

April 1, 1941.

J. H. BAILEY ET AL

2,236,865

DIRECTIONAL REGISTER

Filed March 2, 1938

3 Sheets-Sheet 1

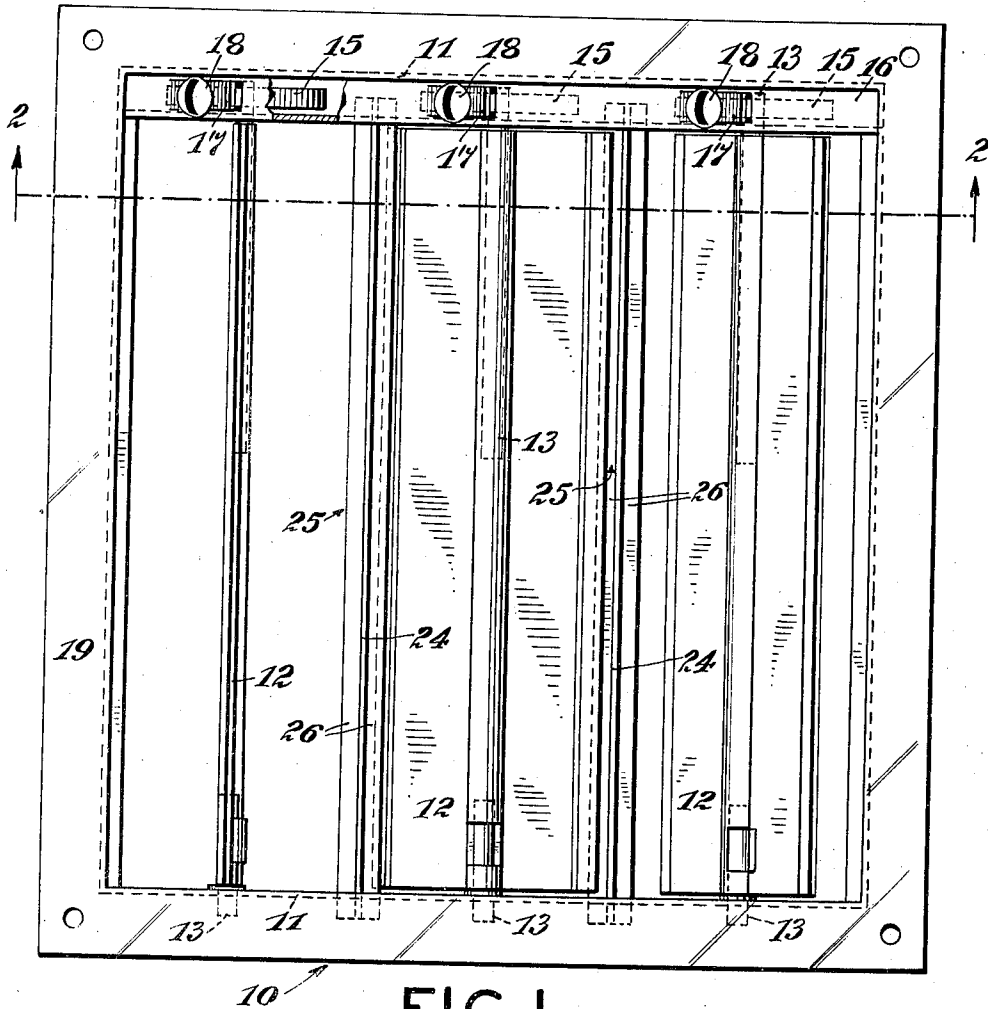


FIG. 1.

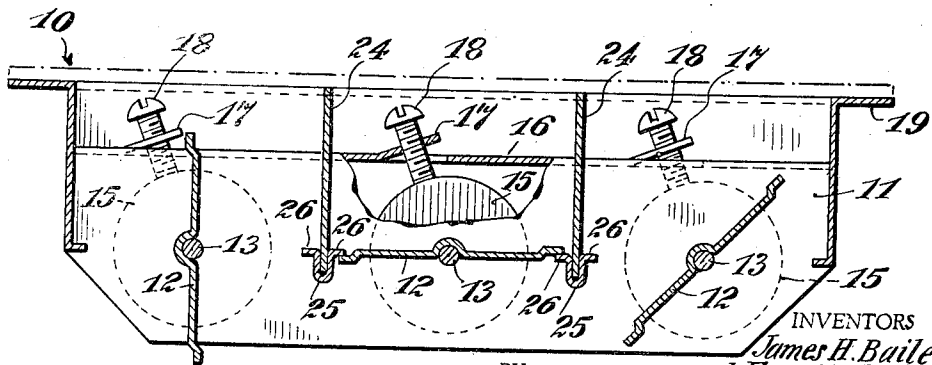


FIG. 2.

