Sept. 4, 1956 W. J. PARRISH 2,761,371

REMOVABLE LEVER OPERATED REGISTER

Filed March 16, 1953

FIG. 1

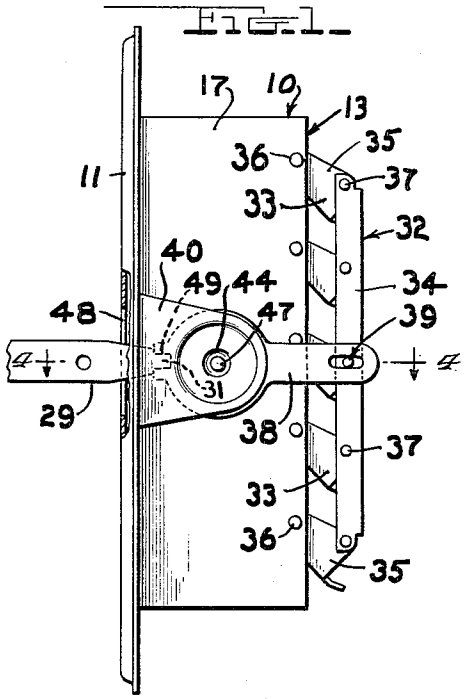


FIG. 2

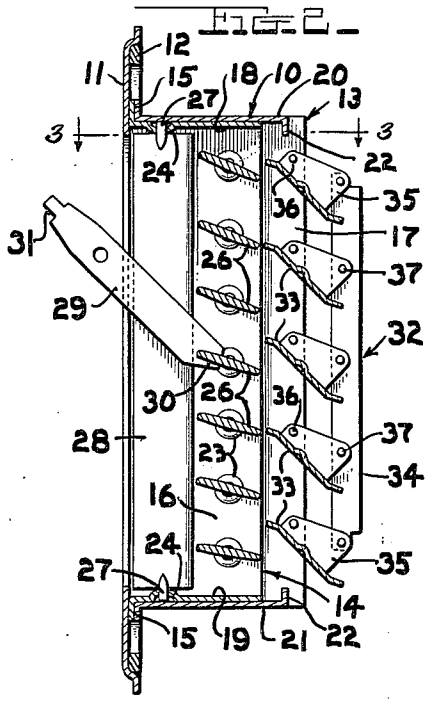


FIG. 3

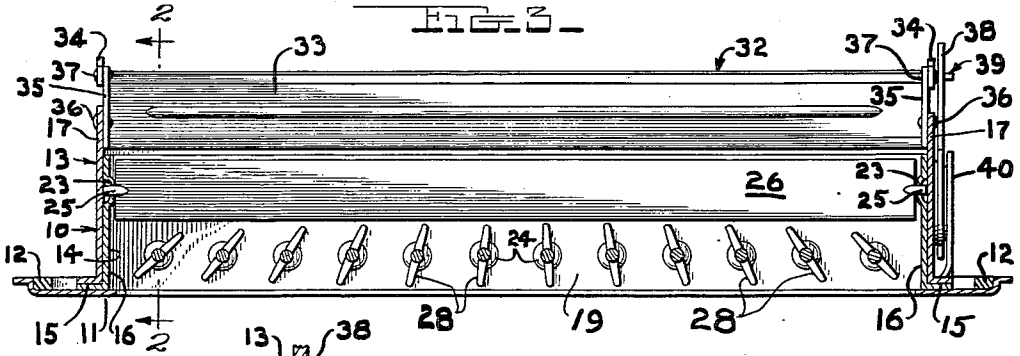


FIG. 4

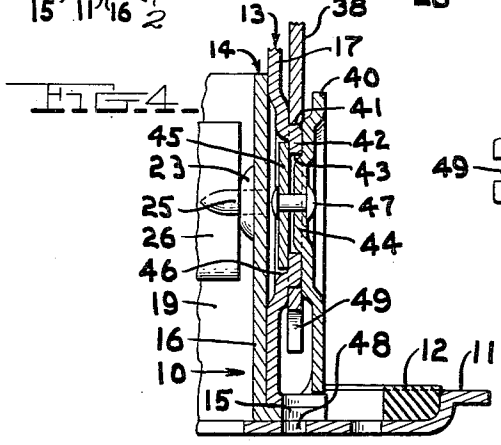
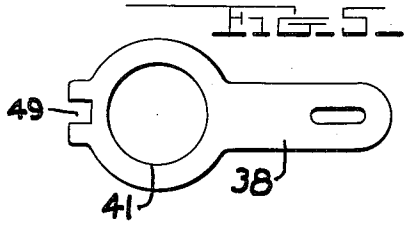


FIG. 5



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REMOVABLE LEVER OPERATED REGISTER

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6 Claims. (Cl. 98—110)

This invention relates broadly to registers, and in its more specific phases to a new and improved register of a type to be mounted in a wall opening for communication with a hot or cold air duct.

Registers having side mounted operators utilize operators which have considerable thickness and make necessary a relatively large opening in order to operably mount the register. It was a recognition of this difficulty and the need of a side operated register mechanism, which is thin, with the register utilizing same being adapted to fit into an ordinary register opening, which led to the conception and development of the present invention.

In addition to having air diffusing louvers, the present register includes a louver type damper, and an object of the invention is to provide a novel arrangement of the various louvers to give excellent directional and volumetric control of the air discharged through the register.

Another object of the invention is to provide a novel adjusting means for the damper louvers, said adjusting means being mounted on the outside of the register frame but being so compact and thin that it does not require an excessively large wall opening for reception of the register.

A further object is to provide a novel louver adjusting means which is operable by means of a key rearwardly insertable through an opening in the wall plate of the register, said key being removable after louver adjustment to prevent unauthorized persons from changing the setting of the louvers.

Another object is to provide a novel register having individually adjustable frictionally held louvers for directing the air discharged through the register.

