Dec. 13, 1938. L. E. HEASLEY 2,139,893

ADJUSTABLE REGISTER

Filed Sept. 30, 1936 2 Sheets-Sheet 1

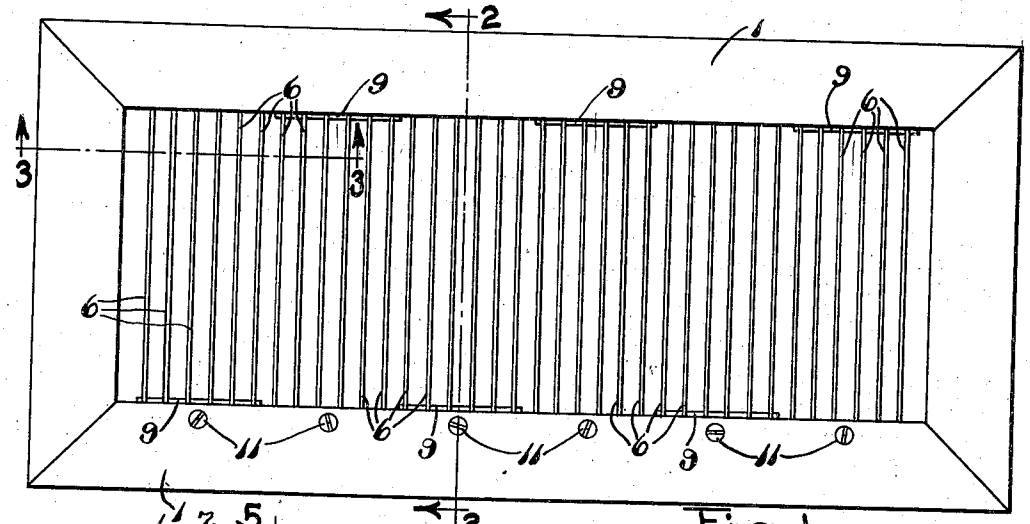


Fig. 1.

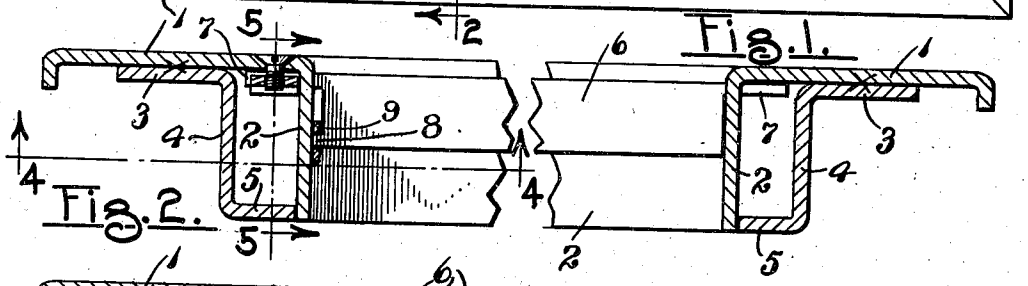


Fig. 2.

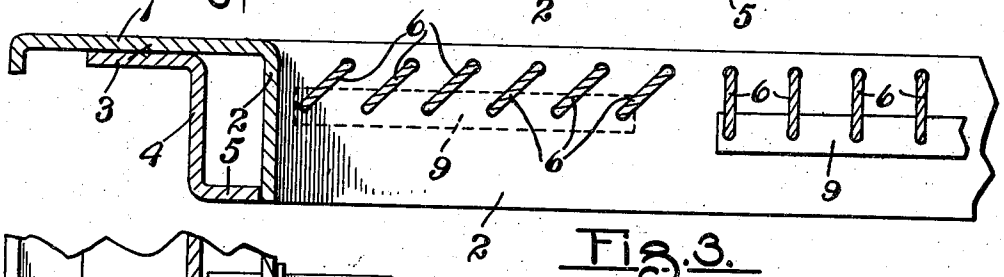


Fig. 3.

