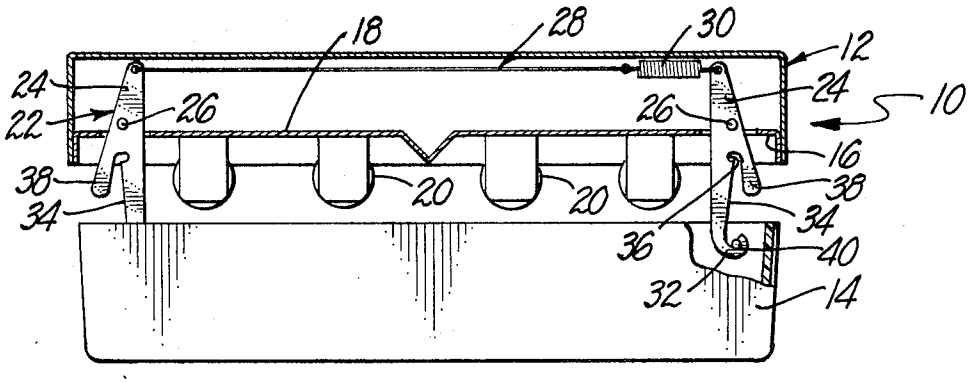


FIG. 1.

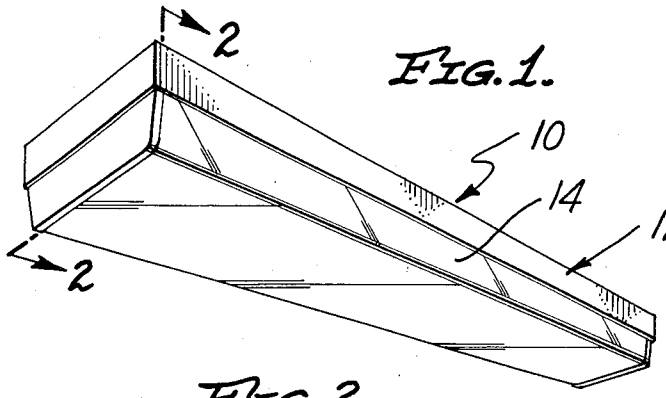


FIG. 2.

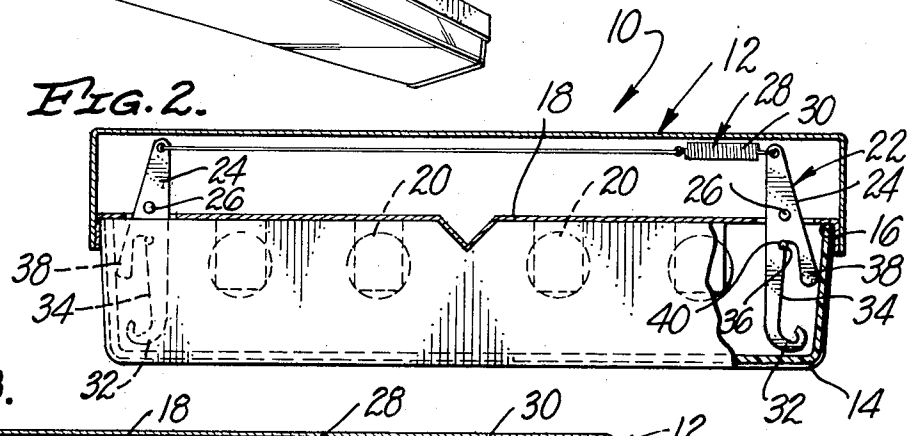


FIG. 3.

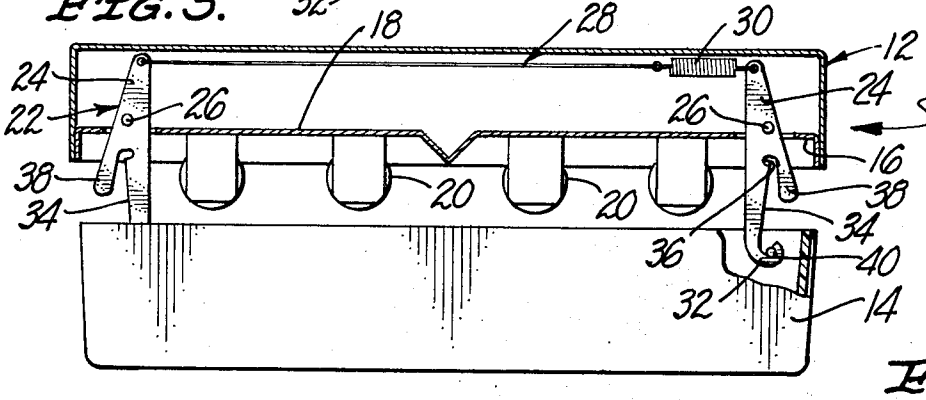


FIG. 5.

