Oct. 4, 1949. R. L. LEIGH 2,483,704

AIR CONDITIONING SYSTEM AND REGISTER

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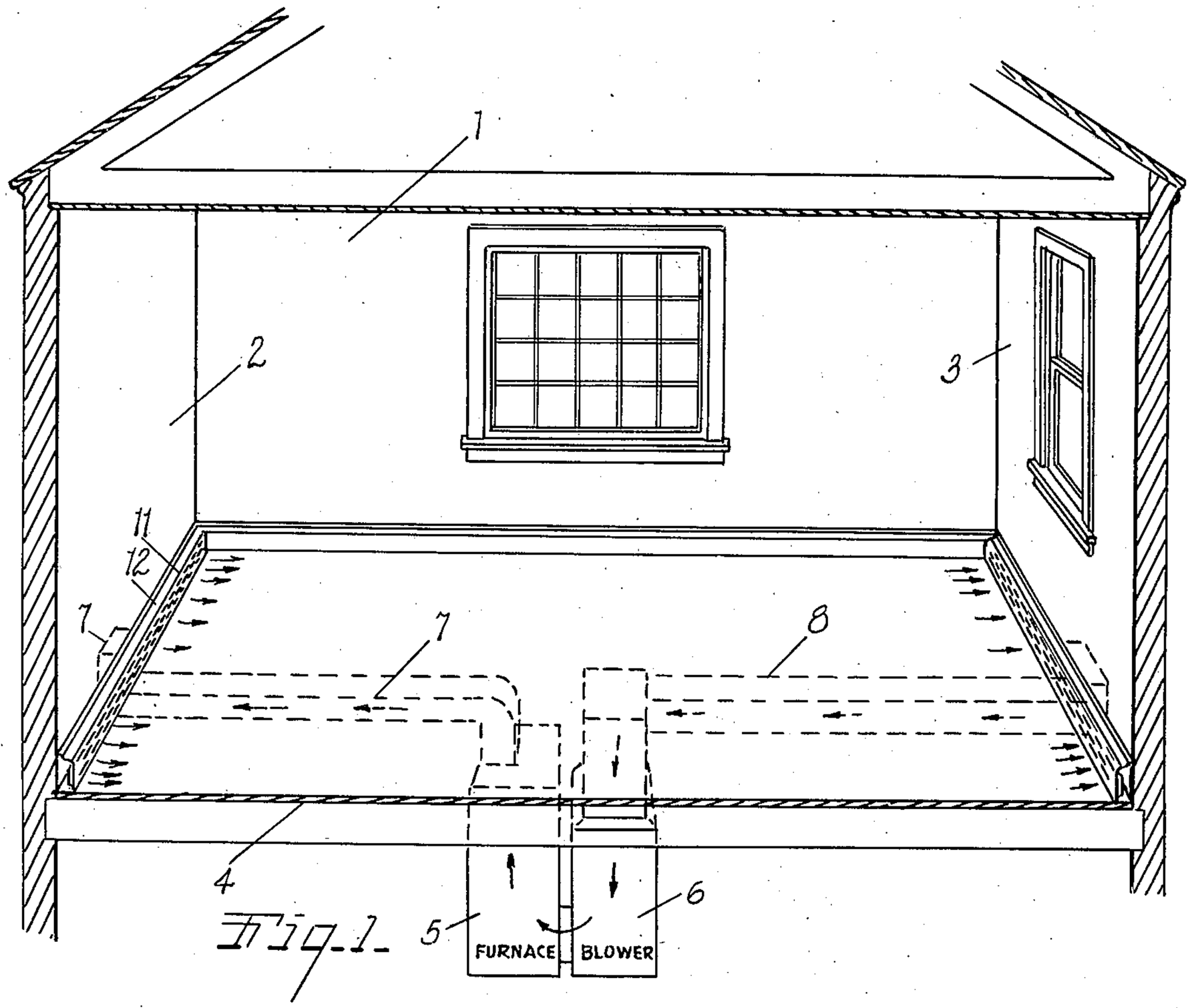

Fig. 1.

