My invention relates to a heat exchange unit and more particularly one that is concealed and employs a stack or chimney leading from its heat exchange element which includes a core having a plurality of spaced tubes through which a heat exchange fluid is circulated. Energy released from a heat exchange element of this type is largely governed by the amount of air which passes therethrough and in the present instance obtained by a stack.

It is well known that a tall stack of small conducting capacity has a more positive stack effect than a stack having a large conducting capacity of the same height. In a relatively short stack having a large conducting capacity, there is a tendency for the air to obtain a higher velocity at the center of said stack than at the sides thereof and possibly a downward movement of air at said sides. This cross-circulation or conflicting currents of air in a stack will decrease the amount of air passing upward therethrough and consequently decrease the efficiency of the heat exchange element. One of the primary objects of this invention is to divide a stack above a predetermined conducting capacity into two or more flues to overcome any tendency of cross-circulation therein.

To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views. Referring to the drawings:

Fig. 1 is a fragmentary perspective view of a room having the invention installed in one of the partitions, the circulation of air being indicated by arrows;

Fig. 2 is a perspective view of the heat exchange unit removed from the partition, some parts being broken away and other parts sectioned, on an enlarged scale;

Fig. 3 is a perspective view of the stack removed from the unit, some parts being broken away and sectioned;

Fig. 4 is a fragmentary detail view in section taken on the line 4—4 of Fig. 3, on an enlarged scale;

Fig. 5 is a fragmentary view partly in front elevation and partly in vertical section showing the installation of the heat exchange unit before the lath and plaster have been applied to the partition;

Fig. 6 is a fragmentary detail view with some parts sectioned substantially on the line 7—7 of Fig. 1, on an enlarged scale; and

Fig. 7 is a fragmentary detail view with some parts sectioned on the line 7—7 of Fig. 1 on an enlarged scale.

The numeral 8 indicates a room having the invention installed in one of the partitions. It which is formed by uprights 10 and wall coverings 11 such as lath and plaster. Within the partition 9 is a compartment 12 formed by terminating certain of the uprights 10 short of the floor 13 and securing the same to a header 14. The width of the upper portion of the compartment 12 is reduced by a pair of secondary uprights 15 the upper ends of which are secured to the header 14 and the lower ends of which are secured to the adjacent uprights 10 by a pair of short cross-tie members 16 spaced above the floor 13.

The front of the wider or lower section of the compartment 12 has a service opening 17 surrounded at its sides and top by a wood ground 17 nailed to certain of the uprights 10 and the tie-members 16 and also affords a plaster strip. The service opening 18 is formed by the ground 17 is normally closed by a displaceable metal panel 19 screwed to said ground and having in its bottom portion a cold air intake grille 20. A rectangular frame 21 of channel iron at the top of the compartment 12 is secured to the header 14 and secondary uprights 15 and its sides and top afford a plaster strip. Detachably secured to the frame 21 is a hot air outlet grille 22 having a hinged damper 23.

Within the compartment 12 is a heat exchange unit which includes a boot 24, heat exchange element 25 and its pipe connection 26 which extend upward through the floor 13, stack 27 and deflecting hood 28. Said boot 24 is provided with legs 29 which sup-
port the same from the floor 13 just above the cold air intake grille 20. The heat exchange element 25 is made up of a plurality of laterally spaced horizontal tubes and a multiplicity of fins mounted thereon and by which element the cold air entering the grille 20 is heated during its upward passage through said element.

The stack 27 closely engages the top of the boot 24 and has on its front a plurality of lugs or plates 30 spot welded thereto. These lugs 30 overlap the front faces of the secondary upright 15 are nailed thereto and support said stack therefrom. The width of the stack 27 is slightly less than the distance between the two secondary uprights 15 above the stack 27 is a pair of spacing and nailing blocks 31. The upper edge portion of the stack 27 is turned inward upon itself to reinforce said stack and the deflecting hood 28 is loosely telescoped thereon and its lower edge portion is turned outward upon itself to reinforce said hood.