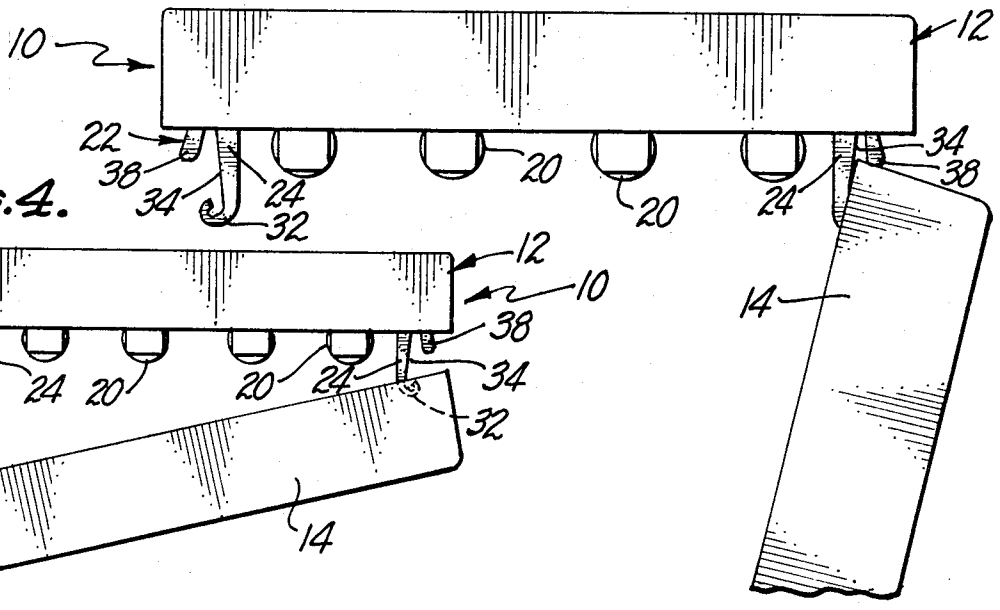


FIG. 4.

LATCH AND HINGE STRUCTURE FOR DIFFUSER OF FLUORESCENT LIGHT FIXTURE

BACKGROUND OF INVENTION

The present invention relates in general to a combination latch and hinge structure for the diffuser of a fluorescent light fixture, and, more particularly, to a structure which normally retains the diffuser in an upper position seated against the housing of the fixture, but which permits downward movement of the diffuser into a lowered position, and which then permits pivoting of one side of the diffuser downwardly into a still lower position to permit access to the interior of the housing.

Still more particularly, the invention relates to a combination hinge and latch structure for connecting each end of the diffuser to the housing, which includes: two latch members spaced apart transversely of the fixture; two pivots respectively mounting the latch members for movement about axes extending longitudinally of the fixture; spring means connected to the latch members for biasing same toward each other; the latch members being provided with hooks which face transversely outwardly and having cam surfaces which extend from the hooks to transversely-outwardly-facing notches in the latch members; two latch elements spaced apart transversely of the fixture and respectively engageable with the hooks to support the diffuser in a lowered position, the latch elements being slidable along the cam surfaces into the notches to support the diffuser in a raised position, and being maintained in the notches by the spring means.

PRIOR ART

A combination latch and hinge structure of the foregoing general nature is disclosed in U.S. Pat. No. 3,525,544, granted Aug. 25, 1970 to Arthur F. Jacobs.

SUMMARY AND OBJECTS OF INVENTION

The primary object of the invention is to provide a combination latch and hinge structure for the diffuser of a fluorescent light fixture which embodies improvements on the foregoing prior structure.

More particularly, a general object is to provide a combination hinge and latch structure wherein the latch members and the spring means therefor are mounted on the housing of the fixture and the latch elements are mounted on the diffuser, thereby simplifying and minimizing the weight of the diffuser.

An important object of the invention is to provide the latch members with fingers located transversely outwardly of the notches in the latch members for preventing unhooking of the pivoted side of the diffuser when it has been swung downwardly into its lowermost position. More particularly, an important object is to provide a structure wherein the fingers on the latch members on the pivoted side of the diffuser are engaged by the diffuser to prevent inadvertent unhooking of the pivoted side of the diffuser. Consequently, there is no danger of dropping the diffuser, which is an important feature.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features and results thereof which will be evident to those skilled in the fluorescent lighting fixture art in the light of this disclosure, may be achieved with the exemplary embodiment of the invention illustrated in the accompanying drawing and described in detail hereinafter.

