Feb. 6, 1934. W. H. SMITH 1,946,180

TILE BUILDING CONSTRUCTION

Filed Dec. 11, 1931

Fig. 1.

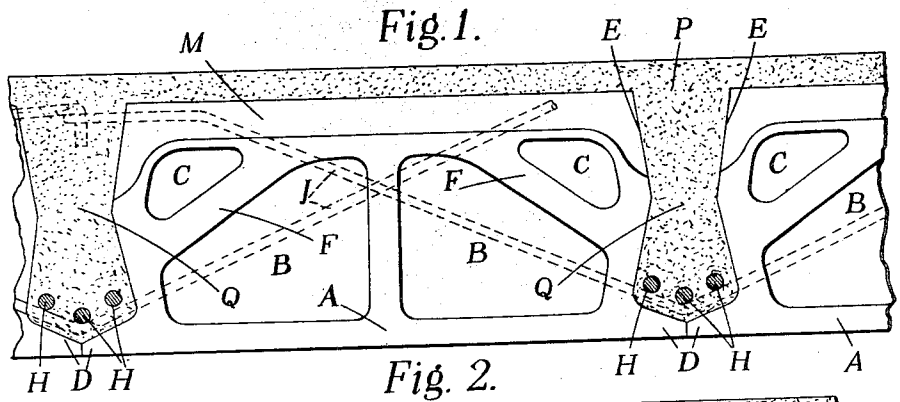


Fig. 2.

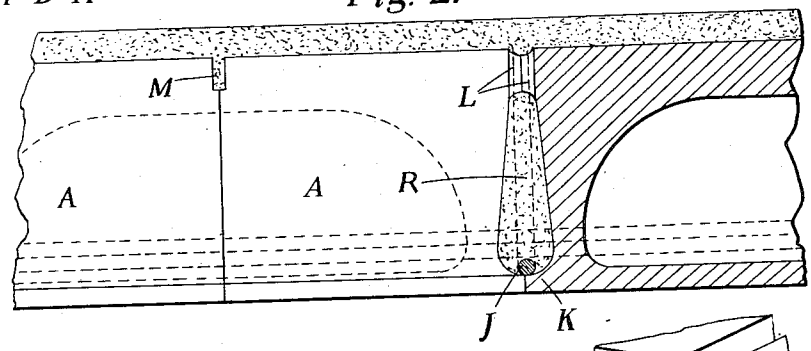
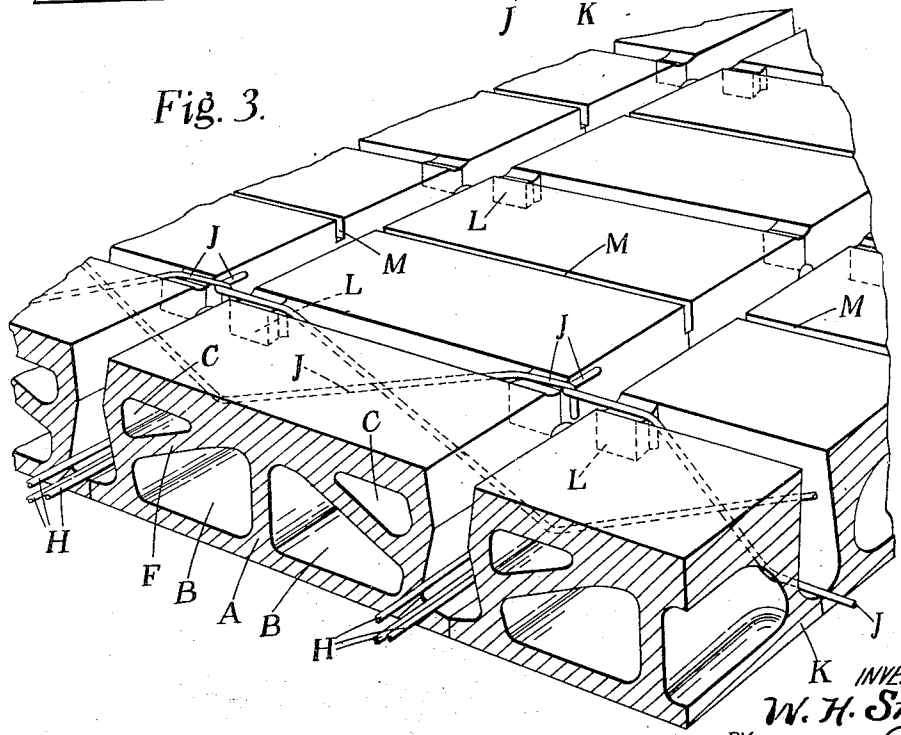


Fig. 3.



