Dec. 16, 1930. W. K. GAMMETER 1,785,253

COVER FOR REGISTERS AND RADIATORS

Filed July 21, 1928 2 Sheets-Sheet 1

Fig 1

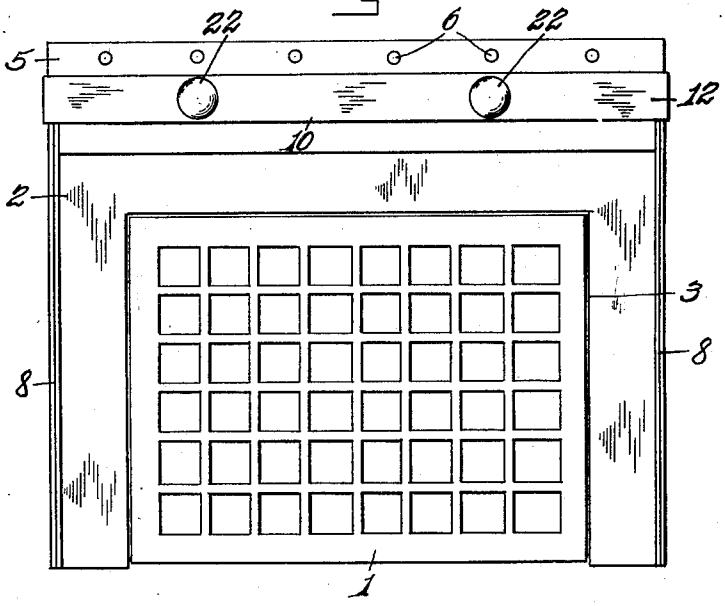


Fig 3

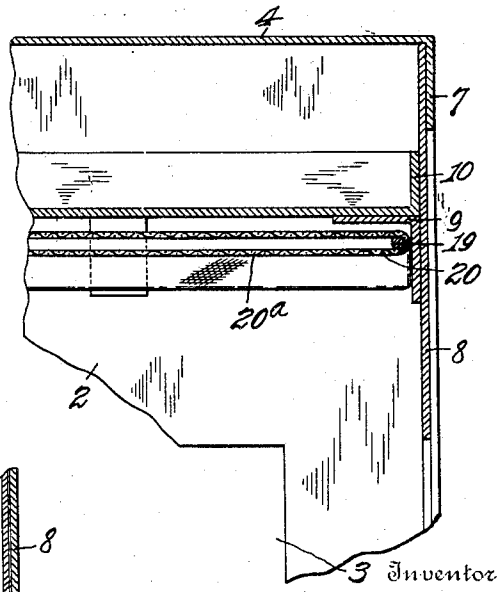


Fig 2

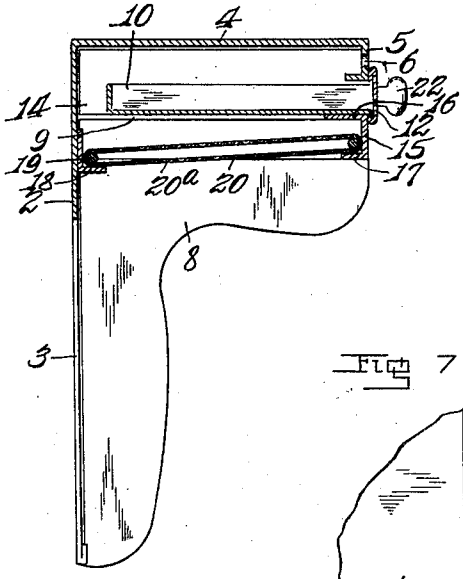
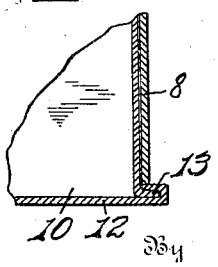


Fig 7



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COVER FOR REGISTERS AND RADIATORS