BY

James H. Bailey
and Frank T. Bailey
their ATTORNEYS

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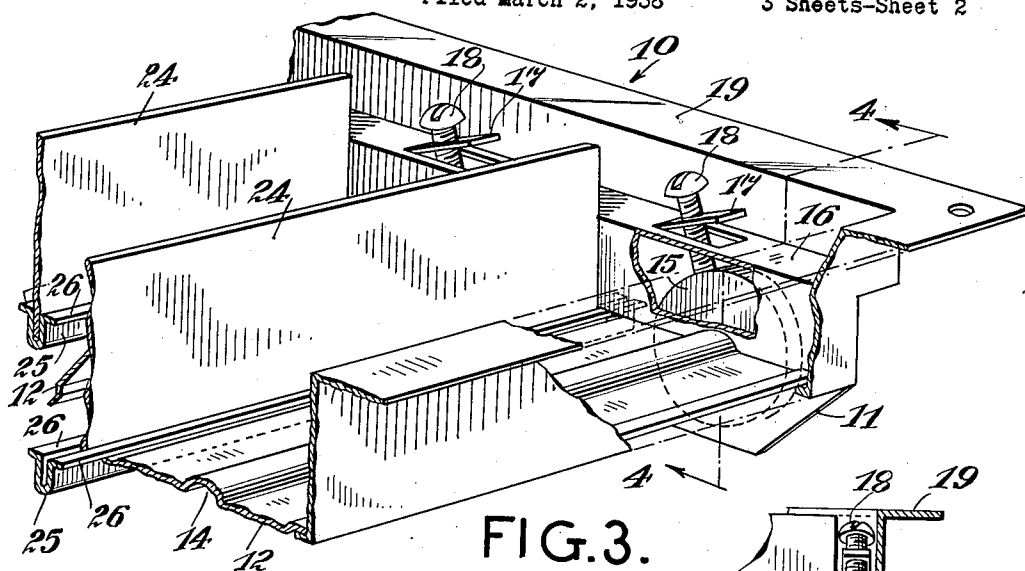


FIG. 3.

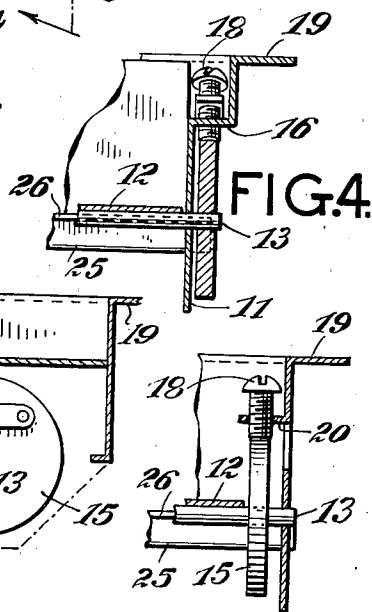


FIG. 4.

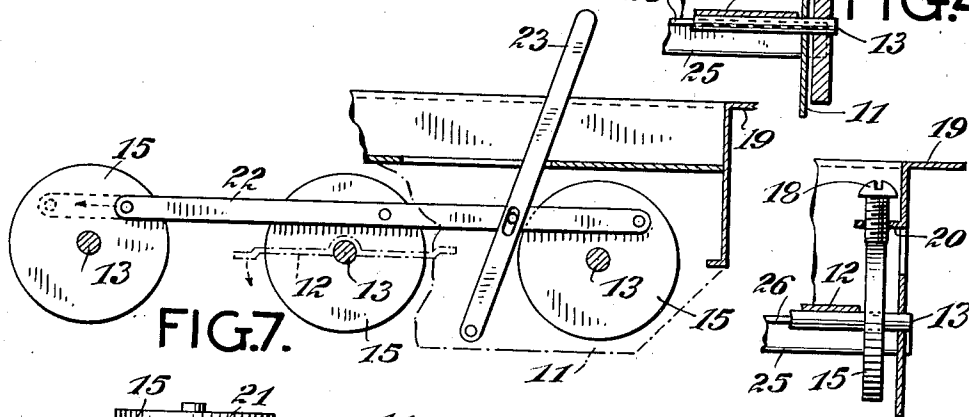


FIG. 5.