Yet another object is to provide one set of individually adjustable louvers for vertically deflecting the air, and a second set of individually adjustable louvers for horizontally deflecting the air. Thus, unusually effective control and diffusion of the air may be effected.

A still further object is to provide an improved frame structure which embodies novel bearings for pintles of the air directing louvers.

Another object is to provide a novel register for use under windows and along walls which will insure blanketing of walls and windows with hot or cold air but will so direct said air that it will not directly ascend along walls, curtains and draperies, thus overcoming dust smudging.

Yet another object is to provide a construction which may be easily, rapidly and inexpensively manufactured, may be profitably marketed at a reasonable price, and will be highly desirable and durable.

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 certains 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 an end elevation of the register, partly broken away and in section, and showing the key engaged with the adjusting means of the damper louvers.

Figure 2 is a vertical sectional view on line 2—2 of Figure 3 and showing how the key may be used to adjust the air directing louvers.

Figure 3 is a horizontal sectional view on line 3—3 of Figure 2.

Figure 4 is an enlarged horizontal sectional view on the plane of line 4—4 of Figure 1, showing the detailed construction of the damper louver adjusting means.

Figure 5 is a side elevation of the key-operated swingable arm forming part of the damper louver adjusting means.

The drawing discloses a construction which has proven to be commercially advantageous from standpoints of manufacture, sale and use, and while that construction will be rather specifically described, it is to be understood that variations may be made within the scope of the invention as claimed.

A rectangular register frame 10 is provided for reception in a wall opening, said frame 10 having a wall plate 11 to be secured against the wall. To prevent air leakage between the wall and the plate 11, the rear side of the latter is provided with an elastic gasket 12 adjacent its perimetrical edge.

