Jan. 13, 1959 A. E. ZINGONE 2,868,577

LATCH MECHANISM

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FIG. 1

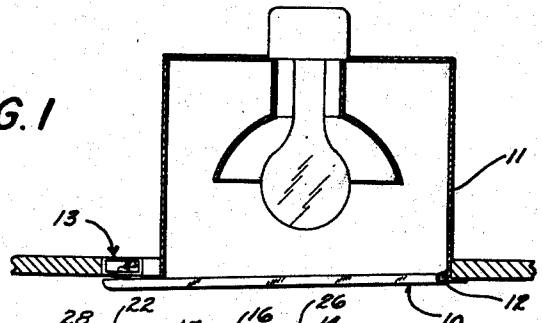


FIG. 2

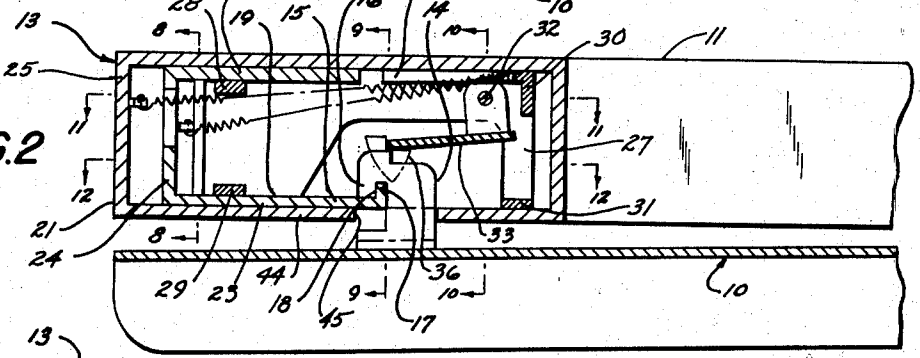


FIG. 3

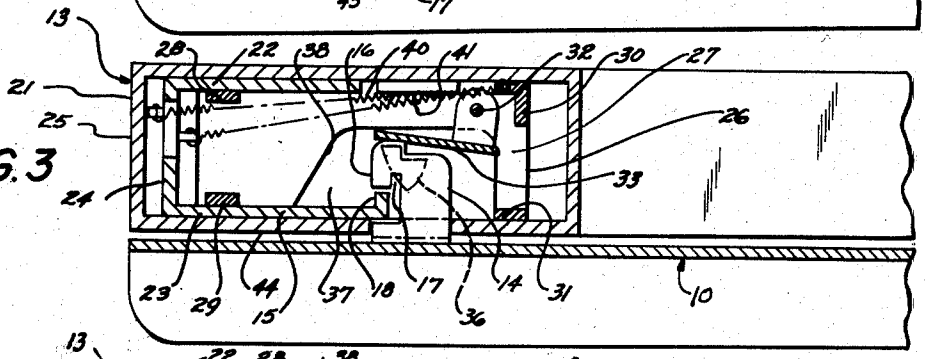
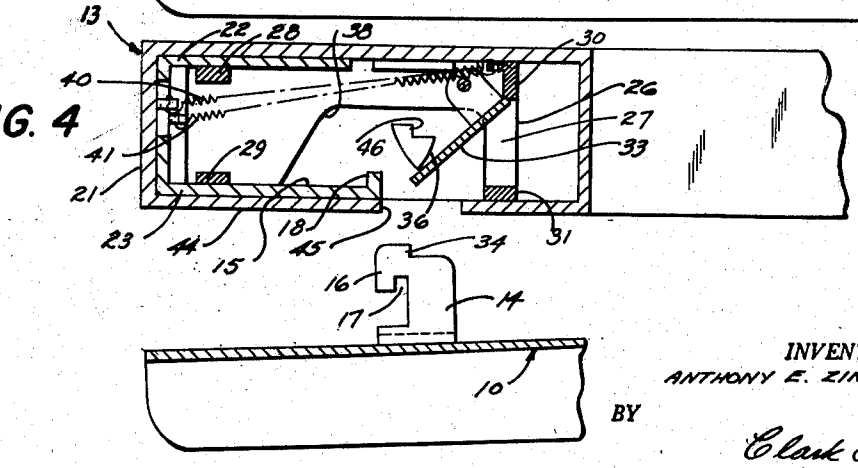


