

Sept. 7, 1965

W. M. ERICSON

3,204,547

VENTILATING SYSTEM USING VALVED PORTS BETWEEN PANELS

Filed May 24, 1962

2 Sheets-Sheet 1

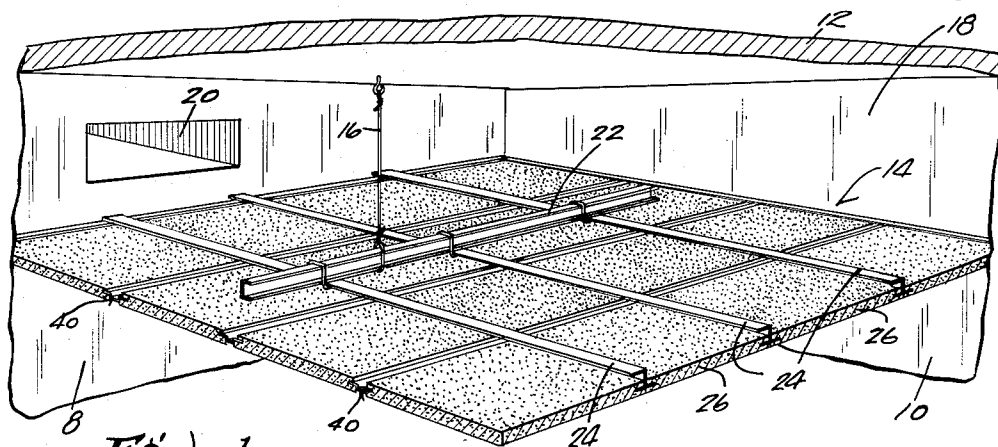


Fig. 1

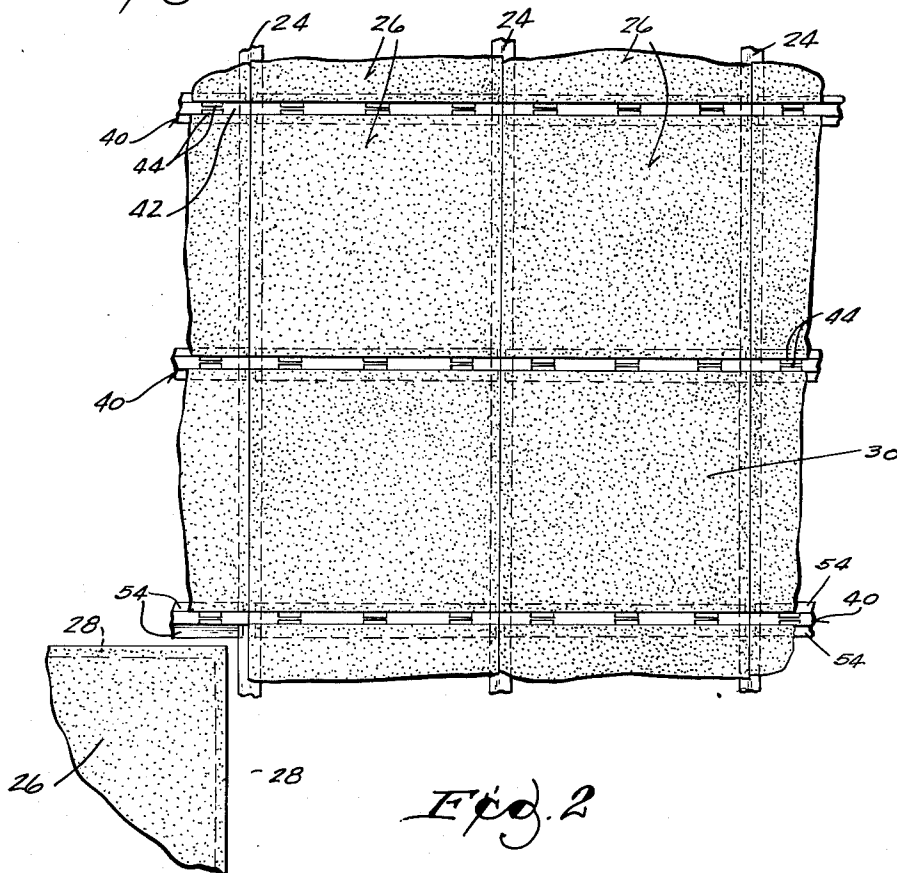


Fig. 2

INVENTOR.