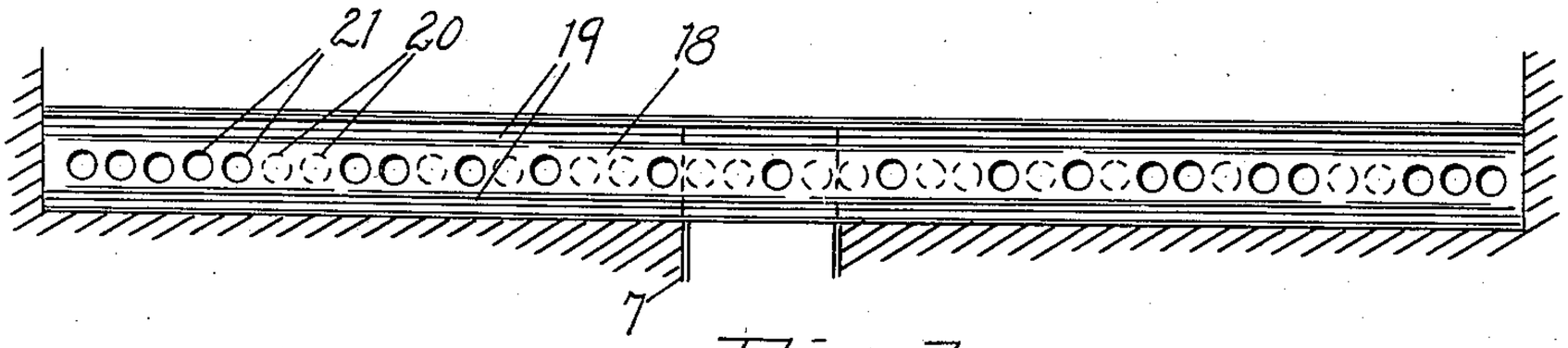

Fig. 2.

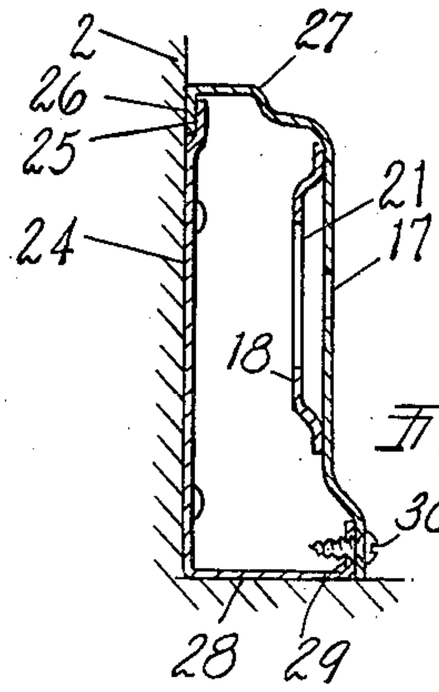

Fig. 5.

