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FLOOR FORM STRUCTURE

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This invention appertains to radiant heating concrete floor construction and more particularly to a new and improved form used in said construction.

In concrete floor construction for radiant heating, particularly in the utilization of air cushion or air flow, it is usual to provide a concrete sub-slab or base upon which is set or placed forms to provide interconnected passageways and over which the concrete floor slab is poured. Thus, in this usual construction an air cushion is provided between the base slab and the floor slab and air for either heating or cooling can be circulated under the entire floor slab.

Various means are utilized to distribute the air to these passageways; trenches may be provided, or distributing boxes set at various spots on the base slab, or wall registers may be used etc. To my knowledge, all known prior forms in this type of construction do not provide means whereby distributing boxes, wall registers etc. can be put in place prior to the pouring of the concrete floor slab without providing some type of adjunct to compensate for spaces left between the forms, the walls, registers and/or distributing boxes.

It is, therefore, a primary object of my present invention to provide a new and improved form which may be set and placed on the concrete sub-slab to provide a complete form over which the concrete floor slab may be poured with distributing boxes, wall registers etc. in place, the entire floor being poured at once.

Another important object of my present invention resides in the fact that the distributing boxes and different types of registers may be set in place and the forms so arranged that they will interconnect with the distributing boxes and the form may be notched to make provision for registers that protrude from the wall, thus allowing the adjacent form to be in perfect register with its next adjacent form and to abut the wall end.

A further object of my present invention is to provide a new and improved form which may be mutually interrelated with other and like forms to produce intercommunicating passageways between a concrete sub-slab and a poured concrete floor slab.

Still another object of my present invention is to provide a new and improved form of a rectilinear configuration stamped from sheet metal to provide straight side and end edges so that the forms may be placed side by side and end to end to provide a desired air cushion.

A salient feature of my present invention resides in providing a floor construction having intercommunicating passageways between a concrete sub-slab and a concrete floor wherein the concrete floor slab may be poured with the distributing boxes and/or registers in place, thus providing a finished floor, without the necessity of leaving spaces for the registers and/or distributing boxes.

A more specific object of my present invention is to provide an improved form of a generally rectangular shape constructed from a length of sheet metal having identical indentations provided adjacent each end connected at the transverse center and end edges and side edges lying in substantially the same horizontal plane.

Still another object is to provide the end and side edges

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of my form with slotted channels to facilitate the interlocking of the forms when associated with one another.

An important feature of my invention resides in the provision of a fastener which may be utilized with the registered slots to interlock and brace the forms when they are associated one with the other.

A further object of my invention is to provide a simple, practical and reliable construction that is economical to manufacture, easy to utilize and assemble.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, of the floor and forms, and arrangement thereof, which will hereinafter be more fully described, illustrated and claimed.

One preferred and practical embodiment of my invention is shown in the accompanying drawing, in which,

FIGURE 1 is a fragmentary perspective view, partially in section, through a poured concrete floor embodying my new and improved forms;

FIGURE 2 is a perspective view of the form constructed in accordance with the present invention;

FIGURE 3 is a longitudinal vertical section through the form taken on the line 3-3 of FIGURE 2, and looking in the direction of the arrows;

FIGURE 4 is a transverse section through the form taken on the line 4-4 of FIGURE 2, looking in the direction of the arrows;

FIGURE 5 is a perspective view of one of the fastening and strengthening devices to be associated with the interconnection of one form with another;

FIGURE 6 is an enlarged fragmentary section showing how two forms are interrelated and locked and illustrating in particular the channels for facilitating this interlocking, and

FIGURE 7 is a fragmentary section similar to FIGURE 6 of the drawing, but illustrating a modification in the formation of the interlocking edges of the forms.

Referring now to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter C generally indicates a poured concrete floor construction, and the same includes broadly a concrete sub-slab or base 10, an upper poured concrete floor slab 11, forms 12, over which the floor slab 11 is poured to provide an air cushion or space 13 between two slabs. It should be noted that when the floor slab 11 is poured over the interlocked forms 12, that the space or air cushion 13 includes a series of passageways separated by concrete columns 14 and these columns are generally in spaced alignment. The forms 12 utilized to form the air cushion passageways and columns are generally placed side by side so that together they provide a complete form over which the cement-like material can be poured and in the normal construction provisions must be made to leave spaces for the air distribution means and if wall registers are utilized spaces must be left between the wall and floor 11 so that the registers can be placed therein. Thus, it would be desirable to be able to place the registers in position, as well as the distributing boxes and pour the concrete floor 11 so that when it is completed the entire construction relative to the air distribution is in place.

The forms 12 therefore, of the present invention are so constructed that no adjuncts are needed to leave spaces for the registers and distributing boxes, but the form it-

self can be so modified that it will fit against the wall and easily be notched or cut out to leave room for the placement of the wall registers. Further, the straight edges of the form will easily abut the flat surface of distributing boxes and the like.

The form 10 is stamped from a single sheet of metal to provide straight side edges 15 and straight end edges 16. The form itself is of a general rectilinear configuration, preferably in the nature of a rectangle, so that the side and end edges meet at right angles. The form may be of any dimensions but in accordance with present day standard construction, it has been found that a length of 36" for the side edges and a width of 18" for the end edges is most desirable. In any event, it is relatively important that the side edges be twice the length of the end edges 16. The reason for this will become apparent as the description proceeds. The transverse center 17 of the form lies generally in a flat, horizontal plane and in the same plane as the straight side edges and end edges 15, and 16. Between the transverse axial center 17 and each edge 16, I provide identically formed generally conical shaped indentations 18, and these indentations extend to a substantial distance below the flat center 17 and edges 15 and 16. The bottoms or end terminations 19 of these indentations are open and provide means to receive the poured cement-like material for the floor slab 11 and in effect provide the aligned columns 14.