WALTER M. ERICSON

BY

Wheeler, Wheeler & Wheeler
ATTORNEYS

Sept. 7, 1965

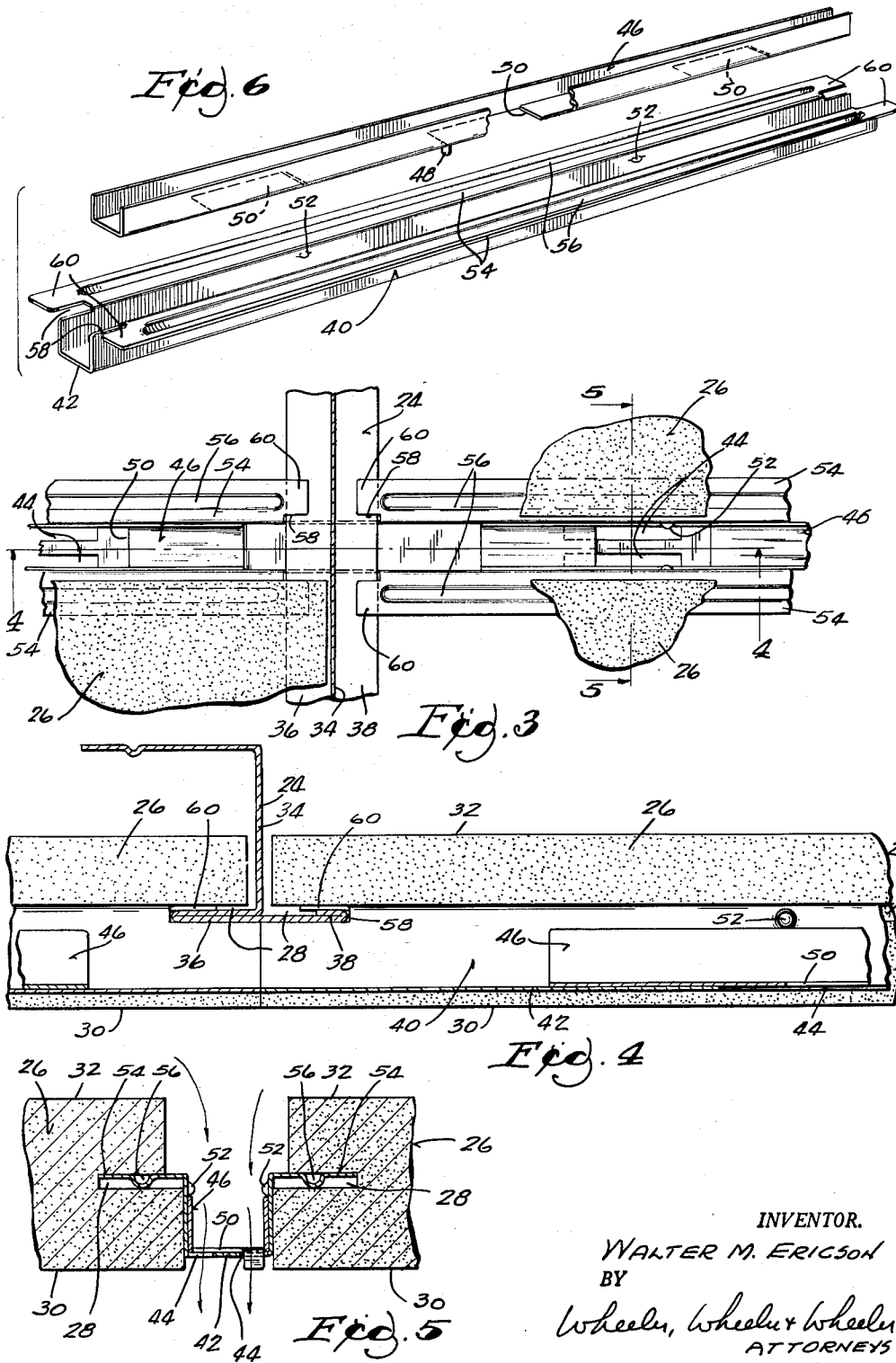
W. M. ERICSON

3,204,547

VENTILATING SYSTEM USING VALVED PORTS BETWEEN PANELS

Filed May 24, 1962

2 Sheets-Sheet 2



INVENTOR.

