Feb. 18, 1964 W. J. PARRISH 3,121,383

LOCKING MEANS FOR HEATING AND AIR CONDITIONING REGISTERS AND THE LIKE

Filed Dec. 28, 1961

FIG. 1

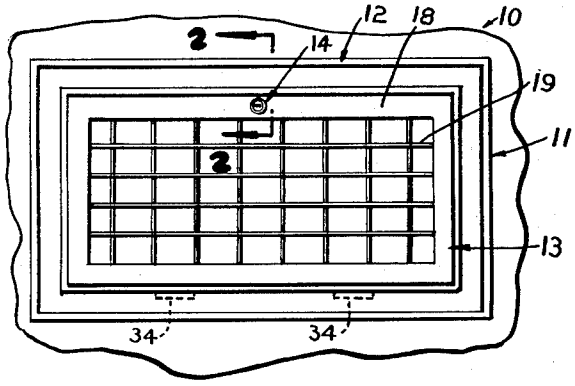


FIG. 2

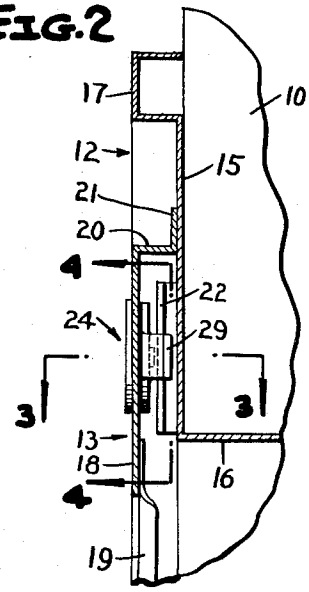


FIG. 3

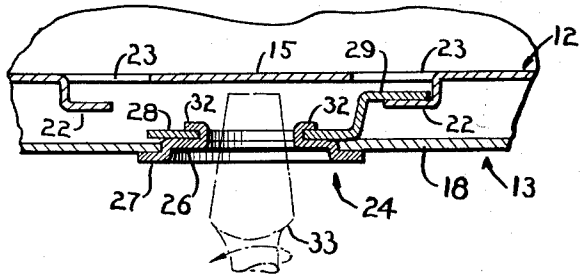


FIG. 4

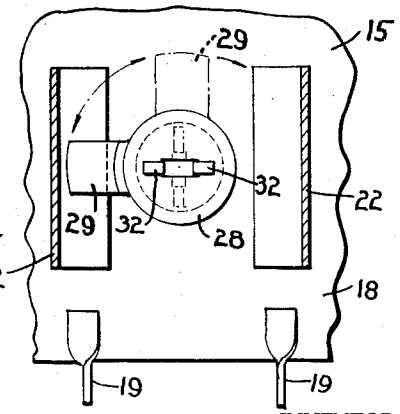
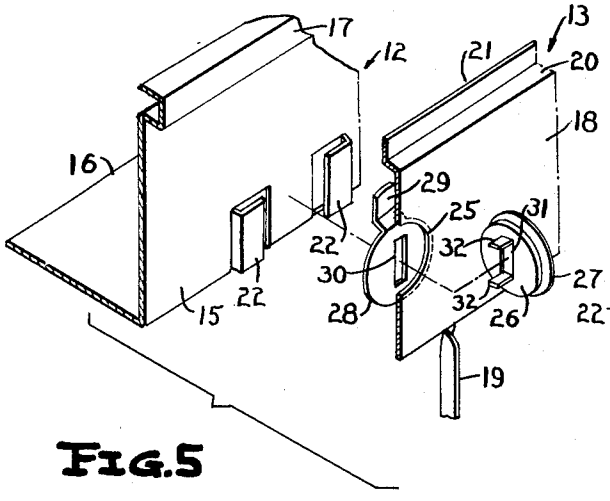


FIG. 5



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LOCKING MEANS FOR HEATING AND AIR CONDITIONING REGISTERS AND THE LIKE

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This invention relates in general to new and useful improvements in locks, and more particularly to a novel lock for joining together two members lying in generally face-to-face relation, and with said lock being rotatably operatable by means of a simple tool.

Hot air registers are commonly made of one piece construction, and where they are not, the use of bolts or screws have been commonly resorted to, as well as tapered face cam members, and external attachment members for holding the register frame and grill together. It was a recognition of this situation and the need of a different type of latching member for holding spaced apart members together which led to the conception and development of the present invention.

This invention particularly relates to a lock of the type which includes a keeper and a latch, the keeper being disposed in forwardly projecting relation from one member and the latch being disposed in rearwardly projecting relation from another member, the two members being disposed generally in face-to-face relation and the latch being rotatable into engagement with the keeper by means of a simple tool.

Accordingly among the objects of this invention is the provision of an extremely simple latch for a member, and which latch may be easily and quickly constructed and assembled with said member and at the same time will have sufficient strength to provide for the necessary latching operation.

Another object of this invention is to provide a novel latch for a member having a circular opening therein, the latch including a front plate having a circular rearwardly projecting portion rotatably journaled in the opening, and a rear plate, the front and rear plates being connected together through the opening in the member, and the rear plate having a latch arm projecting therefrom.

