

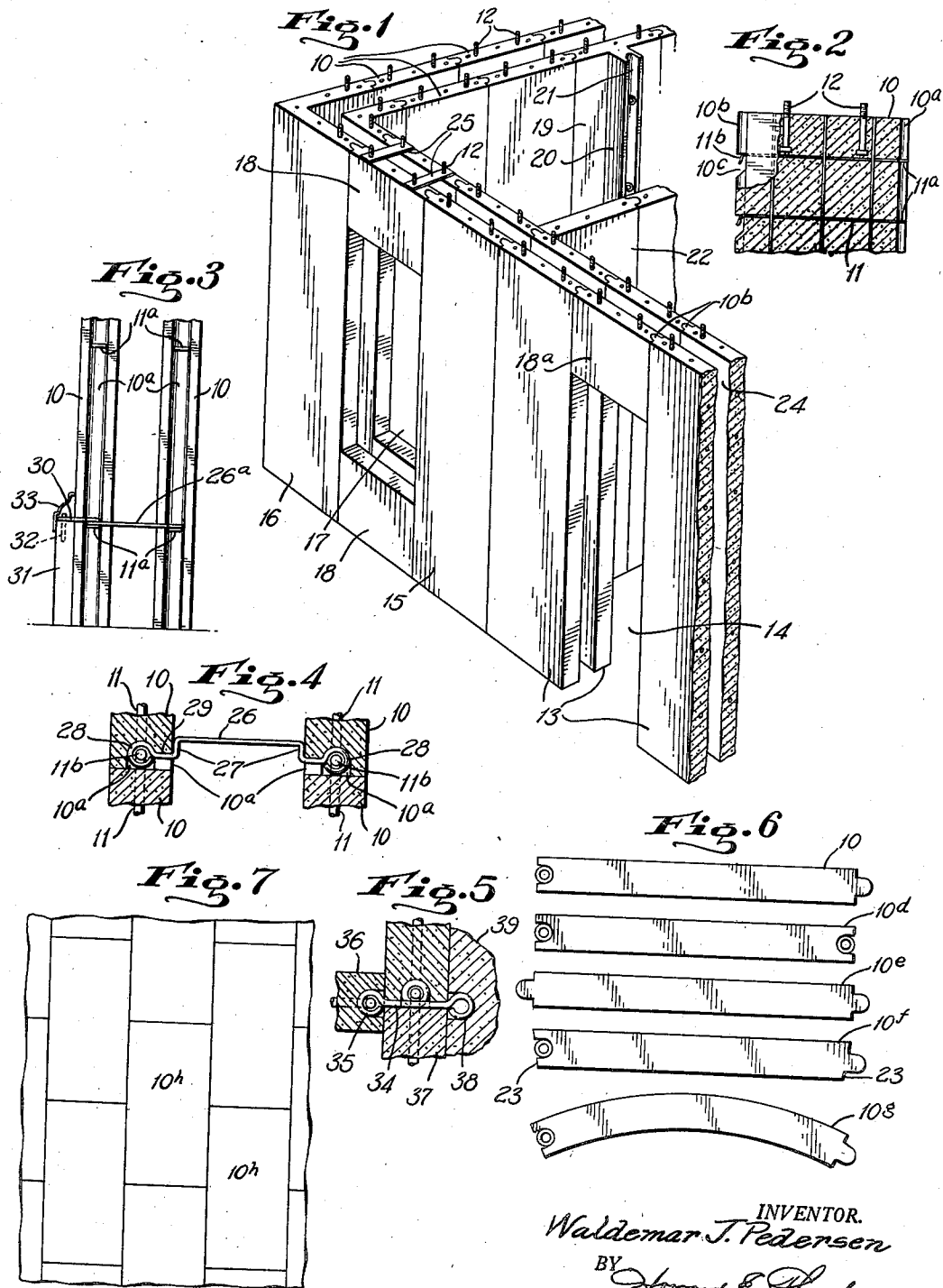
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BUILDING SLAB