FIG. 4



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FIG. 5

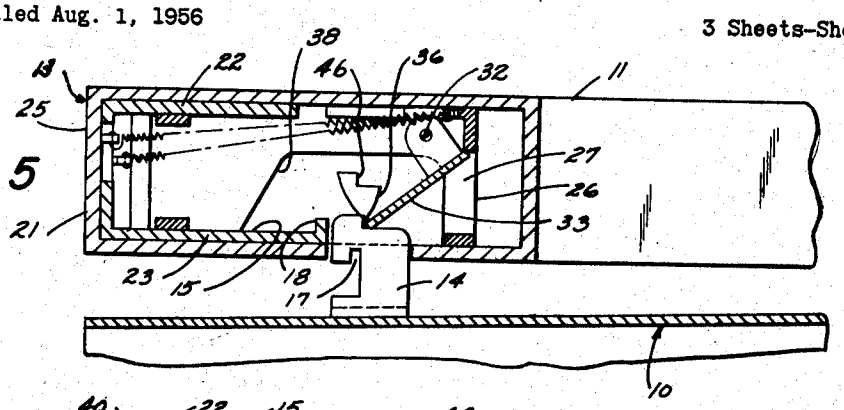


FIG. 6

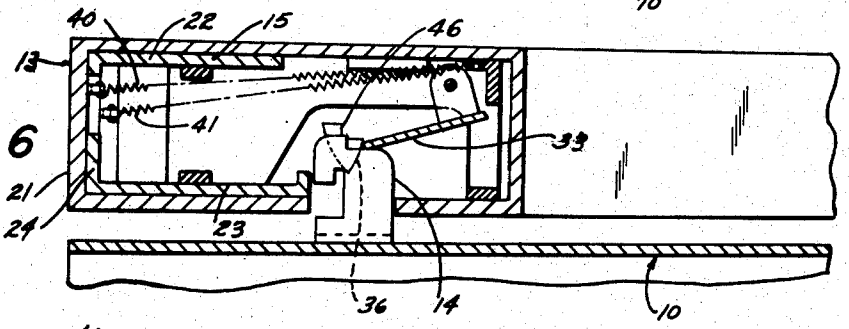


FIG. 7

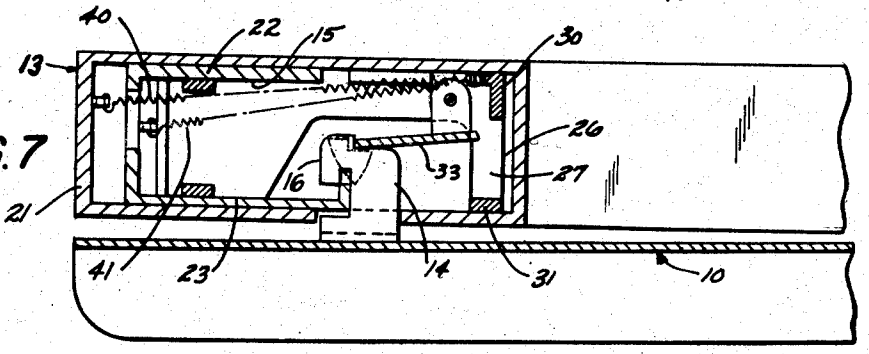
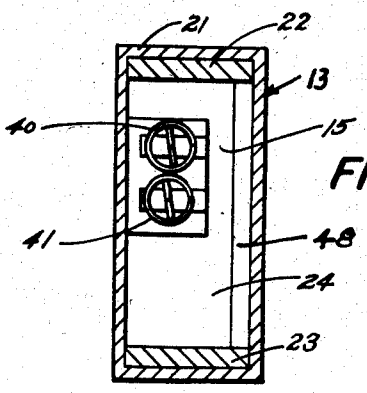