WALTER M. ERICSON

BY

Wheeler, Wheeler & Wheeler
ATTORNEYS

1

2

3,204,547 VENTILATING SYSTEM USING VALVED PORTS BETWEEN PANELS

Walter M. Ericson, Milwaukee, Wis., assignor, by mesne assignments, to United States Gypsum Company, a corporation of Illinois

Filed May 24, 1962, Ser. No. 197,352

3 Claims. (Cl. 98—40)

This invention relates to a ventilating system using 10
valved ports between panels.

For the purposes of this application the ventilation may involve merely a supply of fresh air or it may involve supplying cooled or heated air to a room or other enclosure. The invention will be described with reference to 15
a false ceiling, the ceiling being the usual wall through which air is supplied in a system of the type under consideration.

The false ceiling is spaced below the true ceiling to provide a plenum chamber from which an air conduit 20
opens. In many valving arrangements, the tiles themselves are ported. In this instance, the porting is provided between tiles. In the preferred organization illustrated the tiles have kerfs on all four side margins. At two opposite sides of each tile its kerfed margins are supported on a runner. This results in a row of tiles between parallel runners. Between successive tiles in each row valve controlled ports are provided to control flow of air to or from the plenum chamber and the room to be ventilated.

Broadly it is immaterial whether this is done in a manner which also provides support for the margins of the tile at which the valve controlled ports are located. Support is not necessary, since the support derived from the parallel runners at the other two sides of the tile is adequate. However, in the disclosed preferred embodiment of the invention the valved ports are provided by means of a channel-shaped spacer having flanges engaged in the kerfs of consecutive tiles in the row, thereby slightly spacing such tiles or panels. The web at the bottom of the channel provides the ports and the valving means comprises slides reciprocable along the bottom web. If the valve controlled porting is provided by channelled metal spacers in accordance with the preferred practice of the invention, these spacers may have terminal portions resting on the suspended runners aforesaid, whereby the channel-shaped spacers are carried directly from the runners and contribute to the support of the panels with which they are engaged.

In the drawings:

FIG. 1 is a fragmentary detail view in perspective looking into a plenum chamber above a false ceiling, the true ceiling being viewed from below and the false ceiling being viewed from above.

FIG. 2 is a fragmentary bottom plan view on an enlarged scale showing the under surface of a false wall (ceiling) embodying the invention.

FIG. 3 is a fragmentary plan view further enlarged showing a portion of the ceiling structure as viewed from above, with some of the tile omitted.

FIG. 4 is a still further enlarged detail view taken in section on the line 4—4 of FIG. 3.

FIG. 5 is a further enlarged detail view taken in section on the line 5—5 of FIG. 3.

FIG. 6 is an "exploded" view on the scale of FIG. 3 showing in perspective a relatively separated channelled spacer and a valve therefor.

FIG. 1 is a view looking into the corner of a room whereof three walls 8, 10 and 12 are visible, the latter constituting the true ceiling in this preferred embodiment of the invention. A partition, here comprising a false

ceiling generically designated by reference character 14 is suspended beneath the true ceiling wall 12 by any appropriate means, such as supporting wires, one being shown at 16. The intervening space at 18 constitutes a plenum chamber with which the ventilating duct 20 communicates.

The supporting wire 16 is attached to a soffit 22 which supports the runners 24. These are parallel and uniformly spaced to receive between them rows of tiles or panels 26. Each such tile is provided around all four sides with kerfs 28. The lower portion of each tile below its marginal kerfs is slightly greater in area than the portion above the marginal kerfs. Thus the finished lower surfaces 30 of the respective tile are substantially continuous in a direction transverse respecting the runners 24, as clearly appears in FIG. 4. The upper surfaces 32, these being exposed to the plenum chamber, are slightly spaced laterally to receive between them the vertical web 34 of one of the runners 24, as is also shown in FIG. 4. The material of the runner is folded upon itself to provide a laterally projecting flange at 36 and it extends across the joint between panels 26 to provide an oppositely projecting lateral flange 38, the flanges 36 and 38 being engaged in the kerfs 28 of the panels 26 of the laterally adjacent 25 rows.