Still another object of this invention is to provide a novel latch construction for a member having a circular opening therein, the latch construction including a front plate and a rear plate, the rear plate being provided with a latch arm, the rear plate having a slot therein, and a front plate having a pair of rearwardly projecting tabs formed from a single opening therein and projecting through the slot in the rear plate, with the slots in the front and rear plates being aligned for the reception of a simple tool, to effect the rotation of the latch.

Another object of this invention is to provide in a lock a novel and simple keeper construction, the keeper being in the form of a generally L-shaped section projection from a member, the projection being struck from the member.

A further object of this invention is to provide a novel lock construction for releasably securing a grill in a frame, the frame being provided with a pair of opposed keepers struck therefrom, each of the keepers being of an L-shaped cross-section, and a latch carried by the grill, the latch including a latch arm engageable behind one of the keepers to secure the grill in the frame.

Still another object of this invention is to provide a novel register construction which includes a frame having a grill seated therein, the grill being provided with a rearwardly projecting flange so as to space the main portion of the grill from the frame, and the frame having

a forwardly projecting keeper associated with the rearwardly projecting latch carried by the grill within the space between the grill and the frame whereby the grill may be releasably latched to the frame.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but one of various ways in which the principle of the invention may be used.

In the annexed drawing:

FIGURE 1 is a fragmentary elevational view of a wall having a register incorporated therein, with said register having incorporated therein a preferred form of the lock of the present invention.

FIGURE 2 is an enlarged fragmentary vertical sectional view taken along the line 2—2, looking in the direction of the arrows, and shows specifically the details of the construction of the register, particularly the lock construction thereof.

FIGURE 3 is an enlarged fragmentary horizontal sectional view taken along the line 3—3 of FIGURE 2, looking in the direction of the arrows, and shows the specific details of the lock, with a screwdriver having the blade thereof associated with the latch for the purpose of turning the latch to a released position.

FIGURE 4 is an enlarged fragmentary vertical sectional view taken along the line 4—4 of FIGURE 2, looking in the direction of the arrows, and shows further the details of construction of the latch.

FIGURE 5 is a fragmentary exploded perspective view showing further the details of the latch, the keepers and the general details of the construction of one form of the grill and the frame.

Referring now to the drawing in detail, it will be seen that there is illustrated in FIGURE 1 a conventional type of wall 10 in which there is mounted a register, generally referred to by the numeral 11. The register 11 includes a frame 12 carrying a removable grill 13. The grill 13 is releasably secured to the frame 12 at its top by means of a lock 14 and at its bottom with hooks 34, in accordance with this invention.

It is to be understood that the frame 12, FIGURE 2, is diagrammatically shown and may be of any desired configuration. However, the frame 12 illustrated in the drawing includes a main flange 15 which is of a peripheral extent. An anchoring flange 16 extends rearwardly from the inner edge of the main flange 15 and serves to anchor the frame 12 in a suitable size opening in the wall 10. The frame 12 also preferably includes an outer peripheral flange 17 which is of a generally C-shaped configuration to stiffen the frame, as is best shown in FIGURE 2. It is to be noted that the peripheral flange 17 projects outwardly from the main flange 15.

The grill 13, FIGURE 2, includes a border 18 to which a plurality of grill slats 19 are secured. The border 18 is provided on its outer edge with a rearwardly projecting peripheral flange 20 which, in turn, has connected thereto an outwardly extending peripheral flange 21 which is disposed substantially parallel to the border 18. It is to be noted that the flange 21 abuts against the main flange 15 of the frame 12 and spaces the border 18 of the grill 13 outwardly from the main flange 15.

Referring now to FIGURES 3 and 5 in particular, it will be seen that the main flange 15 of register frame 12 is provided with a pair of opposed keepers 22 which form part of the lock 14. The keepers 22 are of generally L-

shaped cross-section and are struck from the main flange 15 to define openings 23.

The lock 14 also includes a latch, which is generally referred to by the numeral 24, FIGURE 3. In order to mount the latch 24, the border 18, FIGURE 5, of the grill 13 is provided with a circular opening 25 substantially centrally aligned between the two keepers 22 when the register is assembled. The circular opening 25 receives a circular rearwardly projecting boss portion 26 of a front plate 27 so as to rotatably journal the latch 24. The latch 24 also includes a rear plate 28 having an offset and preferably slightly rounded latch arm 29 projecting therefrom.

It is to be understood that the front plate 27, FIGURE 3, is disposed forwardly of the border 18 and the rear plate 28 is disposed rearwardly of the border 18. The rear plate 28 is provided with an elongated slot 30, FIGURE 5, therein which is preferably aligned with the latch arm 29. The front plate 27 is also provided with a slot 31 which is aligned with the slot 30. The slot 31 is formed by the rearwardly striking of a pair of tabs 32. When the latch 24 is assembled with the border 18, the tabs 32 pass through the slot 30 and are bent behind the rear plate 28, as is best shown in FIGURE 3.