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Fig 4

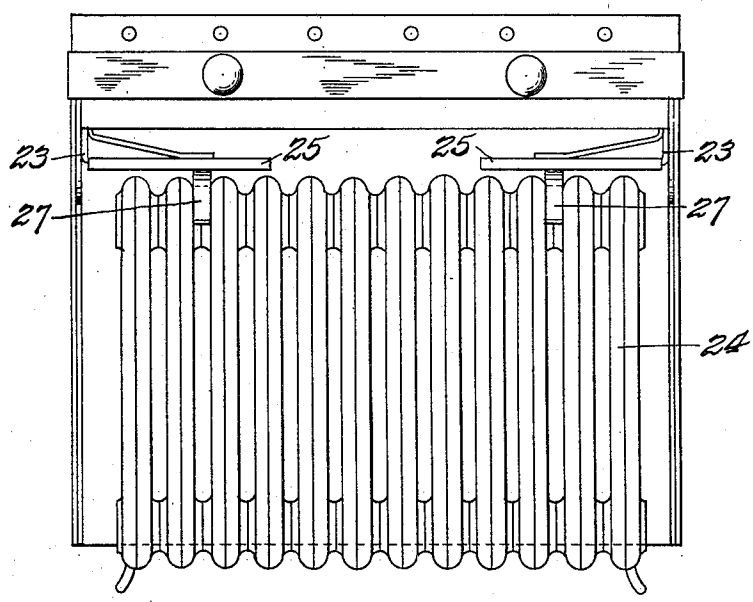


Fig 5

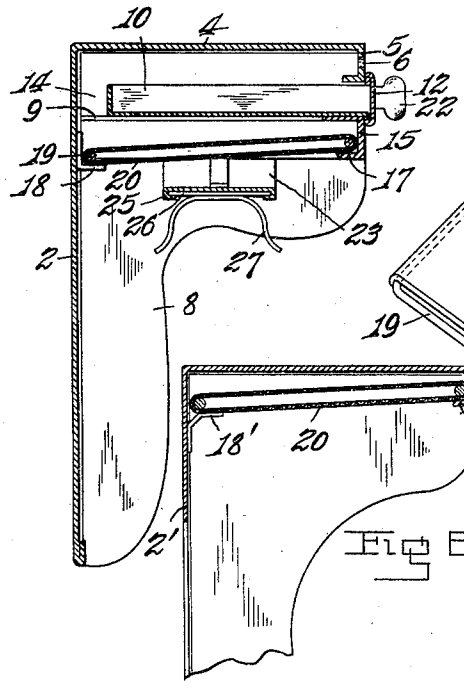


Fig 6

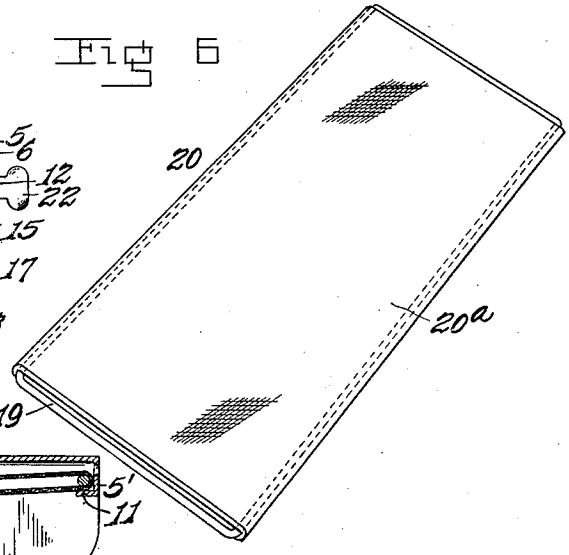


Fig 8

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Patented Dec. 16, 1930 1,785,253

UNITED STATES PATENT OFFICE

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COVER FOR REGISTERS AND RADIATORS

Application filed July 21, 1928. Serial No. 294,522.