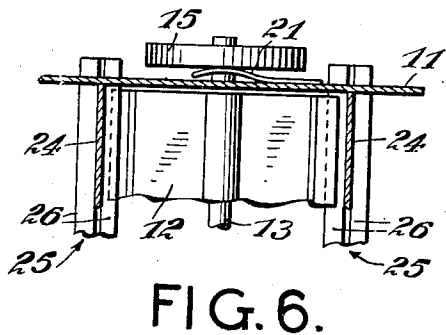


FIG. 6.

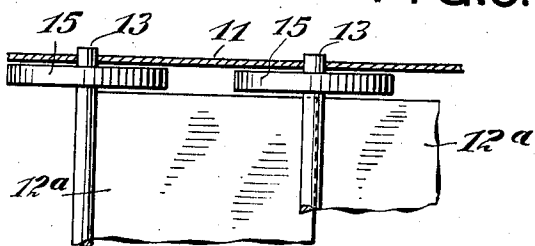


FIG. 7.

INVENTORS
James H. Bailey
and Frank T. Bailey
BY Ramsey, Nut, Chisholm and Rutz
ATTORNEYS

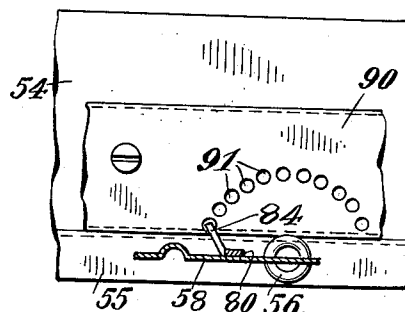
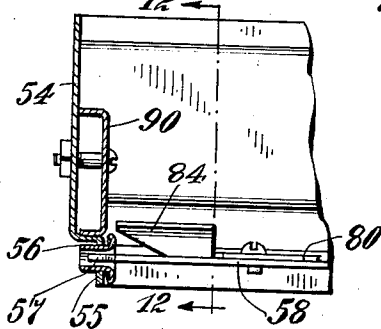
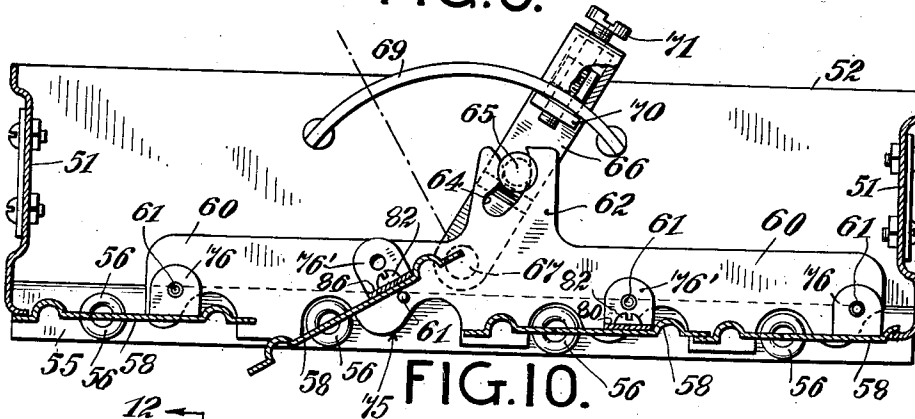
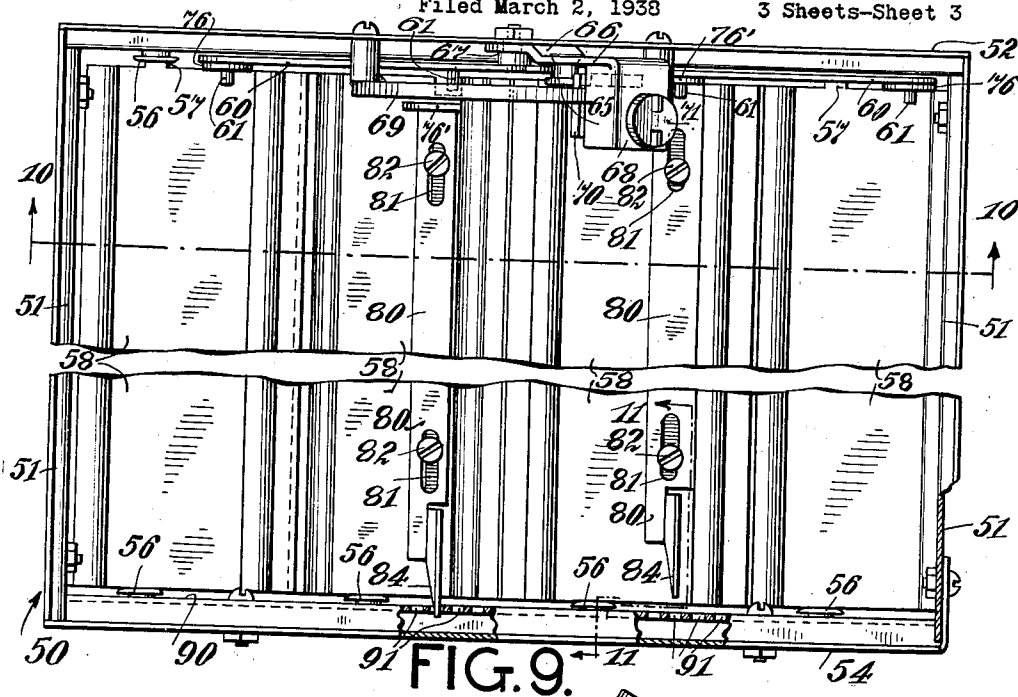
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3 Sheets-Sheet 3