FIG. 8



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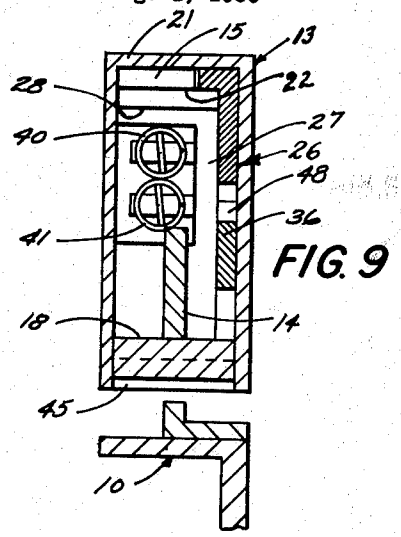


FIG. 9

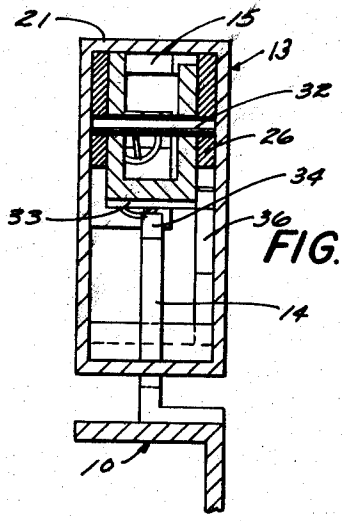


FIG. 10

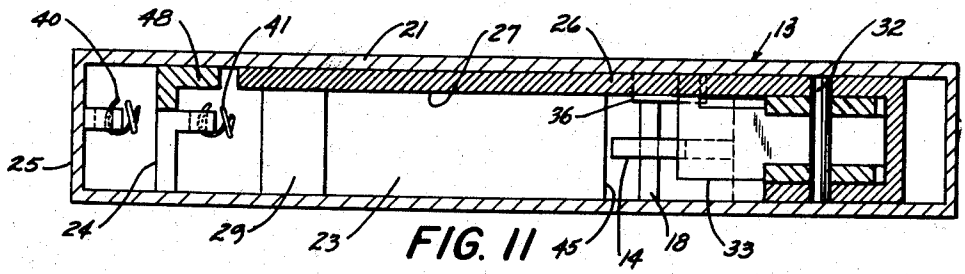


FIG. 11

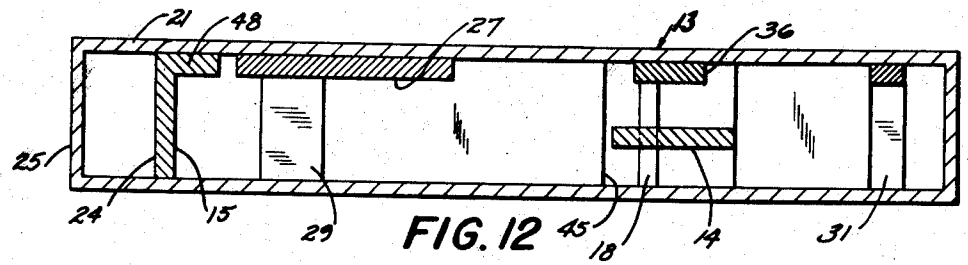


FIG. 12

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LATCH MECHANISM

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Application August 1, 1956, Serial No. 601,425

4 Claims. (Cl. 292—99)

This invention relates to a latch mechanism.

Latch mechanisms of the usual type require the manual manipulation of a protruding finger piece and the like for unlatching the mechanism. Such latch mechanisms are impractical for latching parts together which are difficult to reach such as a light shield and housing of a ceiling lighting fixture. The invention, therefore, has for an object an improved latch mechanism which renders it convenient to latch and unlatch hingedly connected parts without the necessity of manually manipulating a finger piece and the like.

Another object of the invention is to provide an improved latch mechanism having interengageable latch and keeper means which are retained in latched engagement by the weight of one of the parts and which permits of the release thereof by movement of the parts towards each other.

According to the present invention there is provided a slide mounted for movement into biased relation by engagement thereof with a latch member and which movement of the slide effects movement of a keeper member into position for latching engagement with the latch member. The slide is released from biased relation by movement of the latch member to thereby move the keeper member out of alignment with the latch member for unlatching the parts.

