June 22, 1948. F. V. PELATOWSKI 2,443,961

METHOD OF MOLDING HOLLOW CONCRETE BUILDING UNITS

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Fig. 1.

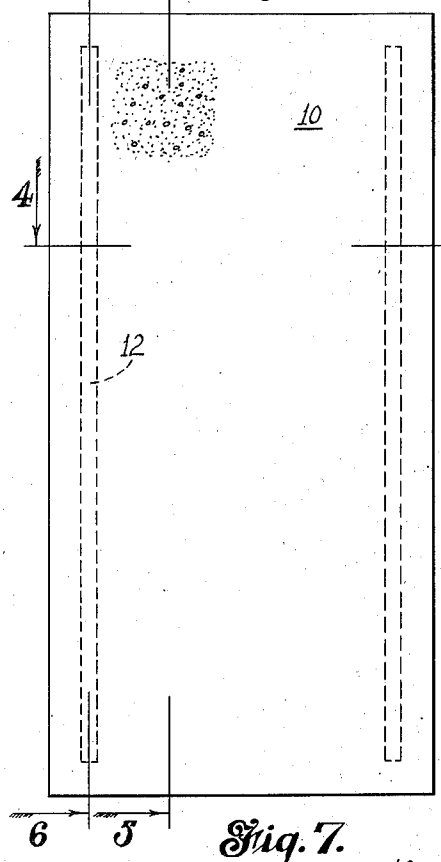


Fig. 2.

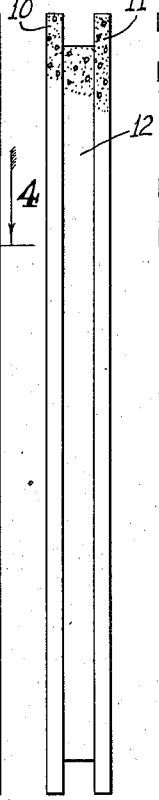


Fig. 3.

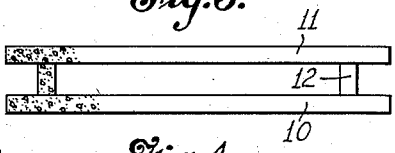


Fig. 4.

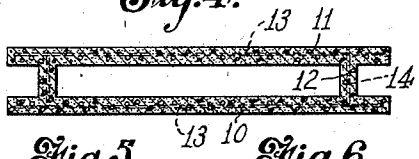


Fig. 5.

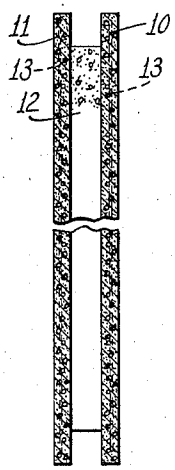


Fig. 6.

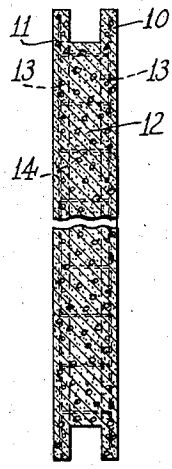


Fig. 7.

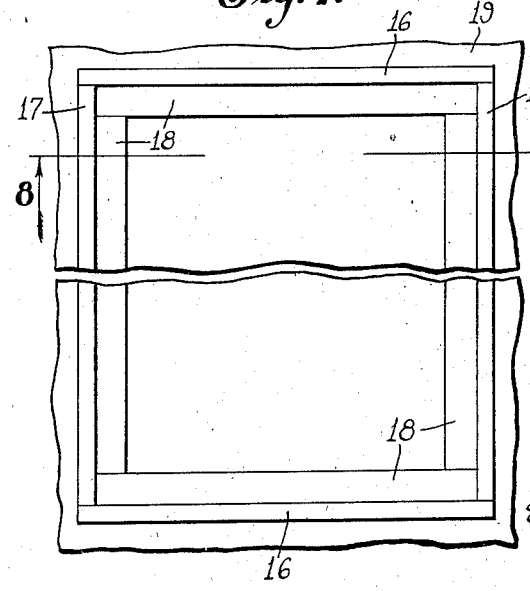
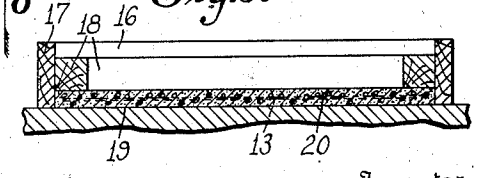


Fig. 8.