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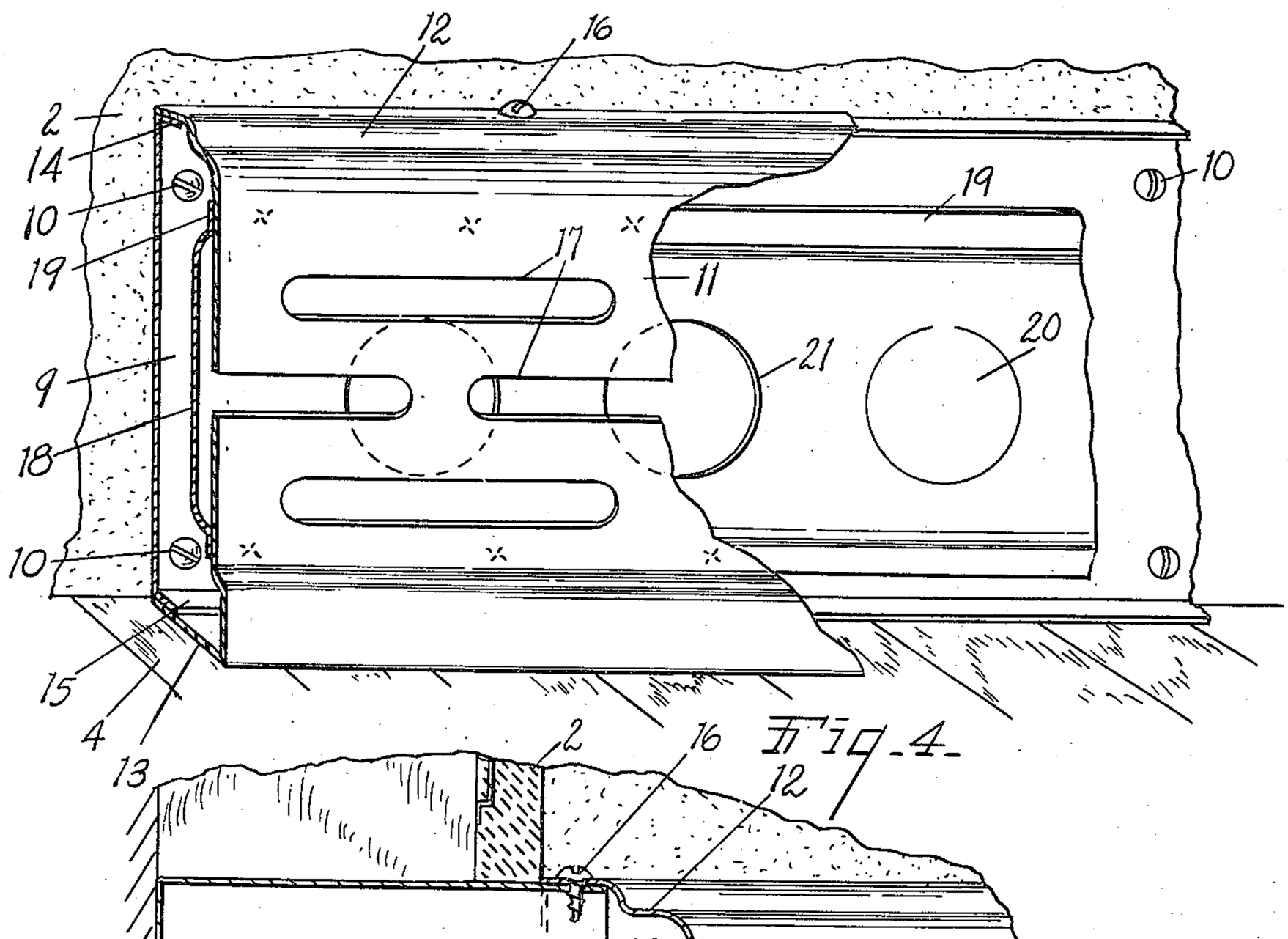

Fig. 4.