With the foregoing and other objects in view, reference is now made to the following specification and accompanying drawings in which the preferred embodiment of the invention is illustrated.

In the drawings:

Fig. 1 is a vertical sectional view of a lighting fixture with a latch mechanism constructed in accordance with the invention and releasably holding the hinged light shield in closed relation.

Fig. 2 is an enlarged vertical sectional view showing the latch mechanism in latched relation.

Fig. 3 is a similar view showing the latch mechanism moved to unlatched relation.

Fig. 4 is a view thereof showing the latching parts moved to separated relation.

Fig. 5 is a view of the latching parts initially engaged for movement to latching relation.

Fig. 6 is another view showing the latching parts in another position during the movement thereof to latching relation.

Fig. 7 is a view similar to Fig. 2 showing the position of the latching parts prior to complete latching relation.

Fig. 8 is an enlarged vertical sectional view taken approximtely on line 8—8 of Fig. 2.

Fig. 9 is a similar view taken approximately on line 9—9 of Fig. 2.

Fig. 10 is a vertical sectional view taken approximately on line 10—10 of Fig. 2.

Fig. 11 is a longitudinal horizontal sectional view taken approximately on line 11—11 of Fig. 2.

Fig. 12 is a similar view taken approximately on line 12—12 of Fig. 2.

The latch mechanism is adapted for retaining members in latched engagement which are so related that one of the members tends to hold the latched parts in latched relation. As illustrated, the latching mechanism is shown in its application to a ceiling lighting fixture in which a light shield 10 is hingedly connected to the housing 11 thereof by a hinge 12 and with the latching parts of the latching mechanism 13 carried respectively by the light shield 10 and the housing 11.

The latching parts consist of latch and keeper members 14 and 15. The latch member 14 is affixed to the light shield 10 and is notched to provide a downwardly directed lip 16 and upwardly extending recess 17 in which the upwardly extending end 18 of the keeper member 15 slidably engages for retaining the light shield and housing in latched relation. The keeper member 15 is mounted for sliding movement within a rectangular shaped casing 21 affixed to the housing 11. The keeper member 15 consists of a U-shaped frame arranged with the upper and lower legs 22 and 23 thereof slidably fitting against the top and bottom walls of the casing and with a bight portion 24 connecting the upper and lower legs 22 and 23 and adapted to engage against the end wall 25 of the casing. Also arranged within the casing 21 is a slide 26 consisting of a vertically disposed plate 27 having lateral extensions 28 and 29 at one end thereof which slidably fit against the inner faces of the top and bottom legs 22 and 23 of the keeper member 16. At the opposite end the plate 27 is provided with lateral extensions 30 and 31 which slidably engage the inner faces of the top and bottom walls of the casing 21. Pivoted to the slide 26 on a pivot pin 32 is a finger 33 which is adapted to engage a notch 34 in the upper end of the latch member 14. The finger 33 is also adapted to engage an arcuate cam face 36 formed on the inner face of the side wall 37 of the casing 21. The cam 36 projects through a cut out 38 in the plate 27 of the slide 26 and into the path of movement of the finger 33.

The slide 26 is biased by a spring 40 which is attached at one end to the lateral extension 30 and the other end to the end wall 25 of the casing 21. A spring 41 also tensions the keeper member 15 which spring is secured at one end to the bite portion 24 of the keeper member and at its opposite end to the lateral extension 30. The bottom wall 44 of the casing 21 is provided with an opening 45 through which the upper end of the latch member 14 is adapted to extend into engagement with the finger 33.

The initial movement of the latch member 14 toward latching relation disposes the notch 34 thereof in engagement with the free end of the finger 33 as shown in Fig. 5 of the drawings. Continued inward movement of the latch member 14 functions to move the finger 33 against the cam face 36 to thereby move the slide 26 to the right as shown in Fig. 6 of the drawings. Further inward movement of the latch member 14 moves the finger 33 out of engagement with the cam 36 whereupon the springs 40 and 41 move the slide 26 to the left with the tongue engaging the notch 34.