Fig. 9.



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Fig. 10.

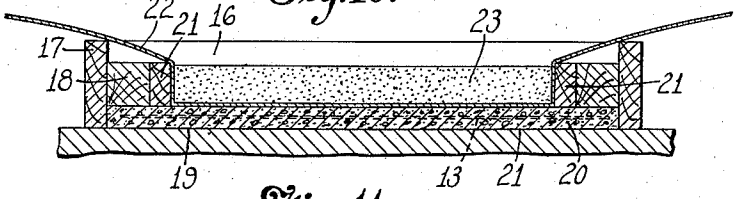


Fig. 11.



Fig. 12.

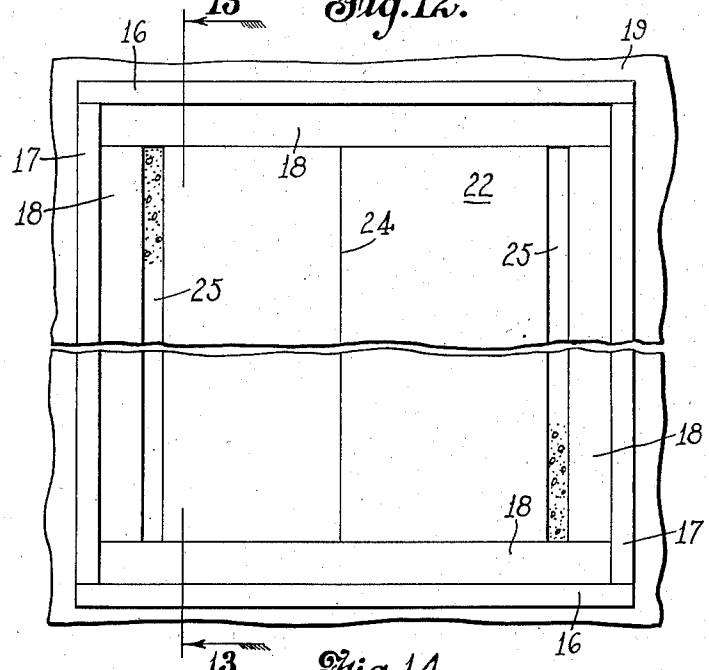


Fig. 13.

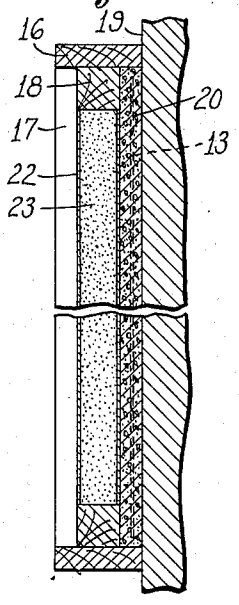
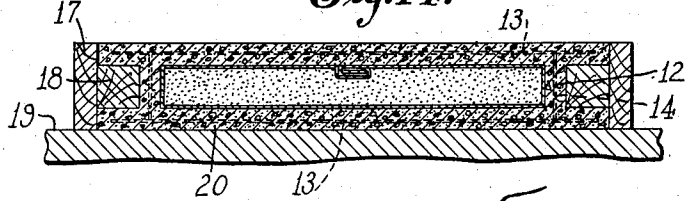


Fig. 14.



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UNITED STATES PATENT OFFICE

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METHOD OF MOLDING HOLLOW CONCRETE BUILDING UNITS

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Application May 17, 1946, Serial No. 670,394

3 Claims. (Cl. 25—155)

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This invention relates to improvements in a building unit, such as a wall or foundation panel, and to a method of making the same. The unit to which the invention is applied in the present disclosure comprises two wall plates or slabs secured together in spaced relation, the entire structure being of concrete and of unitary formation so that it will be monolithic in character.