The frame 10 is constructed from an outer sheet metal frame 13 and an inner sheet metal frame 14, the two frames 13 and 14 having lateral flanges 15 on their front edges which are welded together and to the wall plate 11. The end plates 16 of the inner frame 14 are in contact with the end plates 17 of the outer frame 13 and all of these plates are in vertical planes at right angles to the wall plate 11. The end plates 17, however, are wider than the end plates 16 and project rearwardly beyond the latter. The top and bottom plates 18 and 19 of the inner frame 14 contact with the top and bottom plates 20 and 21 of the outer frame 13 and all of these top and bottom plates are in horizontal planes at right angles to the wall plate 11. The inner frame top and bottom plates 18 and 19 are somewhat narrower than the corresponding plates 20 and 21 of the outer frame 13, and said plates 20 and 21 have flanges 22 on their rear edges.

The end plates 16 of the inner frame 14 have inwardly stamped dome-shaped bearing bosses 23 disposed in vertical rows toward the rear edges of said end plates 16. The top and bottom plates 18 and 19 of the inner frame 14 also have inwardly stamped bearing bosses 24, these bosses 24 being disposed in rows lengthwise of and toward the front edges of said top and bottom plates 18 and 19.

The bearing bosses 23 are centrally apertured to frictionally receive the pintles 25 of a rear set of horizontally disposed air directing louvers 26 which are preferably of one piece construction. Similarly, the bearing bosses 24 are centrally apertured to frictionally receive the pintles 27 of a front set of vertically disposed air directing louvers 28 which also are preferably of one piece construction. The rear louvers 26 are independently adjustable to vertically direct or diffuse the hot air discharged between them in the most advantageous directions. Similarly, the front louvers 28 are independently adjustable to horizontally fan out or diffuse the discharging hot air. All of the louvers 26 and 28 are lightly held frictionally in their adjusted positions.

A suitable key 29 is provided having a notch 30 in one end for use in the manner shown in Figure 2 to adjust the louvers 26 and said key is similarly usable to adjust the louvers 28. The end of the key 29 remote from the

notch 30 is formed with a lug 31 for a purpose to appear.

A damper 32 is provided behind the rear louvers 26, said damper comprising horizontally disposed pivoted louvers 33 and vertical links 34 connecting said louvers 33 for movement in unison. Those louvers 33 have flanges 35 pivoted at 36 to the projecting rear edge portions of the outer frame and end plates 17, and the links 34 are pivoted at 37 to said flanges. A vertically swingable adjusting arm 38 is connected at 39 to one of the links 34 and is operable by means of the key 29 (see Figure 1) for simultaneously adjusting the louvers 33 to regulate the air output through the register, and the louvers are frictionally held in adjusted position.

The arm 38 is disposed at the outer side of one of the end plates 17, Figure 4, of the outer frame 13 and is pivotally mounted between this end plate and a retaining plate 40, this plate 40 being parallel with said end plate and being welded to the adjacent flanges 15. The arm 38 is formed with a bearing opening 41 in its front portion, and the adjacent plate 17 has an outwardly stamped bearing boss 42 received in said bearing opening 41. The boss 42 has a central opening 43 and the retaining plate 40 has an inwardly stamped boss 44 received in this opening. The portion of the plate 40 around this boss 44 contacts with the outer end of the bearing boss 42 and with the outer side of the arm 38. A washer 45 is confined within the recess 46 formed by outwardly stamping the bearing boss 42, and a rivet 47 extends through this washer and the boss 44 of the retaining plate 40. The arm 38 is thus substantially mounted and will be frictionally held in any position to which it may be swung when adjusting the damper 32.

The key 29 is usable for adjusting the arm 38. The wall plate 11 has a slot 48 through which this key is insertable, and the front end of the arm 38 has a notch 49 to receive the lug 31 of said key as seen in Figure 1. The damper 32 may thus be adjusted and the key removed to prevent unauthorized persons from changing the adjustment.