The discharge opening in the deflecting hood 28 closely engages the back of the frame 21 which has substantially the same contour. Said hood 28 snugly fits between the blocks 31. is nailed thereto and thereby supported independent of the stack 27. The entire heat exchange unit is mounted in the compartment 12 before the laith and plaster are applied to the partition and the hood 28 is nailed to the blocks 31 through the discharge opening in said hood.

Within the stack 27 are two laterally spaced partitions or baffles 32 which divide said stack into three flues which extend substantially the full height thereof. These baffles 32 are rigidly secured to the front and back of said stack 27 by folding their longitudinal edge portions laterally in reverse directions and spot welding the same to said stack.

The primary object of these baffles 32 is to divide the stack 27 which has a large conducting capacity into a plurality of individual flues each having a relatively small conducting capacity to overcome any tendency of cross-circulation which would decrease the efficiency of the stack 27. These baffles 32 also perform another important function in that they materially stiffen the stack 27.

Stacks of small conducting capacity, of course, need not be provided with a baffle.

This installation of a heat exchange unit permits the use thereof for temporary heat during the construction of a building. The panel 19 and grille 22 are not put in place until the plastering is completed.

What I claim is:

1. A heat exchange unit adapted to be mounted in a wall structure above an air intake opening therein, said unit comprising a heat exchange element, a stack leading from said element, a deflecting bonnet for the stack having an air outlet opening, and a baffle in the stack entirely above the heat exchange element, said baffle being constructed and arranged to prevent cross circulation of air in the stack while passing therethrough.

2. A heat exchange unit adapted to be mounted in a wall structure above an air intake opening therein, said unit comprising a heat exchange element, a stack leading from said element, a deflecting bonnet for the stack having an air outlet opening, and an upright baffle in the stack dividing the same into two independent flues that are entirely above the heat exchange element, said baffle being constructed and arranged to prevent cross circulation of air in the stack while passing therethrough.

3. A heat exchange unit adapted to be mounted in a compartment in a wall structure above an air intake opening therein, said unit comprising a heat exchange element, a stack leading from said element, a deflecting bonnet for the stack having an air outlet opening, and fastening means for securing the bonnet to the wall structure.

4. The structure defined in claim 3 in which the bonnet is loosely telescoped on the stack.

5. A heat exchange unit adapted to be mounted in a compartment in a wall structure above an air intake opening therein, said unit comprising a heat exchange element, a stack leading from said element, fastening means for securing the stack to the wall structure, said fastening means extending outward of the ends and one side of the stack, and a deflecting bonnet for the stack having an air outlet opening.

6. A heat exchange unit adapted to be mounted in a compartment in a wall structure above an air intake opening therein, said unit comprising a leg-supported heat exchange element, a stack leading from said element and having a plurality of lugs arranged to be secured to the wall structure for supporting the stack therefrom, and a deflecting bonnet on the stack having an air outlet opening.

7. A heat exchange unit adapted to be mounted in a compartment in a wall structure above an air intake opening therein, said element comprising a leg-supported heat exchange element, a stack leading from said element, and having a plurality of lugs arranged to be secured to a wall structure for supporting the stack therefrom, a deflecting bonnet loosely telescoped on the stack and having an air outlet opening, and fastening means for securing the bonnet to the wall structure.

8. A heat exchange unit adapted to be...
mounted in a compartment in a wall structure above an air intake opening therein, said unit comprising a heat exchange element, a stack leading from said element, fastening means for securing the stack to the wall structure and holding the same spaced therefrom at the sides of said compartment, a deflecting bonnet loosely telescoped on the stack and having an air outlet opening, means for holding the bonnet spaced from the sides of said compartment, and fastening means for securing the bonnet in respect to the wall structure.

A heat exchange unit adapted to be mounted in a wall structure above an air intake opening therein, said unit comprising a heat exchange element, a plurality of fastening means for securing the stack to the wall structure and holding the same spaced from the sides of said compartment, a deflecting bonnet loosely telescoped on the stack and having an air outlet opening, blocks for spacing the bonnet from the sides of said compartment, and fastening means for securing the bonnet to the spacing blocks.

In testimony whereof I affix my signature.

EDWARD H. SEELERT.