Port and valve means is provided between the panels of a row. This may be done in many ways. In this preferred embodiment, instead of having the respective panels in abutment longitudinally of the respective rows of panels between runners, the port and valve means is incorporated in auxiliary supports for the panels. For this purpose, the panels are spaced in the row by intervening spacer channels 40 as shown in FIG. 5. Each such channel 40 has a bottom web at 42 provided with ports 44 through which air flow can pass subject to the control of a valve which comprises a complementary channel 46 reciprocable longitudinally of the channel-shaped spacer 40. The valve is separately illustrated in FIG. 6. It may have a depending tab 48 projecting through one of the ports 44 to facilitate the manipulation of the valve to move it to or from registration of its ports 50 with the ports 44 of the spacer channel. Retaining lugs 52 may be provided by inwardly deforming the sides of the spacer channel 40 to retain the valve channel 46 within the spacer channel. It will be noted that the ports 44 are preferably arranged side by side in the bottom web 42 of the spacer channel, while the valve channel 46 may have a single broad port 50 registrable with both ports 44 of a given pair.

The spacer channel is desirably provided with laterally projecting flanges 54 engaged in the kerfs 28 at opposite ends of the panels or tiles 26 which are consecutive in a given row between the runners 24. Although the vertical dimensions of the kerfs exceed one thickness of metal (being sufficiently great to receive the folds of flanges 36 and 38) a tight fit of the flanges 54 can be provided by constructing flanges 54 with ribs 56 as shown in FIGS. 3, 5 and 6.

As already noted, the panels or tiles derive adequate support from the runners 24 between which they are arrayed in rows. However, additional rigidity may optionally be provided for the partition by forming the side flanges 54 of the spacer channels 40 with notches 58 to receive the flanges 36 and 38 of the respective runners, each such flange 54 having a tongue projecting at 60 outside the notch to rest on the side flange of a runner at each end of the spacer channel. Thus the spacer channels are directly supported on the runners and, in turn, have their flanges engaged in the kerfs of the tiles or panels of the false ceiling, whereby the tiles or panels receive support on two sides directly from the runners and on the

3

other two sides indirectly from the runners by means of the intervening means which provides the valved ports.

Except as explicitly stated in the appended claims, I do not desire to limit my invention to the preferred embodiment herein disclosed.

I claim:

1. In a ventilating structure having a partition through which controlled air circulation is effected, said partition having an exposed surface and an opposed concealed surface, and comprising a plurality of kerfed edge panels arranged in side by side substantially coplanar relation, supported first runners arranged in spaced substantially parallel rows, said runners engaging corresponding first opposed kerfed edges of said panels, and second runners disposed in spaced substantially parallel rows arranged transversely with respect to said first runners and being supported thereby, said second runners engaging corresponding second opposed kerfed edges of said panels; each second runner including a channel shaped central section having spaced leg portions engaging the edges of adjacent panels and being disposed substantially normal to the exposed surface of said partition, and an apertured web portion interconnecting said leg portions, said web portion being adjacent to and substantially coplanar with said partition exposed surface, and end flanges extending laterally in opposite directions from corresponding free edges of said leg portions remote from said web portion, said end flanges being disposed within the kerfs formed in the edges of the panels engaged by said leg portions; and a valve element resting upon said web portion and being manually slidable thereon to selected positions to effect opening or closing of the apertures formed in said web portion and control the circulation of air through said partition.

4

2. A runner for use in supporting a plurality of kerfed edge panels in side by side substantially coplanar relation to form a partition through which controlled air circulation is effected, said runner comprising a channel-shaped central section having a pair of spaced substantially parallel leg portions engageable with the opposed kerfed edges of adjacent panels, an apertured web portion interconnecting corresponding edges of said leg portions, said web portion having an exposed outer surface adapted to be positionable adjacent an exposed surface of such a partition, and end flanges extending laterally from the corresponding opposite edges of said leg portions and being positionable within the kerfs formed in the panel edges engageable by said leg portions, and an elongated valve element resting upon an inner surface of said web portion and being slidable with respect thereto, said valve element being manually movable to selected positions of adjustment to effect opening and closing of the apertures formed in said web portion.

3. The runner recited in claim 2 wherein longitudinally extending open end slots are formed adjacent opposite ends of said channel shaped central section and at the junctures of said end flanges and said leg portions.

References Cited by the Examiner

UNITED STATES PATENTS

2,648,102	8/53	Jacobson	98—40
2,859,681	11/58	Rachlin	98—40
2,920,357	1/60	Ericson	98—40
3,001,464	9/61	Moore	98—40
3,103,868	9/63	Kodaras	98—40

ROBERT A. O'LEARY, *Primary Examiner.*