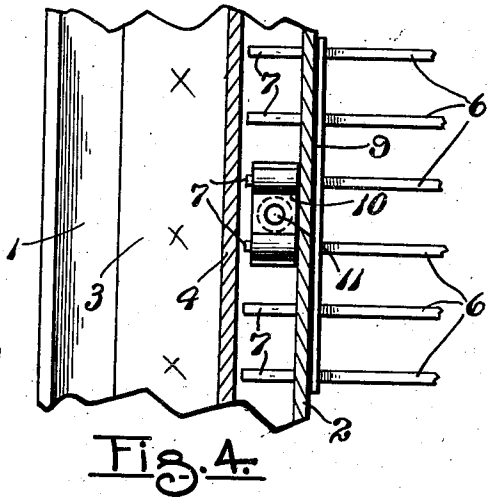


Fig. 4.

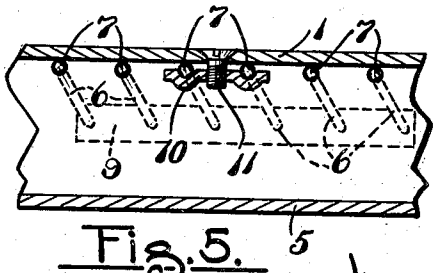


Fig. 5.

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ADJUSTABLE REGISTER

Filed Sept. 30, 1936 2 Sheets-Sheet 2

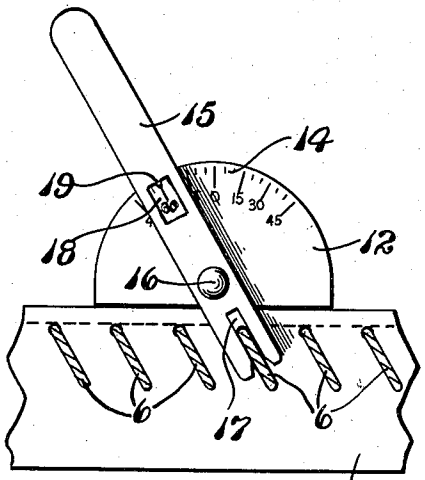


Fig. 6.

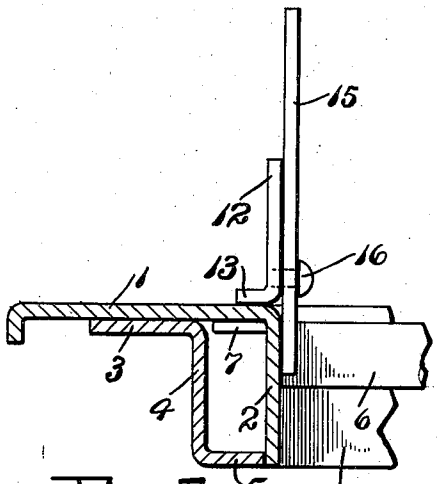


Fig. 7.

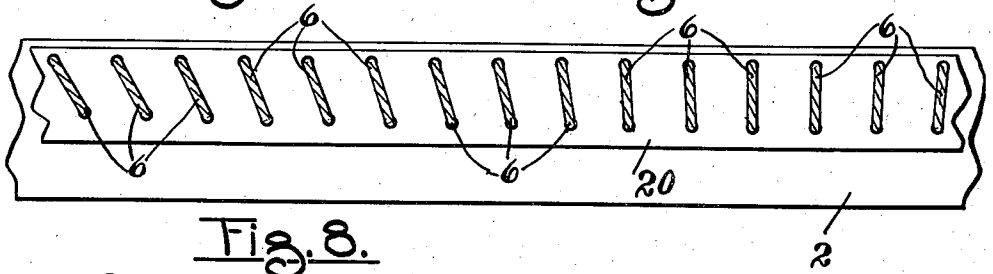


Fig. 8.

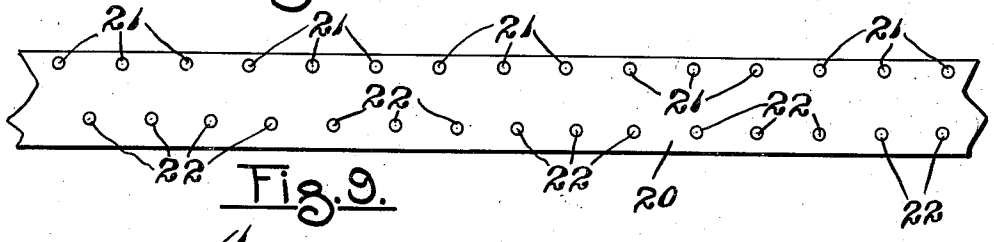


Fig. 9.