In the past, building units of a somewhat similar construction have been made, these units consisting of a pair of spaced wall members or slabs held in spaced relation by metal rods or beams extending across the space between the slabs. The use of metallic members to connect the two walls or slabs together and hold them securely in spaced relation has certain disadvantages, and it is, therefore, desirable to construct the entire unit, including the connecting members, integrally.

I contemplate by the present invention the construction of a building unit which may be made of concrete or similar material and which shall consist of two spaced slabs or walls connected together by concrete spacing or partition members, the entire unit being formed in a substantially continuous molding operation. This result is effected by means of using an interior form or core of sand, the sand being held in position by some cheap and light material, such as paper, which may, when the sand is poured from the panel after the latter has set, cling to the interior of the panel without harm to the finished structure and without appreciable cost. That is, the sand form or core will be held in proper position by the paper but may be poured from the finished unit without regard to what occurs to the paper, so that no additional labor is required to remove the latter.

One object of the present invention is to provide a new and improved hollow building unit which may be of concrete, for example, which unit shall consist of a pair of spaced walls held in spaced relation by partition members, the entire unit being of monolithic construction.

A further object of the invention is to provide a new and improved method for constructing and forming a building unit of the character described.

Still another object of the invention is to provide a method of constructing a building unit of the character described which will be economical to practice and which, at the same time, will produce an article of superior construction.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a front plan view of a building unit embodying my invention;

Fig. 2 is a side elevational view thereof;

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Fig. 3 is a top plan view of the unit;

Fig. 4 is a sectional view on line 4—4 of Fig. 1;

Fig. 5 is a sectional view on line 5—5 of Fig. 1;

Fig. 6 is a sectional view on line 6—6 of Fig. 1;

Fig. 7 is a top plan view of the form or mold in which the unit is formed;

Fig. 8 is a sectional view on line 8—8 of Fig. 7;

Fig. 9 is a view similar to Fig. 8, but illustrating the form after the first step in the pouring process;

Figs. 10 and 11 are sectional views similar to Fig. 9, showing further steps in the process of forming the building unit;

Fig. 12 is a view similar to Fig. 7 at a further stage in the forming process;

Fig. 13 is a sectional view on line 13—13 of Fig. 12; and

Fig. 14 is a sectional view similar to Figs. 8 to 11, but showing the completed panel before its removal from the form or mold.

To illustrate a preferred embodiment of my invention, I have shown a concrete panel or building unit comprising front and rear slabs 10 and 11, these slabs being secured together in spaced relation by members 12 also formed of concrete and integrally joined to the members 10 and 11.

While the building unit may be made in any desired dimensions, I have illustrated it as comprising a wall panel of an appropriate size, such as 8' x 4', for example, each of the slabs 10 and 11 being approximately 2 inches thick. The connecting members or ribs 12 may be substantially 4 inches wide and 2 inches thick, the width being shown in Fig. 2, so that the slabs 10 and 11 will be spaced 4 inches apart, the unit having an over-all thickness of 8 inches. As shown in Fig. 4, for example, suitable reinforcing elements 13 may be embedded in each of the slabs 10 and 11, and also the ribs 12 may contain similar reinforcement 14. Any suitable reinforcement may be employed, but I have found that a 6" x 6" mesh wire reinforcement is suitable for the purpose.

In constructing the building unit, I employ a form or mold shown in Figs. 7 to 14. The principal part of the mold may consist of a rectangular frame comprising end members 16 and side members 17, these members being secured together so as to provide an internal form having the length and width of the finished unit. Each of these side and edge members will be substantially 8 inches in height or equal to the thickness of the finished unit, and to the inner surface of each of these members is secured an inwardly projecting member 18 substantially 4" x 4" in cross sectional size. These members, as shown in Fig. 8, are secured substantially centrally of the height of the members 16 and 17 so as to leave a 2 inch space above and below

or a space equal to the thickness of the slabs 10 and 11.

It may here be noted that, as shown in Figs. 1, 2 and 3, the spacing ribs 12 are positioned inwardly from the edges of the finished panel or unit, both at the sides and ends thereof. As shown, each of these members 12 is substantially 4 inches from the side edges of the finished unit, while the ends of the ribs are spaced inwardly substantially the same distance as the ends of the unit. It will be obvious that as the description proceeds this inward spacing of the members 12 is effected by the members 18 which extend entirely around the form.