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BUILDING SLAB

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This invention relates to building slabs and particularly to devices of this class composed of reinforced concrete and employed in the construction of the outer and partition walls of low buildings; and the object of the invention is to provide a slab of relatively thin material, the side edges of which are provided one with a groove or channel in which are arranged longitudinally spaced coupling loops or elements and the other with a projecting tongue adapted to enter the groove of an adjacent slab, the tongue being divided into a plurality of parts or sections and including coupling elements in the form of hooks or pins adapted to cooperate with the loops or other coupling elements in the grooves of adjacent slabs for keying the slabs together; a further object being to provide the slab with a body of reinforcing material imbedded therein and through which the loop and pin coupling elements are formed; a further object being to provide the upper ends of the slabs with projecting pins or bolts, by means of which two slabs may be coupled together and with which the frame, floor, ceiling or roof structure may be coupled; a further object being to provide means for coupling and spacing the inner and outer slabs of a wall structure intermediate the ends of the slabs; a further object being to provide means for coupling partition walls with said outer wall slabs; a still further object being to provide means for coupling a base board to the wall slabs; and with these and other objects in view, the invention consists in building material of the class and for the purpose specified, which is simple in construction, efficient in use, and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a perspective view of a part of a wall diagrammatically illustrating one method of carrying my invention into effect.

Fig. 2 is a broken, side and sectional view of a part of a slab made according to my invention.

Fig. 3 is a cross sectional view illustrating the manner of coupling a baseboard with a wall structure made according to my invention.

Fig. 4 is a vertical, sectional view showing the manner of coupling and spacing inner and outer wall slabs.

Fig. 5 is a horizontal, sectional view showing a modified form of construction.

Fig. 6 is a plan view of several forms of slabs which I employ; and,

Fig. 7 is a detail view of a part of a wall structure composed of a plurality of small slabs made according to my invention.

In carrying my invention into effect, I provide a number of building slabs of such size and contour as to permit the construction of the outer walls and partition walls of a building as well as to form the window and door openings therein.

In Fig. 2 of the drawing, I have indicated a part of a slab which forms the basis of construction of most of the slabs employed, and the brief description of this slab will apply to all of the slabs except as specifically modified. The slab 10 is in the form of an elongated and comparatively thin body of concrete, molded to form at one side edge a groove 10a and at the other side edge projecting tongues 10b spaced longitudinally of the slab and between which are spaces 10c.

In the construction shown, a reinforcing body 11 of fairly heavy wire is imbedded in the slab 10, and the horizontal strands project through the slab and terminate in loops 11a in the grooves 10a and in hook-shaped pins 11b projecting from the lower ends of the tongues 10b and extending into the recesses 10c, the latter being provided to permit the coupling of the loops 11a of adjacent slabs with the hooks or pins 11b as will be apparent.

Anchored in the top of the slabs 10 and projecting therethrough are pins or bolts 12, by means of which adjacent slabs may be coupled together and also employed for coupling the floor, ceiling or roof structure with the wall slabs as will be apparent.

Upon a consideration of the diagrammatic illustration in Fig. 1 of the drawing, it will appear that the slabs 10 of said figure are in their entirety constructed according to the slab represented in Fig. 2 of the drawing, whereas other slabs include the same coupling elements 11a, 11b, at least in part, and exposed surfaces of certain of the slabs may either be filled in or molded plain to provide window and door openings. For example, the slabs 13 form the door opening 14, and the slabs 15 and 16 form the window opening 17. In this connection, it will be noted that the slab 16 has angularly disposed parts and forms the corner structure of the building. This is true of both inner and outer wall slabs.

At 18, I have shown the small slabs used at the top and bottom of the window opening 17 and similar slabs 18a are used at the top of the

door opening 14. The slab 19 differs from the other slabs in having molded integral therewith an inwardly extending web 20 which may have a channel or groove 21 therein similar to the groove 10a, or in some cases, this slab may be provided with the projecting tongues to receive the grooved side of a partition slab. It will be understood that the web 20 provides means for coupling a partition wall therewith. At this time, it will be understood that a partition wall such as shown at 22 in Fig. 1 may be coupled with the inner wall structure of the building at the intersection of two slabs by providing coupling means such as later described in connection with the showing in Fig. 5 of the drawing.