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TILE BUILDING CONSTRUCTION

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12 Claims. (Cl. 72—66)

This invention relates to that type of floor construction in which pre-formed hollow blocks or tiles are employed and are spaced apart in rows so that supporting beams usually of reinforced concrete cast in situ can be formed in the spaces between the blocks; concrete is usually simultaneously cast above the blocks thus resulting in a T-form of reinforced concrete with blocks between the ribs.

It is an object of the invention to provide a hollow block having two substantially triangular upper recesses and two substantially triangular lower recesses with inclined diaphragms between them which is capable of transmitting to the bottom any isolated load which is placed upon it.

A further object of the invention is to provide a floor composed of hollow blocks having three closed sides and one open side, the open sides of successive blocks being in abutment while between the opposite closed sides spaces are left in which transverse reinforcement may be placed and concrete filled in to make a monolithic construction.

Another feature of the improved block is that a rebate is formed at the top of the open end and this rebate increases in depth from the top of the block towards the ends; by this means the blocks have definite abutment one against the other and compression stresses sufficient to carry its own weight can be transmitted while concrete can be later grouted in into the grooves provided by the rebates and such concrete tends to fall towards the ends to give a thorough flushing up of the joint and a continuous compression member in the tops of the blocks which in many cases renders unnecessary in situ concrete cast on the top.

In the drawing:—

Figure 1 shows a section through a length of floor built up in the preferred manner of carrying out the invention, the open end of the blocks being shown.

Figure 2 is a corresponding view taken at right angles to Figure 1 showing one block in section and one in end view.

Figure 3 is a perspective view showing blocks in position with reinforcements prior to pouring of the concrete.

Referring to these figures, each block A has a length to breadth relation approximately two to one, and are conveniently formed in lengths 18 inches long and 9 inches deep. The block is formed on three sides with lower lips D, K; these three sides are closed and form by engagement with adjacent blocks spaces into which concrete can be formed providing a framework of beams Q, R running in two directions at right angles.

A layer of concrete P is usually provided at the top of all the blocks combining with the beams Q, R and reinforcements carried by them constitute a two-way T beam reinforced concrete structure.

The fourth side of the block is open and formed with cavities B, C which extend nearly to the end thereof.

On the top of the front or open end of the blocks a rebate M is formed which curves downwards over the cavity C as indicated in Figure 1.

In the construction of a floor the blocks are placed with open faces facing each other in engagement, the two rebates M thus providing a groove into which grout is poured to increase the effective compression flange of the main reinforced concrete beam system.

The two lips D facing each other provide the bottom mould of the main beams. Reinforcing rods H are placed in the mould and the upper facing portions E of the block are cut back as indicated in Figure 1 so as to give increased sheer resistance at the junction between the rib and flange. At the tops of the other closed sides of the block (the side opposite to the open side) lugs L at each end are provided which abut one against the other.

Transverse reinforcing bars J are provided in the beams R and may be conveniently arranged as shown in Figures 1 and 3 to provide a lattice bracing arrangement in the transverse direction. In Figure 3 these reinforcing rods J are shown in the first groove only and it is to be understood that they may be provided in each groove.

In the preferred form these reinforcements J take the form of small rods bent up into V form passing over the lugs L. One end of the rod is bent downwards and one horizontally so that successive rods engage each other in the manner shown in Figure 3 to give continuity. These rods preferably pass under the main reinforcement bars H and serve to hold the latter at their requisite position in relation to the bottom of the mould.

It will be noted that the arrangement illustrated of the cavities B and C in the block give a very light form of block and the intervening rib F between the two cavities acts as an arch rib which will transfer into the transverse beams thrusts caused by an isolated load placed at the centre of one of the blocks.