DESCRIPTION OF DRAWING

In the drawing:

FIG. **1** is a perspective view of a fluorescent light fixture which embodies the invention;

FIG. **2** is an enlarged transverse sectional view taken as indicated by the arrowed line **2—2** of FIG. **1** and showing the diffuser of the fixture in its raised position wherein it is seated against the housing of the fixture;

FIG. **3** is a view similar to FIG. **2**, but showing the diffuser displaced downwardly into a lowered position;

FIG. **4** is a view similar to FIG. **3**, but showing one side of the diffuser unhooked and in the process of being pivoted downwardly into a still lower position for access to the interior of the housing; and

FIG. **5** is a view similar to FIG. **4**, but showing the diffuser pivoted all the way downwardly into its lowermost position.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENT OF INVENTION

Referring to the drawing, the fluorescent light fixture of the invention is designated generally therein by the numeral **10** and includes the usual housing **12** and diffuser **14**, the later normally being seated in a recess **16** in the housing, as shown in FIG. **2**. The recess **16** is formed by an inverted pan **18** carrying the usual fluorescent tubes **20**.

The invention resides in a structure **22** at each end of the fixture **10** for hinging and latching the diffuser **14** to the housing **12**, as will now be described.

The combination hinge and latch structure **22** at each end of the fixture **10** comprises two latch members **24** spaced apart transversely of the fixture **10** and two pivots **26** respectively connecting the latch members to the housing **12** for movement about axes extending longitudinally of the housing. A spring means **28** connected to the latch members **24** biases the upper ends of the latch members toward each other and the lower ends thereof away from each other. Preferably, the spring means **28** interconnects the upper ends of the latch members **24** and includes a tension spring **30**.

The latch members **24** are provided at their lower ends with hooks **32** which face transversely outwardly. The latch members **24** are provided with transversely-outwardly-facing cam surfaces **34** which extend upwardly from the hooks **32** and which terminate at their upper ends in transversely-outwardly-facing notches **36**. Each latch member **24** is provided transversely outwardly of its notch **36** with a depending finger **38** which extends downwardly toward, but terminates above, the corresponding hook **32**.

The diffuser **14** is provided at each end thereof with latch elements, preferably latch pins **40**, which are transversely spaced and respectively engageable with the hooks **32**, as shown in FIG. **3**, to support the diffuser in a lowered position. The pins **40** are slidable upwardly along the cam surfaces **34** into the notches **36** to support the diffuser **14** in its raised position, wherein it is seated against the housing **12**, as shown in FIG. **2**. The bias provided by the spring means **28** insures retention of the pins **40** in the notches **36**.

With the foregoing construction, it is merely necessary to pull downwardly on the diffuser **14** to displace it from its raised position, FIG. **2**, to its lowered position of FIG. **3**. Conversely, in order to return the diffuser **14** from its lowered position of FIG. **3** to its raised position, FIG. **2**, it is merely necessary to push upwardly thereon.

When it is desired to obtain access to the interior of the housing **12**, as for replacement of one of the fluorescent tubes **20**, it is merely necessary to unhook one side of the diffuser **14** from the corresponding latch members **24**, as shown in FIG. **4**, whereupon the diffuser may be permitted to swing downwardly into its lowermost position, as shown in FIG. **5**. When this is done, the fingers **38** on the latch members **24** on the pivoted side of the diffuser **14** are engaged by the diffuser, as shown in FIG. **5**, to prevent any possibility of accidental unhooking of the pivoted side of the diffuser from the corresponding latch members. This is an important feature since it guards against accidental dropping of the diffuser **14**.

It will be understood that either side of the diffuser **14** may be the pivoted side when swinging the diffuser downwardly into its lowermost position of FIG. **5**. In other words, either side of the diffuser **14** may be unhooked from the corresponding latch members **24**.

Although an exemplary embodiment of the invention has been disclosed for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in such embodiment without departing from the spirit of the invention as defined by the claims which follow.

I claim as my invention:

1. In a hinge and latch structure for connecting one end of the diffuser of a fluorescent light fixture to the housing thereof, the combination of:

a. two latch members spaced apart transversely of said fixture;

b. two pivots respectively connecting said latch members to said housing for movement about axes extending longitudinally of said housing;

c. spring means connected to said latch members for biasing the upper ends of said latch members toward each other and the lower ends of said latch members away from each other;

d. said latch members being provided at their lower ends with hooks which face transversely outwardly;

e. said latch members having cam surfaces which extend upwardly from said hooks and which face transversely outwardly;

f. said cam surfaces terminating at their upper ends in notches which also face transversely outwardly and which are located below said pivots;

g. two latch elements carried by and spaced apart transversely of said diffuser and respectively engageable with said hooks to support said diffuser in a lowered position, said latch elements being slidable upwardly along said cam surfaces into said notches to support said diffuser in a raised position;

h. said spring means maintaining said latch members in engagement with said latch elements; and

i. two fingers respectively carried by said latch members transversely outwardly from said notches and engageable by said diffuser.

2. A structure as defined in claim **1** wherein said spring means includes a tension spring interconnecting the upper ends of said latch members.

3. A structure as defined in claim **2** wherein said latch elements are pins.

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