This invention relates broadly to covers and humidifying attachments for hot air registers and for heat radiators, and it has for its primary object to provide an inexpensive and attractive cover or shield which may be readily applied to a hot air register or to a steam or hot water radiator to protect the wall of a room adjacent to the register or to the radiator.

A further object is to provide simple means whereby the heated air rising from the register or radiator is filtered and relieved of dust particles and, at the same time is humidified by absorbing moisture before passing into the room.

The invention also seeks to provide a simple and efficient air filter which may be easily removed when cleaning, renewal or repair may be necessary.

With these and other objects in view, the invention resides in the features of construction, arrangement of parts and combinations of elements which will hereinafter be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the invention applied to a hot air register;

Figure 2 is a transverse vertical section of the same;

Figure 3 is a longitudinal vertical section of one end portion of the device on a larger scale;

Figure 4 is a front elevation of the invention applied to a radiator;

Figure 5 is a transverse section of the structure shown in Fig. 4.

Figure 6 is a detail perspective view of the air filter;

Figure 7 is a detail horizontal section through a corner of the water pan; and—

Figure 8 is a view similar to Fig. 5, showing a modification.

Referring to said drawings, 1 designates the usual grille of a hot air register which may be of any approved design, the same being generally of a rectangular form, as shown. In carrying out the present invention, there is provided a back plate 2 which is open, as shown at 3, to provide a recess or opening adapted to fit about the top and lateral edges of the radiator grille and which rests against the wall adjacent to and surrounding the register, as is clearly shown in Fig. 1. The back plate 2 has formed integrally therewith a top 4 which projects forwardly therefrom and which is provided with a downturned flange or front wall member 5 having therein openings 6 of any appropriate form. The top 4 has downturned end portions 7 which fit against and are suitably attached to side plates 8, as by rivets, spot-welding or brazing. As shown in Fig. 2, the side plates 8 may be given an ornamental contour. Said plates further serve to prevent direct circulation of the hot air currents laterally from the register.

Secured to the inner surfaces of the side plates are right angular brackets or cleats 9 which constitute guides and supports for a water pan 10 which is preferably in the form of a drawer. Said brackets are located at a spaced distance below the front wall member 5 to provide an opening through which the pan is insertible and removable. Said pan or drawer is made of shallow, open-top, receptacle form and has a front wall 12 of greater vertical extent than that of the opening provided for the insertion of the drawer, which front wall projects at its ends beyond the ends of the drawer and which is connected with the side walls of the drawer by a reentrant flange 13, as shown clearly in Fig. 7, this flange being adapted to impinge against the front edge of the side plates 8 and thereby limit the inward movement of the drawer so that the back of the drawer will always be spaced from the back 2 of the casing to provide an open air space or passage 14, as is clearly shown in Fig. 2. Alined horizontally with the cleats or supporting brackets 9 and joining the side plates 8 is a rail 15 which is preferably provided with an upper flange 16 to guide and support the front portion of the water pan or drawer and also provided with a lower flange 17 constituting a support for the adjacent edge of an air filter, designated generally by the reference character 20. Secured to the back 2 are brackets 18 which support the rear edge of the filter.

The air filter 20, as is most clearly shown in Fig. 6, comprises a rectangular frame 19 of stout wire, preferably more or less resilient, and a covering 20^a of a suitable textile or woven material which fits around the frame 19 and is held distended thereby. The frame 19 has one side supported by the flange 17 and the other side by the bracket 18, the bracket preferably being somewhat lower than the flange so that the filter will be disposed in a slightly inclined position as shown in Fig. 2. Should it be desired to remove the filter for any purpose, as for cleaning, the rear edge can be moved upward slightly which movement will withdraw the front edge thereof from the flange 17, whereupon the entire filter may be removed by downward movement.