From the above detailed description of the damper assembly it is believed that the construction, use, and operation thereof will at once be apparent, and while there is herein shown and described the preferred embodiment of the assembly, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention having due regard that such words as "horizontal," "vertical," "ends," "front," and "back" are purely relative, and used as an aid to describing the invention.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the apparatus 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. A register comprising a frame for reception in a wall opening, said frame having an end plate, a damper carried by said frame for regulating the discharge of air therethrough, adjusting means for said damper including an operating arm at the outer side of said end plate, said arm having a bearing opening, said end plate having a bearing boss received in said bearing opening, and a fixed retaining plate at the outer side of said arm and holding the latter engaged with said bearing boss, said arm having a portion to be engaged by a swingable extraneous operating key.

2. A structure as specified in claim 1; said bearing boss being outwardly stamped from said end plate, thereby providing the latter with a recess in its inner side, said outwardly stamped bearing boss having a central opening, said retaining plate having a boss received in this opening, a washer in said recess, and a fastener connecting the last named boss with said washer.

3. A register having a frame for reception in an air outlet opening, said frame having end plate members, a damper means carried by said frame for regulating the discharge of air therethrough, an operating means for adjusting said damper, said operating means having a thin substantially flat member with a bearing opening therethrough, together with means for operably connecting said flat member to said damper means, one of said frame end plates having a relatively low outwardly extending bearing boss fitting said bearing opening in said substantially flat member, a relatively thin retaining means on the outer side of said substantially flat member, and means for joining said retaining means on said end plate at said bearing boss in position for holding said flat member portion of said operating means rotatably mounted on said bearing boss, said substantially flat member having a portion to be engaged by an extraneous key for swingably operating said flat member and through it said damper means.

4. A register as set forth in claim 3; wherein said damper means is pivotally carried by said frame end plate members, said damper means including a plurality of pivoted louvers and an operating link pivotally joining them for movement in unison, and wherein said operable connection of said flat member to said damper means includes means joining said operating link to said swingable substantially flat member, whereby operation of said substantially flat member with said extraneous key will correspondingly actuate said operating link and operate said pivoted louvers within their range of movement.

5. In an air register having a front face and a frame with side and end plates for reception in an air outlet opening, a front set of individually adjustable air-directing louvers pivotally mounted in said frame, a rear set of individually adjustable air-directing louvers pivotally mounted in said frame, said two sets of louvers being substantially parallel to each other but with their pivotal axes substantially at right angles to each other, and a set of damper louvers pivotally mounted on said frame behind said front and rear sets of air-directing louvers, the combination therewith of a mechanism for operating said damper louvers, said mechanism having a thin substantially flat member with a bearing portion and an extending arm portion, said flat member being wholly behind the front face of said register, one of said frame end plates having a relatively low outwardly extending bearing means closely fitting into and engaging the bearing portion of said substantially flat member, a relatively thin retainer means on the outer side of said substantially flat member for holding the latter on said outwardly extending bearing means of said frame end plate, means joining said retainer means to said frame end plate at said bearing portion so as to apply frictional pressure on the sides of said substantially flat member for holding same in various adjusted positions, and interengaging means operably connecting the extending portion of said substantially flat member to said pivotally mounted damper louvers, said interengaging means including a link pivotally joining said damper louvers and joined to the extending portion of said flat member, said substantially flat member having a portion adapted to be engaged by an operating member for rotatably moving it and through its connection to said link adjusting said pivotally mounted damper louvers.

6. In an air register of the character described which has a frame with side and end plates and a pivotally mounted damper means on the rear portion of same, the combination therewith of a thin and substantially flat operating arm having means on one end for operatively engaging said pivotally mounted damper means and a bearing opening adjacent its other end, one of said end plates having a relatively low outwardly extending bearing boss received in and closely fitting said bearing opening in said operating arm, a fixed retainer plate on the outer side of said operating arm for holding the latter

on said end plate boss, and means resiliently connecting said fixed retainer plate to said end plate through the bearing boss of same within said bearing opening in said operating arm, said operating arm having an externally engageable portion for pivotally moving same to adjust said damper means.

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