INVENTORS

James H. Bailey
and Frank T. Bailey
BY Ramsey, Kent, Chipman and Lutz
ATTORNEYS

UNITED STATES PATENT OFFICE

2,236,865

DIRECTIONAL REGISTER

James H. Bailey, New Canaan, Conn., and Frank
T. Bailey, Montclair, N. J.

Application March 2, 1938, Serial No. 193,428

5 Claims. (Cl. 98—110)

This invention relates to an improved construction for registers used to direct the flow of air from heating and ventilating systems.

A particular object of the invention is to provide a simple and efficient means for operating the vanes of a register and locking them in adjusted position.

One form of the invention provides an improved arrangement in which the vanes of a register may be set and locked individually in different positions of adjustment in order to direct flow in different directions. In another form the vanes may be operated simultaneously, or may be adjusted individually.

Another feature of the invention resides in a simplified construction for furnishing the register with stationary deflector vanes.

These and other objects of the invention will become apparent as the description proceeds.

While preferred forms of the invention are disclosed herein for purposes of illustration, it should be understood that various changes may be made without departing from the spirit and scope of the invention as herein set forth and claimed.

In the drawings:

Fig. 1 is a plan view of a register constructed according to the present invention;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary perspective view of the register of Fig. 1;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a view corresponding to Fig. 4 but showing a modified construction;

Fig. 6 is a fragmentary plan view showing a modified arrangement for holding the vanes in adjusted position;

Fig. 7 is a diagrammatic elevation illustrating a modified form of operating device;

Fig. 8 is a fragmentary plan view showing a modifying method of mounting the vanes;

Fig. 9 is a fragmentary view similar to Fig. 1 of a modified form of the invention;

Fig. 10 is a section taken substantially on the line 10—10 of Fig. 9;

Fig. 11 is a section taken substantially on the line 11—11 of Fig. 9;

Fig. 12 is a section taken substantially on the line 12—12 of Fig. 11.

Referring to the drawings and more particularly to Figs. 1 to 4 inclusive, the register includes a casing 10 and side walls 11. A plurality of vanes 12 are mounted in the casing with their pintles 13 journaled in side walls 11. In the form illustrated in Figs. 1, 2 and 3, a central groove 14 is formed in each of the vanes 12, and the pintles 13 are

held in the ends of the groove by any suitable means.

In order to provide means for operating the vanes and locking them in adjusted positions, a metal disc 15 is rigidly secured to pintles 13 along one side of the casing, as shown in Fig. 1. These discs are preferably stamped from relatively heavy sheet metal. As shown in the form illustrated in Figs. 1 to 4, the side wall 11 is formed with an offset 16 above discs 15 and an ear 17 is punched upwardly from the offset above each disc. A set screw 18 is threaded through each of the ears and impinges upon the periphery of the disc. The outer flange 19 of the casing is elevated a sufficient distance above offset 16 to permit set screws 18 to lie wholly below the plane of the face of the register. Any suitable ornamental grill may be secured to flanges 19.

The arrangement just described provides a simple and efficient means for adjusting and holding the vanes 12. A screw-driver, or other suitable instrument, can be used to set each of the vanes to the desired position and the corresponding set screw 18 can then be tightened home against the disc 15 to prevent accidental rotation of the vane. This construction permits each individual vane to be independently set so that the register may direct flow of air to different parts of a room as may be desired for a particular installation.