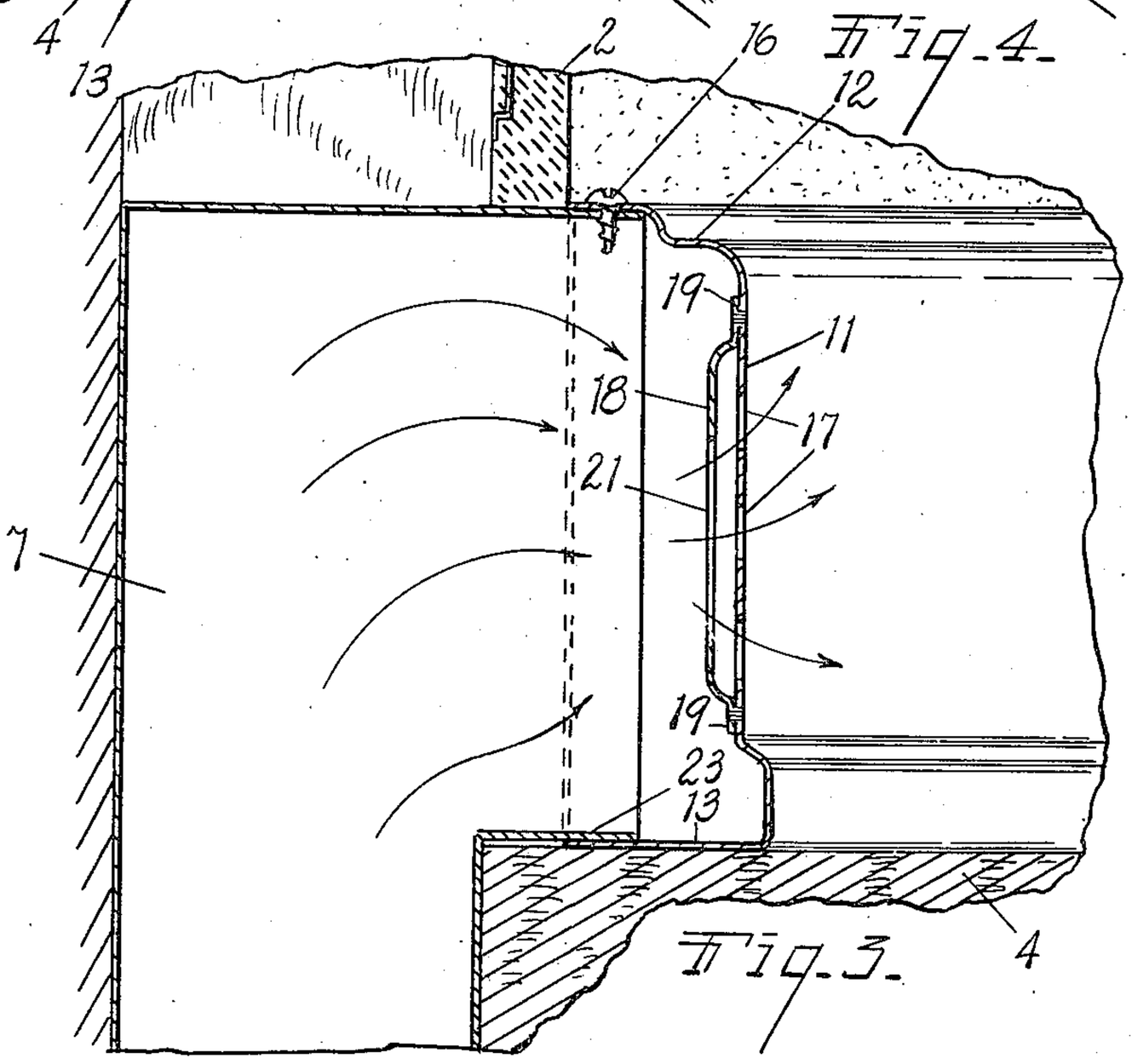

Fig. 3.

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AIR CONDITIONING SYSTEM AND REGISTER

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Application June 4, 1946, Serial No. 674,318

4 Claims. (Cl. 98—33)

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This invention relates to improvements in air conditioning systems and registers.

The main objects of this invention are:

First, to provide a circulated air conditioning system in which the circulated air is very uniformly distributed throughout the space to be heated or in which the air is to be conditioned.

Second, to provide a system of this character in which the warm air and cold air are circulated through register elements arranged as baseboards on walls of the space to be heated.

Third, to provide an elongated air register adapted to produce approximately uniform flow of air throughout the length of the register.

Fourth, to provide a register simulating a baseboard which may be quickly and easily installed.

Objects relating to details and economies of the invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure which embodies the features of the invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary perspective view of a space heating system embodying the invention, parts being shown conventionally and without regard to proportion of parts.

Fig. 2 is an inside view of the front plate of a register with the back plate omitted illustrating structural features of the baffle.

Fig. 3 is an enlarged vertical section through the register and the stack connected to deliver thereto.

Fig. 4 is a fragmentary perspective view of the register showing its relation to the wall and the floor of the space in which the register is installed.

Fig. 5 is an enlarged fragmentary view illustrating a modified form or embodiment of my invention.

In the accompanying drawing I have illustrated more or less conventionally a heating system embodying the invention. The reference numeral 1 indicates a room or space to be heated or air conditioned having opposed walls 2 and 3 and floor 4. A hot air furnace is illustrated at 5 and a blower 6 is shown operatively associated therewith. A hot air conduit is shown at 7 and a cold air or return conduit at 8.

The preferred embodiment of the invention illustrated comprises an elongated back plate or member 9 adapted to be attached to a wall by means of the screws 10. The front portion or body portion of the register comprises a face plate 11 having a rearwardly projecting top portion 12 and rearwardly projecting bottom portion 13. The back plate is provided with forwardly projecting top and bottom flanges 14 and 15, the back plate being mounted so that its bottom flange 15 is spaced from the floor 4 to receive the bottom portion 13 which is telescoped under the flange 15. The top portion 12 of the front member is telescoped over the flange 14 at the top of the back member and secured thereto as by means of sheet metal screws 16.

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The face plate 11 is provided with a plurality of rows of elongated slot-like apertures 17, the apertures of adjacent rows being arranged in staggered relation and also overlapping to permit a uniform flow of air through the face plate.

In the preferred embodiment I provide a baffle 18 having forwardly offset edges 19 spot-welded to the inner side of the register face 11 to embrace the apertures thereof. This baffle is provided with a plurality of knock-out portions 20 which may be selectively knocked out to provide air flow openings 21. These knock-out portions are initially uniformly distributed throughout the length of the baffle in order that they may be selectively knocked out to provide such an arrangement of air openings as to promote uniform flow of air through the register.