In dealing with the different types of slabs that may be employed, it will be understood that in addition to changing the shape and contour thereof and modifying the grooved and tongued sides of the slabs in forming the window and door openings, the slabs may be also modified in the manner illustrated in Fig. 6 of the drawing, in which figure, the top slab 10 is identical with the slab shown in Fig. 2, whereas the slab 10d has at its ends two grooves or channels, the slab 10e has at its ends the projecting tongues, the slab 10f has its side walls beveled as seen at 23 so as to dispose adjacent slabs in angular relation with respect to each other, whereas the slab 10g is arc-shaped in form and is employed in forming columns or other curved wall structures.

In Fig. 7 of the drawing, I have shown a further modification wherein a plurality of small slabs 10h simulating bricks are arranged one upon another and side by side in an overlapping relation in the construction of a wall, it being understood that the slabs 10h are interlocked along the same general principles as the slabs 10 shown in Fig. 2 of the drawing.

In forming the outer wall structure of a building as is illustrated in Fig. 1 of the drawing, the inner and outer wall slabs are arranged in spaced relation to provide a chamber 24 therebetween, the upper ends of the slabs being spaced apart by coupling straps 25, only two of which are shown, these straps being coupled with the projecting pins 12. In some cases, it may be found desirable to couple the inner and outer wall slabs together intermediate the ends thereof, and this may be done by employing coupling and spacing rods 26, one of which is illustrated in Fig. 4 of the drawing, the rods being offset to form shoulders 27 against which the slabs abut, and the outer ends of the rods terminate in loops 28 through which the coupling pins or hooks 11b are adapted to pass, it being understood that the loops 28 are disposed adjacent the loops 11a arranged in the grooves or channels 10a of the wall slabs, and said grooved sides of the wall slabs will have notches or recesses 29 to receive the rods 26.

In Fig. 3 of the drawing, I have shown another coupling rod 26a which differs from the rod 26 in that it includes an outwardly projecting looped part 30 adapted to project through the inner wall of the wall construction and arranged above the upper edge of a baseboard 31 so that a nail or screw 32 may be passed through the looped extension 30 to secure the board in position, and a molding or finishing strip 33 may be employed upon the top of the board 31 to cover and conceal the looped end 30 and the securing means 32.

In Fig. 5 of the drawing, I have shown at 34 another form of coupling rod which has a projecting loop 35 by means of which a partition wall slab 36 may be coupled with the outer wall

structure of the building, for example, in coupling the slab 22 as shown in Fig. 1. However, in Fig. 5 of the drawing I have indicated a wall composed of a single instead of a double wall structure, the wall slabs proper being illustrated at 37 and the rod 34 in addition to being looped around the coupling pin between the slabs 37 extends outwardly through the outer surface of the slabs and has a loop 38 with which any suitable outer facing material 39 may be anchored. This outer facing may be in the form of stucco or a facing building brick. In this connection, it will be understood that while I have shown the outer facing material as applied to a single wall structure, the same may be applied to a double wall structure by simply providing the outwardly extending anchoring members similar to the loops 38.

After constructing the walls of a building with my improved building wall slabs and partition 20 slabs, it will be understood that the seams or joints between adjacent slabs may be filled with a suitable filler and the inner and outer surfaces then coated with a paint or other finishing material. It will also be understood that by providing building blocks or slabs constructed according to my invention, the walls of a building may be erected quickly and without the necessity of employing skilled labor, and at the same time, a strong as well as well insulated building wall 30 structure is provided, and buildings of one, two or three story height may be erected very economically.

It will be understood that in coupling adjacent slabs together, the coupling loops 11a on the grooved side of a slab will pass through the recesses 10c to position them beneath the hook-shaped pins 11b of an adjacent slab, and said adjacent slab is then moved downwardly to pass the pins thereof through the coupling loops 11a which serves to draw the adjacent edges of the slabs together and couple the same against separation, the tongue and groove structure serving to line the slabs one with the other, whereas the pins 11b flare outwardly so as to provide a camming engagement with the loops 11a to draw adjacent surfaces of the slabs together.