Fig. 5 illustrates a modification in which the offset 16 is not present. In this case the set screw 18 may be mounted on any suitable part of the casing, such as the ear 20 pressed from the side wall of the casing.

Fig. 6 illustrates a modification in which each vane is held in adjusted position by a spring member 21 which has one end attached to the casing and its other end frictionally engaging disc 15. It should be understood that any other suitable method for applying frictional resistance to the disc 15 will serve the purpose.

The vanes need not be mounted concentric to discs 15 as is shown in Fig. 8 where each of the vanes 12^a has one of its long edges mounted on an axis concentric with a disc.

Fig. 7 illustrates a modification in which a driving rod 22 has a pivotal connection with each of the discs 15 and an operating lever 23 has its lower end pivoted on the outside of the side wall of the casing. In this construction, movement of lever 23 operates all of the vanes simultaneously. The pins connecting the lever 23 to the respective discs can be readily removable so that after a simultaneous adjustment

of all the vanes has been made, one or more of the pins can be removed to permit an independent adjustment of the vane or vanes associated therewith. Such independent adjustment can be made at any time. Springs similar to springs 21 of Fig. 6 or any other suitable means can be utilized for holding the independently adjusted vanes in their adjusted positions.

Another feature of the invention resides in the provision of stationary deflectors 24, see Figs. 2 and 3. The lower edge of each of these deflectors is set in a molding 25 which has a U-shaped body portion and outwardly extending flanges 26. The molding 25 has its opposite ends suitably attached to the casing, and deflector 24 is merely set in the U channel and retained therein by friction, thereby avoiding the necessity for welding or other special fastening.

The flanges 26 provide surfaces against which the opposite edges of the vanes may seat, as clearly shown in Figs. 2 and 3, in which it is shown that each vane has one edge seating on top of a flange 26, and its opposite edge seating on the bottom of a flange 26.

In Figs. 9 to 12 inclusive, the preferred form of the invention has been shown, which form utilizes the principle of selective adjustment of the various vanes either simultaneously or individually as may be desired. In these figures of the drawings 50 indicates generally the casing of the register made up of side walls 51, top wall 52, and bottom wall 54. The rear edges of the top and bottom walls 52 and 54 are formed in substantially Z shape to provide an expanse 55 substantially parallel to the major expanse of these walls. These parts 55 are apertured at intervals to receive grommet-like members 56 which serve as bearings for flat spindle-like extensions 57 of a plurality of vanes 58. Preferably, in this form of the invention the spindle-like extensions which are made integrally with the vanes are laterally displaced relative to the longitudinal axis of the respective vanes.

In order that the vanes can be rotated about their respective parallel axes use is made of an actuator plate 60 which is positioned immediately above the top edges of the vanes and which has a plurality of pins 61 depending from the lower surface thereof. The actuator plate 60 has a central extension 62 provided with a curved slot 64 adapted to be engaged by a roller 65 secured to an arm 66 which in turn is pivotally fastened to the top wall 52 as indicated at 67. The arm 66 has an extreme end portion 68 bent substantially at right angles to the major portion thereof and positioned to overlie a curved locking bar 69 which is secured to the top wall 52 in spaced relation thereto as shown in Fig. 9. An angle member 70 has one portion thereof in sliding contact with a portion of the arm 66 and has the other part thereof positioned beneath the curved locking bar 69. A screw 71 passing through the part 68 also passes through a threaded aperture in the part of the angle member 70 underlying the bar 69 so that this underlying part can be drawn into such frictional contact with the bar 69 as to lock the arm substantially immovably relative thereto.

The actuator plate 60 has one edge thereof cut out in more or less scallop fashion as shown generally at 75 to permit the plate to be moved in such manner as to clear the various bearing members 56; it being understood that movement of the arm 66 causes movement of plate 60 in more or less arcuate fashion. The pins 61 depending

from the plate 60 are adapted to be engaged by tab members 76 extending outwardly from the various vanes 58. In the form shown in these figures the two end vanes are provided with tabs 76 which are made integral with the respective vanes. However, the two inner vanes instead of having integral tabs, are provided with sliding strips 80, the upper ends of which are bent at right angles to form tabs 76'. These strips 80 have spaced longitudinal slots 81 for the passage of locking screws 82 engaging threaded apertures in the vanes. The lower ends of the strips 80 are formed in such shape as to provide depending fingers 84. By adjusting the strip 80 relative to the vanes to which they are attached it is possible to cause the openings in the tabs 76 thereof to engage depending pins 61 or in other positions to be out of engagement with such pins. This latter condition is desirable in instances wherein conditions require that one or more of the vanes be locked against movement even though the remainder of the vanes be capable of simultaneous movement. To accomplish this purpose the bottom wall 54 is provided with a platform member 90 extending completely across the register and the platform member 90 is provided with a series of apertures 91 arranged in arcuate fashion in such relative positions that any one of the apertures of a series can be engaged by the finger 84 secured to a vane associated with the particular series of apertures.