I claim:—

1. For use in the construction of floors, a hol-

low block with three closed sides and one open side, and having a rebate formed at the top of the open side, said rebate increasing in depth from the top of the block towards the ends.

2. For use in the construction of floors, a hollow block with three closed sides and one open side, and lugs at the top corners of the closed side opposite to said open side.

3. For use in the construction of floors, a hollow block having three closed sides and one open side, two upper substantially triangular recesses, two lower substantially triangular recesses, a vertical diaphragm between said lower recesses, and inclined diaphragms between said upper and lower recesses.

4. A floor formed by the combination of hollow blocks having one closed end and one open end and arranged back to back with open ends abutting, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, spaces between the closed ends of adjacent blocks, and transverse reinforcing members in some of said last mentioned spaces, said transverse reinforcing members passing under said longitudinal reinforcement and thence up to the top corners of the closed ends of said blocks.

5. A floor formed by the combination of hollow blocks having one closed end and one open end and arranged back to back with open ends abutting, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, spaces between the closed ends of adjacent blocks, transverse reinforcing members in some of said last mentioned spaces passing under said longitudinal reinforcement and up to the top corners of the closed ends of said blocks, the ends of said transverse reinforcing members being bent for interengagement.

6. A floor formed by the combination of hollow blocks having one closed end and one open end and placed back to back with open ends abutting, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, spaces between the closed ends of adjacent blocks, lugs at the top corners of said closed ends, transverse reinforcing members in some of said spaces between said closed ends of adjacent blocks, said transverse reinforcing members passing over said lugs and under said longitudinal reinforcement, and concrete cast in said spaces.

7. A floor formed by the combination of hollow blocks, having one closed end and one open end and placed back to back with open ends abutting, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, lugs at the top corners of the closed ends of said blocks, spaces between the closed ends of adjacent blocks, transverse reinforcing members in some of said last mentioned spaces, said transverse reinforcing members passing under said longitudinal reinforcing members and over said lugs, and the ends of said transverse members being bent for interengagement, and concrete cast in said spaces.

8. A floor formed by the combination of hollow blocks having one closed end and one open end and placed back to back with open ends abutting, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, spaces between the closed ends of adjacent blocks, distance means at the top corners of said closed ends holding the facing ends of said blocks out of contact except at the corners, transverse reinforcing members in some of said spaces between said closed ends of adjacent blocks, said transverse reinforcing members passing over said distance means and under said longitudinal reinforcement, and concrete cast in said spaces.

9. A floor formed by the combination of hollow blocks having one closed end and one open end and placed back to back with open ends abutting, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, distance means at the top corners of the closed ends of said blocks, distance means at the top corners of said closed ends holding the facing ends of said blocks out of contact except at the corners, transverse reinforcing members in some of said last mentioned spaces, said transverse reinforcing members passing under said longitudinal reinforcing members and over said distance means, and the ends of said transverse members being bent for interengagement, and concrete cast in said spaces.

10. A floor formed by the combination of hollow blocks having one closed end and one open end and arranged back to back with open ends abutting, inclined diaphragms passing from the tops of said blocks at their center to the bottoms thereof at their ends, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, spaces between the closed ends of adjacent blocks, and transverse metal reinforcing members in some of said last mentioned spaces, said transverse reinforcing members passing under said longitudinal reinforcement and thence up to the top corners of the closed ends of said blocks, said transverse reinforcing members combining with said inclined diaphragms in the blocks to form a transverse diagonal truss section in which the diaphragms resist compressive forces and the reinforcing members resist tensile forces.

11. For use in the construction of floors, a hollow block having three closed sides and one open side, projecting lips at the bottom of said closed sides, the two closed sides facing each other being shaped to provide when two blocks are placed adjacent a space which first converges from the top of the blocks downwardly and then diverges toward the lips.

12. A floor formed with a combination of hollow blocks having one closed end and one open end placed back to back with open ends abutting, spaces between the sides of adjacent blocks, longitudinal reinforcing members in some of said spaces, spaces between the closed ends of adjacent blocks, distance means at the top corners of said closed ends holding the facing ends of said blocks out of contact except at the corners, transverse reinforcing members in some of said spaces between said closed ends of adjacent blocks, and concrete cast in said spaces.

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