At this time, the slots 30 and 31 are aligned, as is shown in FIGURE 3, and may receive a simple tool, such as a screwdriver blade 33 for effecting the rotation of the latch 24.

It is to be noted that the construction of the grill 13 is such that the border 18 is spaced outwardly from the main flange 15 of frame 12 sufficiently to provide clearance for the keepers 22 and the latch 24.

In the construction of the register 10, it is to be understood that the grill 13 will be interlocked along the bottom portion thereof with the frame 12 by means of hooks 34, FIGURE 1, or in some other conventional manner, which forms no part of the present invention, so that when the top portion of the grill 13 is locked to the upper portion of the frame 12, the grill 13 will be securely mounted within the frame 12. Once the grill 13 has been swung to this position, it is merely necessary to rotate the latch 24 so that the latch arm 29 enters behind one of the keepers 22. The grill 13 is then retained within the frame 12 against accidental removal.

When it is desired to remove the grill 13, it is merely necessary to take a screwdriver or some other conventional tool and place the same through the aligned slots 30 and 31, as is shown in FIGURE 3, and to rotate the latch 24 so that the latch arm 29 swings from behind the associated one of the keepers 22 so as to release the upper portion of the grill 13 from the frame 12 so that said grill can be lifted up and outward from frame 12.

At this time, it is pointed out that although the lock is particularly illustrated with respect to a register construction, the lock is not so restricted as to use. The lock may be utilized in securing any two members suitably disposed generally in face-to-face relation.

A preferred embodiment of the invention has been illustrated and described herein. However, it is to be understood that minor modifications may be made in the lock construction within the spirit and scope of the invention, as herein defined and illustrated. It is further to be noted that while directional terms have been used, same is not to be construed as a limitation of the invention since such use has been availed of to better describe the invention as illustrated.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the article and combinations herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In a register assembly of the type including a frame and a removable grill, cooperably engageable means carried respectively by said frame and grill to space them from each other, a lock for releasably retaining said grill in said frame, said lock including a forwardly projecting keeper on said frame and a rearwardly projecting latch carried by said grill for engagement behind said keeper, said keeper and latch being disposed in the space between said frame and grill, and means mounting said latch on said grill for rotation.

2. The register assembly of claim 1, wherein said keeper is L-shaped in section and is struck from said frame.

3. In a register assembly of the type including a frame and a removable grill, a lock for releasably retaining said grill in said frame, said lock including a forwardly projecting keeper on said frame and a rearwardly projecting latch carried by said grill for engagement behind said keeper, a rear plate, said latch being carried by said rear plate, a circular opening in said grill, a front plate disposed forwardly of said grill, connecting means carried by said front plate and connected to said rear plate, said front and rear plates being aligned with said circular opening and being connected together therethrough, and means for rotating said latch.

4. The lock of claim 3 wherein said front plate has a rearwardly projecting circular portion journaled in said opening.

5. The lock of claim 3 wherein said connecting means includes a slot in said rear plate, a pair of rearwardly projecting tabs struck from a single slot in said front plate, said slots being aligned for the reception of an operating tool with said tabs extending through said rear plate slot and anchored behind said rear plate.

6. The lock of claim 3 wherein said connecting means includes a slot in said rear plate, a pair of rearwardly projecting tabs struck from a single slot in said front plate, said slots being aligned for the reception of an operating tool with said tabs extending through said rear plate slot and anchored behind said rear plate, and said front plate has a rearwardly projecting circular portion journaled in said opening.

7. The register assembly of claim 6 wherein said keeper is L-shaped in section and is struck from said frame.

8. The register assembly of claim 3 wherein said grill has a rearwardly projecting flange engaging said frame and forwardly spacing said grill from said frame to provide space for said lock.

9. In combination with a member having a flat portion with a circular opening therein, a latch, said latch comprising a front plate having a rearwardly directed circular projection rotatably journaled in said opening, a rear plate disposed rearwardly of said member, a latch arm projecting from said rear plate, connecting means connecting together said front and rear plates, and means for rotating said latch.

10. The latch of claim 9 wherein said connecting means includes a slot in said rear plate, a pair of rearwardly projecting tabs struck from a single slot in said front plate, said slots being aligned for the reception of an operating tool with said tabs extending through said rear plate slot and anchored behind said rear plate.

11. In combination with two members having opposing portions, a lock, said lock comprising a keeper on one of said members and a latch on the other of said members, said other member having a circular opening therein, and said latch including a front plate having a rearwardly directed circular projection rotatably journaled in said opening, a rear plate disposed rearwardly of said second member, a latch arm projecting from said rear plate, connecting means connecting together said front and rear plates, and means for rotating said latch.

12. The lock of claim 11 wherein said connecting means includes a slot in said rear plate, a pair of rearwardly projecting tabs struck from a single slot in said

front plate, said slots being aligned for the reception of an operating tool with said tabs extending through said rear plate slot and anchored behind said rear plate.

13. The lock of claim 11 wherein said keeper is L-shaped in section and is struck from said first member.

14. The combination of claim 11 wherein said second member has a rearwardly projecting flange engaging said

first member and spacing said members to provide space for said lock.

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