With this arrangement it is possible to unlock a desired vane from the actuator and to lock it in any desired angular position by merely releasing the screws 82 which fasten the strip 80 to the vane, moving the vane to the desired angular position and inserting the finger 84 in the proper aperture 91. The screws 82 may be tightened to lock the finger in this adjusted position. At the same time the remainder of the vanes can be rotated simultaneously by movement of the arm 66 which causes movement of the actuator plate 60 and consequent rotation of the vanes attached thereto. It is to be understood of course, that while the two end vanes have not been shown as being provided with strips 80, such strips can be included, in which event each vane of the assembly can be either individually adjusted or simultaneously rotated.

In addition to serving simply as registers the devices disclosed herein are capable of other uses. For example, a device made in accordance with any of the embodiments of the invention may have the vanes thereof locked in desired positions and when so locked the device can be secured at any point in an air duct to serve as an aid in directing flow of air through the duct. Particularly, a device in accordance with the foregoing, can be employed to facilitate change of direction of air flow for which purpose the device can be locked in or adjacent to a bend in the duct to prevent the setting up of any currents or the like.

Any of the arrangements disclosed herein may be modified, and if desired, features shown in one embodiment may be incorporated in another embodiment. It will be apparent that the invention provides an improved structure wherein the various vanes may be individually adjusted. Furthermore, the invention provides structure in which the vanes may be simultaneously adjusted through a single actuating device and any or all of the vanes associated with such an actuator may be individually adjusted, and if desired, locked in such individually adjusted positions. Accordingly, any limitations imposed on the in-

vention are to be only those set forth in the following claims.

We claim:

1. A register comprising a casing, a plurality of vanes rotatably mounted in said casing with their longitudinal axes in substantial parallelism, a driving member, connections between said driving member and said vanes, and means for operating said driving member to simultaneously adjust all of said vanes, said connections being removable, whereby any of said vanes may be adjusted independently of the other of said vanes, and means for holding a vane in any of a plurality of adjusted positions while other vanes are adjusted simultaneously by operation of said driving member.

2. A register comprising a casing, a plurality of vanes rotatably mounted in said casing with their longitudinal axes in substantial parallelism, operating means connectible to said vanes for simultaneously adjusting all of the vanes, said vanes being individually separable from said operating mechanism, whereby any vane can be adjusted independently of the other vanes, and means for holding a vane in any of a plurality of adjusted positions while other vanes are adjusted simultaneously by operation of said operating means.

3. A register comprising a casing, a plurality of vanes, each vane having a pintle projecting at each end from its longitudinal central axis, the pintles being mounted in opposite sides of the casing, each vane having a disc mounted on one of its pintles for rotation therewith, a driving rod connected to each disc, a lever pivotally mounted

on the casing and connected to the driving rod for operating the vanes simultaneously, the connections between the driving rod and the disc being detachable, and means for holding a vane in any of a plurality of adjusted positions while other vanes are adjusted simultaneously by operation of said driving rod.

4. A register comprising a casing, a plurality of vanes rotatably mounted in said casing, an actuator member slidably secured near one end of said vanes, connections between said vanes and said actuator whereby movement of the actuator causes simultaneous rotation of said vanes, said connections being separable from said actuator whereby a vane may be adjusted independently of the other vanes and means carried by the vanes and engaging cooperating parts of the casing for locking an individual vane in adjusted position.

5. A register comprising a casing, a plurality of vanes rotatably mounted in said casing on substantial parallel axes, an actuator slidably secured in said casing adjacent one end of said vanes, locking members secured to the respective vanes and movable into position engaging parts of said actuator for causing simultaneous rotation of all vanes having their locking members so engaged, said locking members being independently movable from actuator-engaging position to release the connection therewith and being movable into position engaging cooperating formations in said frame to lock an individual vane in adjusted position.

JAMES H. BAILEY.
FRANK T. BAILEY.