It will also be understood that while I have shown certain details of construction for carrying my invention into effect, I am not necessarily limited to these details and various changes in and modifications of the construction herein shown and described may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing its advantages.

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

1. A concrete building slab of the class described comprising an elongated and comparatively thin body, one long side edge of said body being grooved throughout the entire length thereof and intermediate the side faces of the slab to form at opposite sides of the groove in said edge shoulder portions, the other long side edge of the slab having longitudinally spaced tongue members arranged centrally and intermediate the side surfaces of the slab to form corresponding shoulders at opposite sides of said tongue members, coupling members anchored to the concrete body and extending into the groove on one side edge of said slab and into the spaces between the tongue members at the other side

edge of the slab and in common transverse alignment with respect to the slab to provide interlocking engagement between the tongue and grooved sides of adjacent slabs at a number of points longitudinally of said edges, and other coupling members arranged and secured at the intersection of adjacent slabs and protruding outwardly through one face of the wall formed by said slabs.

2. A concrete building slab of the class described comprising an elongated and comparatively thin body, one long side edge of said body being grooved throughout the entire length thereof and intermediate the side faces of the slab to form at opposite sides of the groove in said edge shoulder portions, the other long side edge of the slab having longitudinally spaced tongue members arranged centrally and intermediate the side surfaces of the slab to form corresponding shoulders at opposite sides of said tongue members, coupling members anchored to the concrete body and extending into the groove on one side edge of said slab and into the spaces between the tongue members at the other side edge of the slab and in common transverse alignment with respect to the slab to provide interlocking engagement between the tongue and grooved sides of adjacent slabs at a number of points longitudinally of said edges, other coupling members arranged and secured at the intersection of adjacent slabs and protruding outwardly through one face of the wall formed by said slabs, and said last named coupling elements being adapted to couple another wall slab with said first named wall at an angle thereto.

3. A concrete building slab of the class described comprising an elongated and comparatively thin body, one long side edge of said body being grooved throughout the entire length thereof and intermediate the side faces of the slab to form at opposite sides of the groove in said edge shoulder portions, the other long side edge of the slab having longitudinally spaced tongue members arranged centrally and intermediate the side surfaces of the slab to form corresponding shoulders at opposite sides of said tongue members, coupling members anchored to the concrete body and extending into the groove on one side edge of said slab and into the spaces between the tongue members at the other side edge of the slab and in common transverse alignment with respect to the slab to provide interlocking engagement between the tongue and grooved sides of adjacent slabs at a number of points longitudinally of said edges, and said coupling elements being formed from a mesh body imbedded in and reinforcing said slab.

4. A concrete building slab of the class described comprising an elongated and comparatively thin body, one long side edge of said body being grooved throughout the entire length thereof and intermediate the side faces of the slab to form at opposite sides of the groove in said edge shoulder portions, the other long side edge of the slab having longitudinally spaced tongue members arranged centrally and intermediate the side surfaces of the slab to form corresponding shoulders at opposite sides of said tongue members, coupling members anchored to the concrete body and extending into the groove on one side edge of said slab and into the spaces between the tongue members at the other side edge of the slab and in common transverse alignment with respect to the slab to provide interlocking engagement

between the tongue and grooved sides of adjacent slabs at a number of points longitudinally of said edges, said coupling elements being formed from a mesh body imbedded in and reinforcing said slab, and one end of the slab including bolts imbedded in the concrete slab and projecting beyond said end.

5. A concrete building slab of the class described comprising an elongated and comparatively thin body, one long side edge of said body being grooved throughout the entire length thereof and intermediate the side faces of the slab to form at opposite sides of the groove in said edge shoulder portions, the other long side edge of the slab having longitudinally spaced tongue members arranged centrally and intermediate the side surfaces of the slab to form corresponding shoulders at opposite sides of said tongue members, coupling members anchored to the concrete body and extending into the groove on one side edge of said slab and into the spaces between the tongue members at the other side edge of the slab and in common transverse alignment with respect to the slab to provide interlocking engagement between the tongue and grooved sides of adjacent slabs at a number of points longitudinally of said edges, the coupling of the tongue and grooved edges of the slabs together forming a wall having the slabs disposed in common alignment and means whereby another slab or slabs may be coupled with the wall structure formed by the first named slabs at an angle thereto.