It should be noted that since it is desirable in providing a general floor form that a number of forms 12 must be interrelated, that some means be provided so that they can be generally interlocked to form a rather firm support which laborers and the like may walk upon when necessary in adjusting distributing boxes, floor registers etc., prior to the actual pouring. To aid in this interlocking and strengthening of the forms 12 when they are associated one with the other, the side edges 15 and the end edges 16 are provided with channels 20 and of course it should be noted that the channels are formed just adjacent the straight end termination of the forms 21. Thus, to associate one form with the other, it is merely necessary to place one channel 20 over or under the channel 20 of the next adjacent form, note FIGURE 6. Since the length of the side edge 15 is exactly twice the length of the end edge 16, leeway is provided so that if desired, two forms can be interlocked with their respective end edges 16 associated in the channel 20 of a side edge 15 of another form. Also in corners and the like, where it may be found that a square space is left, a single form may be cut along its transverse center axis 17 and this will provide a square in which all edges are of the same dimension. The indentations or recesses 18 are defined by downwardly extending conically shaped walls 18', the lower end terminations of which are provided with respective apertures 19'.

While not absolutely necessary, I do provide additional means for fastening and locking two forms together, and this means 22 is stamped from a single sheet of metal, one edge of which is bent at right angles to provide an upstanding wall 23 adjoining the main body wall 24. The main wall 24 is in turn, provided with a bendable tab 25 of a size and configuration to be received in slots 26 provided in spaced relation within the channels 20 of the edges 15 and 16 respectively. Particularly in FIGURE 6 of the drawing, it can be seen that when the edges of one form are interrelated with the channels 20 of each overlapping, the slots 26 will also be in alignment and bendable tab 25 can be positioned through the two slots and bent from a full line position in the direction of the arrows to the dotted line position, and thus the forms will be definitely interlocked and the fastening and strengthening member 22 will give additional strength and bracing so that the forms may be walked upon when necessary.

Attention is now directed to FIGURE 7 of the drawing, in which I have illustrated a slight modification and

in this modification, the forms are identical to the form 12 described in FIGURES 1 to 6, inclusive, except that instead of forming a channel 20, as shown, I provide a raised bead along the side and end edges. This bead 30 is in effect the exact reverse of the channels 20. This is desirable particularly in cases where the side or end edges 15 and 16 respectively are to fit over a flat surface such as a distributing box cover etc., instead of under the same.

As is readily apparent, it is desirable in pouring the floor 11 that the side and end edges of the forms abut against the wall, and so that there is no space between the walls or the forms, registers, or distributing box for cement to flow and seal off. Due to the novel formation of my form, it is possible to place a form against the wall and one edge of a register and align the next form with the register and provide a cut or notch of the exact dimension of the register in the side edge 15 of the form, and thus the two forms will be in perfect alignment with the register in place. Further, if distributing boxes are utilized, regardless of their location, the flat straight edges of my form can be either slipped over or under, as preferred, the box cover and thus the entire floor 11 can be poured with distributor boxes and registers already in place.

From the foregoing, it is believed that the features and advantages of my invention will be readily apparent to those skilled in the art, and it will, of course be understood that minor changes in the form, proportion and details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims:

I claim:

1. A form adapted to receive poured cementitious material, comprising, a body of substantially rectilinear shape constructed of sheet material, said body having straight side and end edges defining a generally flat upper surface lying in a horizontal plane, said body being provided with spaced recesses formed in said upper surface, downwardly extending generally conical shaped walls defining said respective recesses and diverging toward their lower end terminations, said walls being open at their lower ends and forming a support for said form, said straight side and end edges of said form being provided with a peripheral channel whereby cementitious material may fill above said recesses and down into said conical shaped walls to provide when hardened columns within said form.

2. A floor form comprising a plurality of separate forms of sheet material and of rectangular shape, said forms being layed side by side and end to end on a horizontal plane to constitute a floor form over which cementitious material may be poured, the sheet material of each form having straight side and end edges defining a generally flat upper surface lying in a horizontal plane, each form having identically shaped equally spaced recesses defined by downwardly extending conically shaped walls terminating in an open lower end, said conically shaped walls and upper flat horizontal surface cooperating when contiguous forms are in register to form passageways interconnecting the region underneath said forms, means for interlocking and supporting said forms in position including, a peripheral channel formed in the respective side and end edges of said form, said channels being provided with spaced slots and said channels being in overlapping relation with the next adjacent forms with said slots being in alignment, a vertically extending fastening member having an upper finger received through said aligned slots of adjacent forms, and said forms providing a surface over which cementitious material may be poured and may flow down into said recesses and when hardened constitute columns within said conically shaped walls and a generally horizontal floor structure over said forms.

3. A form adapted to receive poured cementitious material comprising a body of rectangular shape having

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straight side and end edges, said side edges being twice the length of said end edges, said side and end edges defining a generally flat upper surface lying in a horizontal plane, said upper surface being provided with spaced recesses, spaced downwardly extending conically shaped walls defining the lower portion of said recesses and terminating in an open lower end, said conically shaped walls forming a support for said form, said side and end edges being provided with a peripheral channel, said peripheral channel having spaced slots formed therethrough and means for interlocking and supporting said form in a horizontal position when laid adjacent another identically shaped form.

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