With the movement of the slide 26 to the right, the spring 41 functions to move the keeper member 15 towards the right from the unlatched position shown in Fig. 6 to dispose the upstanding end 18 in alignment with the recess 17. Downward movement of the latch member 14 into latched engagement with the upstanding end 18 releases the finger 33 from the notch 34 whereby the finger 33 engages a notch 46 in the top of the cam 36 so as to retain the slide 26 in tensioned relation. The latch and keeper members 14 and 15 are thus disposed in latched engagement with the weight of the shield 10 functioning to maintain the members in latched engagement.

The latch and keeper members 14 and 15 may be readily released from latched engagement by inward movement of the latch member 14 so as to release the finger member 33 from engagement with the notch 46 and free the slide 26 for movement together with the keeper member 15 to the left. This movement of the keeper member 15 moves the upstanding end 18 out of alignment with the recess 17 whereby the keeper member 14 may be moved out of the opening 45 in the casing 21.

Upon the release of the tongue from engagement with the notch 46 by the manual inward movement of the latch member 14 out of engagement with the upstanding end 18 of the keeper member 15, the spring 40 functions to move the slide 26 to the left whereupon the plate 27 engages against the side portion 48 of the keeper member 15 to move the keeper member to the left with the bight portion 24 thereof abutting against the end wall 25 of the casing 21 as shown in Fig. 4 of the drawings.

Thus the light shield 10 may be released from latched engagement with the housing 11 by movement of the light shield toward the housing for gaining access to the housing in order to clean the interior thereof or replace the light bulb. The shield 10 may then be swung toward the housing 11 so as to dispose the latch member 14 in engagement with the finger 33 for again latching the shield with the housing. The light shield 10 may be of any desired character such as transparent or translucent glass and the like or the same may be of louvered construction.

While the preferred embodiment of the invention is shown and described herein, it is to be understood that the same is not so limited but shall cover and include any and all modifications thereof which fall within the purview of the invention.

What is claimed is:

1. In a latch mechanism for latching two parts together, a latch casing affixed to one of said parts, a latch member affixed to the other part and insertable in said casing, a keeper member slideable in said casing, a slide member mounted for reciprocatory movement in said casing and having a finger pivotally connected thereto, said keeper member and said latch member having interengageable notch and tongue for latching the said two parts together, cam means carried by said casing and disposed in the path of movement of said finger, means biasing said keeper member and said slide member in one direction and means biasing said keeper member in the other direction relative to said slide member, and said latch member being adapted to engage said finger with the insertion of said latch member in the casing to thereby move the finger against said cam to cam said slide into biased relation whereby the keeper member is biased by said last named means into position for latching engagement with said latching member.

2. In a latch mechanism for latching two parts together, a latch casing affixed to one of said parts, a latch member affixed to the other part and insertable in said casing, a keeper member slideable in said casing, a slide member mounted for reciprocatory movement in said casing and having a finger pivotally connected thereto, said keeper member and said latch member having interengageable notch and tongue for latching the said two parts together, cam means carried by said casing and provided with a shoulder above said cam, means biasing said keeper member and said slide member in one direction and means biasing said keeper member in the other direction relative to said slide member, means carried by said latch member adapted to engage said finger with the insertion of the latch member in the casing to thereby move the finger against said cam to cam said slide into biased relation whereby the keeper member is biased by said means biasing said keeper member in said other direction into position for latching engagement with said latch member, said finger engaging said shoulder when said slide and keeper members are in latched engagement, and said parts being moved from latched engagement for disengagement of said two parts by movement of said latch member to free said finger from said shoulder.

3. In a latch mechanism for latching two parts together in accordance with claim 2 wherein the keeper member is provided with a tongue and the latch member a notch to receive the tongue for latching the parts together, and the means carried by the latch member consists of a notch adapted to be engaged by the finger with the movement of the first mentioned part toward the other part for moving the finger against the cam.

4. In a latch mechanism for latching two parts together in accordance with claim 2 wherein the means biasing the slide and keeper member in said one direction consists of a spring connected at one end with the slide and at its opposite end with the casing and said means biasing said keeper member in said other direction consists of another spring connected at one end with the slide and at its opposite end to the keeper member.

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