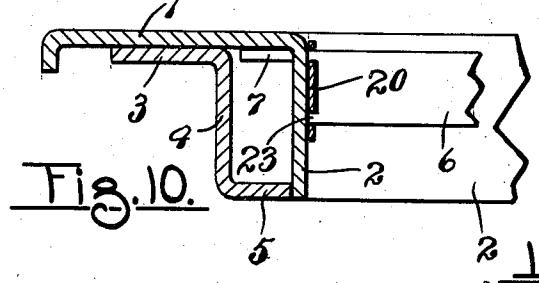


Fig. 10.

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UNITED STATES PATENT OFFICE

2,139,893

ADJUSTABLE REGISTER

Loyd E. Heasley, Holland, Mich., assignor to Hart & Cooley Manufacturing Company, Dover, Del., a corporation of Delaware

Application September 30, 1936, Serial No. 103,330

3 Claims. (Cl. 98—107)

This invention relates to an adjustable hot air register. Registers of the character stated are mounted in the walls of a room and usually include an open supporting frame across which are a plurality of vanes or flat bars, warm air from a furnace pipe passing through the bars into the room.

With my invention the bars are mounted in such a manner that those at different parts of the register may be adjusted to different angles with respect to each other and to the plane of the face of the register so as to direct the warm air passing therethrough in desired directions. If all of the bars are located in planes at right angles to the face of the register all of the air is directed straight out from the register. With my invention the bars across the register may, at the central portion, be located at right angles to the plane of its face and at distances away from the center may be positioned at different angles so that the air passing through the register is caused to spread out or diverge, the degree of spread depending upon the angle at which the register bars may be positioned. It is also possible with my invention to cause the air to converge and not spread outwardly from the register if such an effect is desired. The adjustment of the bars is a matter of choice to obtain an indefinite number of effects in the manner in which the air passes through and from the register.

It is a primary object and purpose of the present invention to provide a register of the character stated and one which can be manufactured economically, which is durable in use and which serves the purposes fo which it is designed in a very efficient manner. The invention may be understood from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a front elevation of a register embodying my invention.

Fig. 2 is a transverse section substantially on the plane of line 2—2 of Fig. 1.

Fig. 3 is a fragmentary longitudinal section substantially on the plane of line 3—3 of Fig. 1.

Figs. 4 and 5 are sections on the planes of lines 4—4 and 5—5 respectively of Fig. 2, all sections being taken looking in the directions indicated by the arrows.

Fig. 6 is a fragmentary section similar to Fig. 3 indicating the means used to adjust the register bars to different angular positions.

Fig. 7 is a fragmentary section similar to Fig. 2 showing the adjusting tool in edge view.

Fig. 8 is a fragmentary section on a plane like that shown in Fig. 3 showing a modification in structure of the register.

Fig. 9 is a fragmentary elevation of the locating bar for the register bars in the form of structure shown in Fig. 8, and

Fig. 10 is a fragmentary section through one side of the modified form of register, the section being similar to that shown in Fig. 2.

Like reference characters refer to like parts in the different figures of the drawings.

The open register frame is of rectangular form and has sides and ends pressed or otherwise formed from flat metal into angular shape in cross section providing an outer face 1 with inturned legs or flanges 2 disposed at right angles to the face 1 and at the inner edges of said parts 1. The frame is reinforced by Z-bars having a flange 3 spot welded to the rear side of the face members 1, a web 4 paralleling the inwardly extending legs 2 and a flange 5 extending from the inner edge of the web 4 to said legs 2 as shown in Figs. 2 and 3. A plurality of elongated flat register bars 6 are located between the upper and lower sides of the frame and at their outer edges have extending pintles 7 passing through suitable openings in the upper and lower flanges 2 of the frame whereby the register bars 6 are spaced from each other and pivotally mounted for adjustment to different angular positions. At one end (see Fig. 2) a part of each bar 6 is cut away to provide a projection 8 adjacent the inner edge of each bar.