The heated air currents flowing outwardly through the grille of the register naturally take an upward course in which they engage the textile covering 20^a of the air filter. Air which passes through the pores or interstices of the textile fabric is effectually filtered, the particles of dust being caught by and adhering to the surface of said fabric. The air, so filtered, is turned rearwardly by the bottom of the water pan or drawer and rises through the air passage 14, thence to flow forwardly over the surface of the water in the pan or drawer and finally emerges through the openings 6 into the room. In this passage over the pan, the heated air vaporizes the water and the moist vapor is carried into the room with the heated air currents. It has been demonstrated that when the heated air is thus humidified, a lower temperature will keep the building comfortable so that less fuel will be required than in instances where the air is perfectly dry. Moreover, the humid air has no bad effects upon the joints of the wood trimming or of the furniture within the room.

The water pan or drawer 10 is, of course, provided with knobs 22 which give it an ornamental appearance and which also facilitate the handling of the same.

In the form of the invention shown in Figs. 4 and 5, there is employed the same casing, the same air filter and the same water pan or drawer. In addition, brackets 23 are provided at the ends of the casing to project inwardly therefrom over the radiator 24, and said brackets are provided on the under sides of their front and rear edges with grooved flanges or cleats 25 which form guideways in which plates 26 are slidably engaged. Clips 27 of a general U-shape type are attached to the under sides of these plates to fit over the nipples between adjacent radiator sections, as shown in Fig. 4, for supporting the device upon the radiator, the adjustability of the plates permitting the clips to be easily set to conform to the size of the radiator and the spacing of the sections thereof. While the back plate of the casing in this instance may be the same in all respects as the back plate 2 shown in Figs. 1, 2 and 3, it may be a continuous plate covering the entire back area of the radiator, and I have so illustrated it. The circulation of air and the filtering of the same is the same as that previously described. It will be particularly noted that when the device is applied to a radiator, the pan is close to the top of the radiator so that the water will be effectually vaporized by the rising air currents. The dust pad or air filter is disposed between the radiator and the pan so that the air which plays over the water in the vaporizing pans is free of dust and, therefore, carries no dust into the room.

The rising air currents passing through the air filter are diverted to the rear of the pan so that, being permitted to discharge into the room through the front of the casing, they must travel over the top of the pan in absorbing contact with the water vapor. The air filter is easily removable from beneath the water pan when it is to be cleaned, renewed, or repaired, and may be removed or inserted without in any way disturbing the water pan; also without disturbing the top of the casing.

In the modification shown in Fig. 8, the water pan is wholly dispensed with and the air filter 20 has its front edge mounted on a rearwardly directed flange 11 formed at the lower edge of the vertical wall member 5'. The rear edge of said filter seats upon a bracket or brackets 18' mounted on the rear wall 2' of the casing. Heated air directed upward through or against the filter is cleansed by impact with the latter, being thence directed forward into the room.

What is claimed is:—

1. In an air filtering and humidifying attachment for registers and radiators, a casing-like shield comprising side walls, front and rear walls and a top, all occupying permanently fixed relation, a drawer-like water pan occupying a position wherein it is enclosed by said shield walls, said pan being slidable through the front shield wall to and from said position, said pan being spaced from the top wall to provide an intermediate horizontal air passage and having its rear edge spaced from the rear shield wall to provide a vertical air passage opening into said horizontal passage, said front wall having therein air discharge openings located above the level of said pan, and means for filtering air passing to said vertical passage.

2. In an air filtering and humidifying attachment for registers and radiators, a casing-like shield comprising side walls, front and rear walls and a top, all occupying permanently fixed relation, a drawer-like water pan occupying a position wherein it is enclosed by said shield walls, said pan being slidable through the front shield wall to and from said position, said pan being spaced

from the top wall to provide an intermediate horizontal air passage and having its rear edge spaced from the rear shield wall to provide a vertical air passage opening into said horizontal passage, said front wall having therein air discharge openings located above the level of said pan, supports carried by the front and rear walls below the level of said pan, and a dust-arresting air filter adapted to be seated and unseated from below with respect to said supports for filtering air passing to said vertical passage.

In testimony whereof, I affix my signature.

WILLIAM K. GAMMETER.