The stacks or conduits 7 and 8 are preferably connected centrally to the register, the conduit heads having flanges 23 projecting into the register sufficiently to close the joint between them. The joints between the register front member and back plate or rear member are such as to prevent escape of air through the joint, thus minimizing streaking or soiling of the wall.

In Fig. 1 I illustrate the hot and cold air registers as mounted on opposite walls of the space to be heated. This is a desirable arrangement, and it is desirable to have the registers as long as the space to be heated permits, although it will be understood that door and other conditions require some adaptation. The registers connected to the delivery and return conduits are the same.

In the embodiment shown in Fig. 5 the rear member 24 of the register has a forwardly offset upper edge portion 25 adapted to receive the downturned flange 26 on the top 27 of the front member. In this embodiment the back plate has a bottom 28 terminating in an upturned flange 29 which the face plate overlaps, the face plate being secured to this flange by means of the sheet metal screws 30. This permits a very rapid and effective installation of the register and, as stated,

one having substantially closed joints. The front member of the register is conformed to simulate a baseboard and constitutes an element of the baseboard of the room in which it is installed.

By arranging the register connected to the hot air and cold air conduits on opposite walls or on remotely related walls in the space to be heated an effective flow of air throughout the space is secured. The warm air discharged from the warm air register circulates upwardly through the room while the cold air flows downwardly from the opposite side of the room to the return register.

I have illustrated and described embodiments of the invention which I consider very practical. I have not attempted to illustrate or describe various adaptations and installations which might be required for a complete house installation as it is believed this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A heating system for a walled space to be heated comprising a horizontally elongated hot air register disposed at the bottom of one wall, a horizontally elongated cold air register disposed at the bottom of an opposite wall, said registers constituting baseboard elements for the entire length of the walls and each having a plurality of rows of horizontally elongated apertures in the face thereof spaced longitudinally throughout the length thereof, the apertures of adjacent rows being staggered and overlapping, and a baffle secured to the inner side of the face of each register to embrace the apertures thereof and spaced inwardly therefrom, the baffles having a longitudinal series of knock-out portions selectively knocked out to provide a series of delivery air flow openings arranged to promote approximately uniform flow of air throughout the length of the registers the disposition of the hot and cold air registers as base board elements throughout substantially the length of opposed walls facilitating a substantially uniform blanket of hot air across the entire floor from the hot air register to the cold air register.

2. A heating system for a space having opposed walls, comprising an air heating unit, hot and cold air conduits and a blower operatively associated therewith, horizontally elongated chambered hot and cold air registers installed as base board elements at the bottoms of the opposed walls, each of said registers having a front wall provided with a plurality of rows of longitudinally elongated apertures, the apertures of said rows being staggered and overlapped, and a baffle plate mounted in each of said registers in inwardly spaced relation to the front wall thereof and to embrace the apertures in the front wall, the baffle having a longitudinal series of spaced knock out portions arranged to be selectively knocked out to

promote an approximately uniform flow of air through the apertures in the face of the register, the conduits opening centrally to the registers at the inner sides of the baffles therein.

3. An elongated chambered register adapted for attachment to a conduit and to be installed as a baseboard and having a plurality of apertures disposed through the length thereof, part of said apertures overlying the space between the other of said apertures to provide openings for a continuous flow of air along said register, and a baffle disposed within the register in inwardly spaced relation relative to the apertures of the register and sealed to said register above and below said apertures, the cross sectional dimension of the register at the rear of the baffle being such as to permit free flow of air longitudinally of the register on the inner side of the baffle, said baffle having a longitudinal series of knock-outs which may be selectively knocked out to provide a series of openings promoting uniform flow of air through the register openings throughout the length of the register.

4. In an air register, the combination of an elongated back plate adapted for attachment to the side of a wall and having forwardly disposed top and bottom flanges, an elongated chambered body portion comprising a face portion and inwardly projecting top and bottom portions integral with the face portion and adapted to telescopingly engage the flanges of said back plate, said face portion defining series of horizontally extending slots with the slots in one row overlying the space between slots in another row, a baffle secured to the back of said face portion above and below said slots and spaced therefrom, said baffle having a series of horizontally arranged knocked out portions formed therein, and means for securing said body portion to at least one of said wall plate flanges, said register when attached to a wall simulating a baseboard for the wall to which it is attached.

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