The bars 6 are joined together in separated banks by connecting bars 9 which have openings to receive the projections 8 on a selected number of the bars 6. For example, in Fig. 3, six of the bars 6 are shown as connected with a single connection bar 9. In this manner the whole number of bars 6 from one end to the other of the register are divided in banks, the bars in each bank being connected together so that all of the same are adjustable simultaneously to the same angle. To hold the plurality or bank of bars 6, which are thus connected together by the bar 9, a clip 10 of the form shown in Figs. 4 and 5 is located so as to bear against two adjacent pintles 7 at one end of the bars 6 and is clamped against said pintles by means of a screw 11 which passes through the face 1 and threads through the clamping member 10 (Figs. 2 and 5) thereby providing a releasable clamp for holding a bank of the bars in any angular position to which adjusted. There will be one of these clamping clips for each of the banks of bars described. It is, of course, to be understood that the number of the register bars 6 which are joined together in a bank may be varied in the

same register or that it is not at all essential that six of the bars shall be joined together in any register but a greater or less number can be thus joined as appears best.

With this construction the several banks of bars may be adjusted to different angular positions and each bank of bars may have a different angular position than any of the others. I have provided a suitable tool for adjusting any of the banks of bars to a selected angular position, as shown in Figs. 6 and 7. The tool comprises an arc-shaped plate 12 having a right angle bent flange 13 which may rest against a frame 1. The arc-shaped member 12 of the tool carries an indicating scale 14 which is a scale of degrees. A handle 15 is pivotally mounted on a pivot pin 16 at the center of the arc-shaped plate 12 and has a projecting lower end slotted at 17, in which a slot at the upper edge portion of a bar 6 is adapted to be received. The handle 15 is provided with an opening 18 over the indicating scale 14 and with a pointer 19 which when it is moved to any particular indicating figure on the scale insures that the bars 6 will be adjusted to the angle indicated. Then after a bank of bars has been adjusted to a particular position the screw 11 for the clamp associated with the particular bank is tightened and the bars are firmly held against change of position. The bars at the middle portion of the register may be adjusted so as to stand at right angles to the plane of the face of the register. Those next to the middle banks might be adjusted to diverge therefrom oppositely at angles of 15°, for example, and those still farther out adjusted to diverge at angles of 30°; or any other selected angles of adjustment may be used. Likewise, the bars may be adjusted outwardly from the middle sections so as to converge toward said sections as indicated in Fig. 3. The adjustment is a matter of choice and to obtain the best passage of air and the movement thereof in a direction which is desired.

In Figs. 8, 9 and 10 a modified form of structure is shown. The frame is the same as in the previously described register structure and the register bars 6 are the same substantially in all respects. Instead of a number of the bars being joined together in a bank as previously described all of the bars 6 are connected with a single flat bar 20 which lies alongside of one of the legs 2, and which has openings 21 through which all of the pintles 7 of the register bar 6 pass as shown in Fig. 10. The bars 6 in this form of structure are likewise cut away at the end where the bar 20 is located to provide projections 23 which are seated in openings 22 in bar 20. These openings 22 may be located at any desired or selected positions in the length of the bar 20 so as to give different angular positions to the register bars 6. For example, as shown in Fig. 8, the middle register bars 6 (at the right in Fig. 8) are substantially at right angles to the face of the register and to the left the bars 6 diverge away from such right angular position in progressive increasing amounts. Of course, the openings 22 may be differently positioned so that all of the register bars 6 are disposed at right angles to the face of the register; or any other desired position of the bars 6 at different places in the length of the register may be provided by suitable location of the openings 22.

With the present invention a simple and very effective structure of register for controlling the direction of air passing through the register is provided in a very simple practical and effective manner. The register of my invention has proven very successful in use. The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A register comprising, an open frame having spaced apart parallel sides, each of said sides having spaced pivot receiving openings therein in the lengths of the sides, grille bars extending between said sides of the frame, each of said bars at each end and adjacent one edge thereof having a projecting pivot passing through said openings in the opposite sides of the frame, each of said bars at one end having an intermediate portion removed to provide projections adjacent the opposite edges of said grille bars, and a connecting bar located at the inner side of and alongside one of said sides of the frame having pivot pin openings through which the pivots on said grille bars pass, said pivot openings being located adjacent one edge of the connecting bar, said connecting bar adjacent its opposite edge having spaced openings in which the said projections on the grille bars are received.

2. A register comprising an open frame, a plurality of grille bars located within the frame opening and each having two spaced apart projections on one of its ends and a connecting bar located adjacent one side of said frame and having pairs of openings corresponding in number to said grille bars and each pair of openings receiving the said two projections at the end of each respective grille bar.

3. The elements in combination defined in claim 2 in which one of said projections on each grille bar is longer than the other and said side of said frame is provided with openings into which the longer projections of said grille bars extend.

LOYD E. HEASLEY.