As shown in Figs. 8 and 9, the form thus constructed is placed upon a flat surface 19, and concrete is poured therein up to the level of the lower faces of the members 18, as shown at 20 in Fig. 9. The reinforcement 13 may be embedded in this lower slab or panel during this operation.

After the completion of the operation shown in Fig. 9, a pair of form members 21 (Fig. 10) are placed lengthwise of the form directly against the members 18. These members will be the same height as the members 18 and will be of the width desired for the ribs 12. As shown, the members 21 are substantially 2 inches wide, but they may be made 4 inches wide, for example, if it is desired to make the ribs 12 4 inches in width. The members 21 likewise will extend longitudinally between the members 18 at the ends of the form, and as will be explained hereinafter these members are later removed so as to provide the spaces within which the concrete forming the rib members is poured.

Next, a mold-forming material, such as strong paper or building paper, for example, 22 is laid upon the concrete 20, as shown in Fig. 10, and is folded upwardly over the inside faces of the members 21 and then outwardly. It will be understood that this paper covers the upper face of the concrete in the form between the two members 21. This space is then filled with some granular material, such as moist sand 23, up to the level of the members 21. The edges of the papers 22 are then brought together over this sand and clinched or otherwise secured together, as shown at 24 in Fig. 11. The members 21 may now be removed, as shown in Fig. 11, leaving the sand form 23 held in position by the binding paper 22 which rests upon the upper surface of the slab 20 which has already been poured. The form is now ready for the completion of the pouring operation.

The reinforcements 14 of the ribs may now be placed in the spaces 25, which spaces have been left by the removal of the form members 21, and this reinforcement may be pushed downwardly into the soft concrete 20 so as to firmly bind the ribs to both of the slabs. When this has been done, the remainder of the concrete is then poured up to the top of the mold, the reinforcement 13 being placed in the upper slab during this process. The completion of the process is shown in Fig. 14, where it will be seen that the form has been completely filled and that there has been formed the building unit consisting of the spaced upper and lower slabs connected together by the spacing ribs 12. It will be noted from Figs. 13 and 14 that these ribs will be spaced by the members 18 from the edges of the slabs, thus permitting the joining of one unit to an adjacent unit when the units are assembled to form a wall.

It will also be apparent that, as the process is continuous, the resulting unit will be of monolithic construction with the parts firmly bound together and suitably reinforced so that there will be produced a unit satisfactory in every particular.

After the completion of the pouring, as shown in Fig. 14, the form members 16 and 17 are withdrawn laterally from the completed unit after the latter has set. The unit may now be upended and the sand 23 poured therefrom, thus leaving a hollow space in the hole of the unit between the ribs 12. The paper 22 will, in most instances, cling to the interior surface of the unit and will improve the moistureproof properties thereof. In this way, the sand mold or core may be readily formed and removed without the necessity of employing any expensive material to make the containing form for the sand and without having to remove this material from the completed unit.

While I have shown and described a preferred embodiment of my invention and a preferred method of producing the same, it is to be understood that it is not to be limited to all of the details shown or to the exact steps described, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. The method of forming, of concrete or similar material, a building unit having a pair of spaced flat slabs, which comprises constructing a rectangular form having members projecting inwardly from the side walls thereof and spaced from the upper and lower edges of the walls, filling said form with concrete up to the lower faces of said members to form one of said slabs, placing a sheet of relatively thin flexible material on the slab thus formed with the edge portions of the sheet overlying the sides of the form, placing granular material upon the sheet, bringing the edge portions of the sheet together over the granular material to hold it in compact form and provide a core spaced from said members, and then filling the form with concrete to form the second slab above said core and ribs in the spaces between the core and said members.

2. The method set forth in claim 1 wherein spacing elements are placed against said members after said first slab is poured and removed after said core has been formed to space the core from said members and provide spaces for the ribs joining the two slabs together.

3. The method set forth in claim 1 wherein spacing elements are placed against said members after said first slab is poured and removed after said core has been formed to space the core from said members and provide spaces for the ribs joining the two slabs together, and wherein additional inwardly projecting members are also providing on the end walls of the form to space the ribs from the end edges of the unit.

FRANK V. PELATOWSKI.

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