6. A concrete building slab of the class described comprising an elongated and comparatively thin body, one long side edge of said body being grooved throughout the entire length thereof and intermediate the side faces of the slab to form at opposite sides of the groove in said edge shoulder portions, the other long side edge of the slab having longitudinally spaced tongue members arranged centrally and intermediate the side surfaces of the slab to form corresponding shoulders at opposite sides of said tongue members, coupling members anchored to the concrete body and extending into the groove on one side edge of said slab and into the spaces between the tongue members at the other side edge of the slab and in common transverse alignment with respect to the slab to provide interlocking engagement between the tongue and grooved sides of adjacent slabs at a number of points longitudinally of said edges, and the shouldered edges of the slab being beveled to dispose the side surfaces of adjacent slabs in angular relation with respect to each other when coupled together.

7. A building wall construction of the class described composed of a plurality of concrete slabs of predetermined cross sectional form, said slabs being arranged in edge to edge relation in the construction of a wall therefrom, adjacent edges of the slabs being provided one with a longitudinal groove having longitudinally spaced coupling elements arranged in the groove and the other with longitudinally spaced tongues entering said grooves and including coupling elements adjacent the tongues engaging the coupling elements in said groove in coupling the slabs together, the tongue and groove portions of the slabs being of less width than the thickness of the slabs to provide abutting shoulder portions between adjacent edges of the slabs at opposite sides of said tongue and groove portions, and means on predetermined coupling elements extending outwardly beyond the surface of the wall formed by said slabs for coupling other elements therewith.

8. A building wall construction of the class described composed of a plurality of concrete slabs of predetermined cross sectional form, said slabs being arranged in edge to edge relation in the construction of a wall therefrom, adjacent edges of the slabs being provided one with a longitudinal groove having longitudinally spaced coupling elements arranged in the groove and the other with longitudinally spaced tongues entering said grooves and including coupling elements adjacent the tongues engaging the coupling elements in said groove in coupling the slabs together, the tongue and groove portions of the slabs being of less width than the thickness of the slabs to provide abutting shoulder portions between adjacent edges of the slabs at opposite sides of said tongue and groove portions, said slabs being arranged in two series to form spaced inner and outer wall members, and means including rods having offset portions engaging adjacent surfaces of the inner and outer wall members for coupling and spacing said wall members together.

9. A building wall construction of the class described composed of a plurality of concrete slabs of predetermined cross sectional form, said slabs being arranged in edge to edge relation in the construction of a wall therefrom, adjacent edges of the slabs being provided one with a longitudinal groove having longitudinally spaced coupling elements arranged in the groove and the other with longitudinally spaced tongues entering said grooves and including coupling elements adjacent the tongues engaging the coupling elements in said groove in coupling the slabs together, the tongue and groove portions of the slabs being of less width than the thickness of the slabs to provide abutting shoulder portions

between adjacent edges of the slabs at opposite sides of said tongue and groove portions, said slabs being arranged in two series to form spaced inner and outer wall members, means for coupling and spacing said inner and outer wall members and predetermined slabs of the inner wall member having inwardly projecting coupling webs including coupling portions with which partition wall slabs similar to said first named slabs are adapted to be coupled.

10. A building wall construction of the class described, composed of a plurality of concrete slabs of predetermined cross sectional form, said slabs being arranged in edge to edge relation in the construction of a wall therefrom, adjacent edges of the slabs being provided one with a longitudinal groove having longitudinally spaced coupling elements arranged in the groove and the other with longitudinally spaced tongues entering said grooves and including coupling elements adjacent the tongues engaging the coupling elements in said groove in coupling the slabs together, the tongue and groove portions of the slabs being of less width than the thickness of the slabs to provide abutting shoulder portions between adjacent edges of the slabs at opposite sides of said tongue and groove portions, said slabs being arranged in two series to form spaced inner and outer wall members, and the length of said wall slabs being equal to the height of one floor of a building and short wall slabs interposed in the inner and outer walls at spaced intervals for forming door and window openings therein.

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