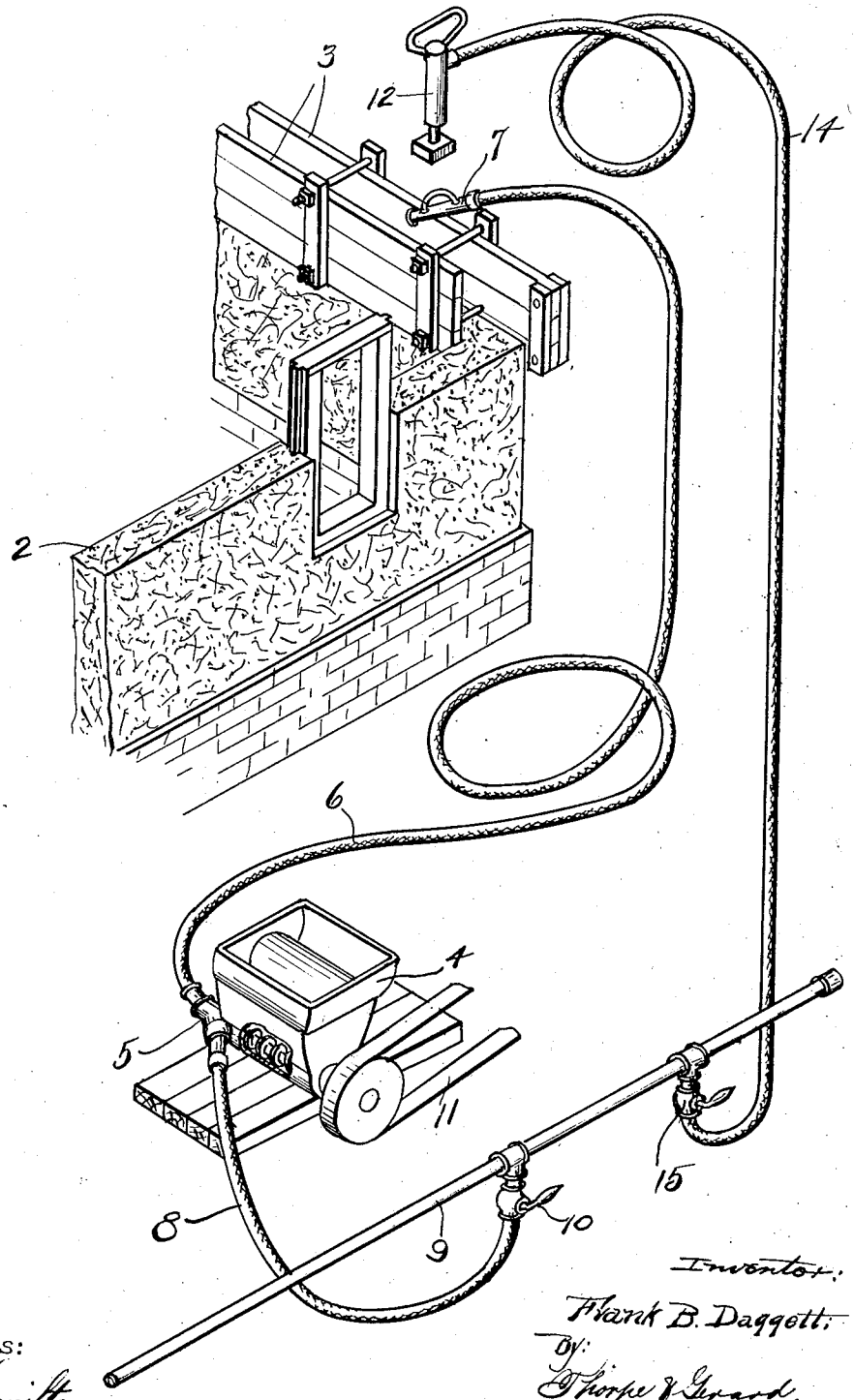
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F. B. DAGGETT

BUILDING METHOD

Filed July 21, 1924



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UNITED STATES PATENT OFFICE.

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BUILDING METHOD.

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The present invention relates to building methods or processes of constructing building walls or the like, and the principal object in view is to devise an improved method of building structures of this character of inexpensive material and by the employment of extremely simple means or apparatus requiring only ordinary or unskilled labor.

Briefly expressed, the improved process consists in the construction of building walls by molding the same of comparatively dry comminuted earth materials which are packed into a dry, hard state in forms provided for the purpose, and then allowing the molded material to set and permanently harden in this molded state.

One of the novel features of the invention consists in feeding the mixed earth materials into the form where the molding takes place by a forcible feeding action, for the purpose of effecting not only a feeding action, but also a tamping or compressing action whereby the material is simultaneously fed and packed firmly within the molding structure.

Having thus stated the general characteristics of the invention, the same will now be described by reference to the accompanying drawing illustrating one mode of carrying the improvements into practice, after which those features and combinations deemed to be novel will be particularly set forth and claimed.

In the drawing, the figure shown represents a perspective view illustrating portions of a building wall, together with apparatus adapted for the practice of the present invention.

Referring now to the drawing in detail, this illustrates the formation of a building wall 2 adapted to be built up by means of a casting or molding process making use of a set of forms 3 held temporarily in place by any suitable means and shifted in position from time to time, as the work progresses, as is ordinarily done in cement and concrete work. For the material used in the construction of the walls 2, I employ the ordinary earth deposit, to be found on the building site, and made available by the work of excavation for the foundation, and cellar or basement, this earth material being used in its ordinary, comparatively dry state, and without the addition of any water or other moistening material. Preferably, this material is first treated, as by a comminuting mill or grinder, for thoroughly working up and comminuting the earth materials before being fed or conducted to the space between the forms 3. If desired, certain earth materials may be selected for their quality or color, or the like, or such chosen materials mixed with the material found on the site, for modifying the physical properties of the same; and under certain circumstances it may be preferable to mix fibrous ingredients, such as straw, or other thread-like binders, with the earth materials, to reinforce or more intimately bind the material being molded into a solid, homogenous mass.

The discharge outlet from the mill 4 is provided with a Y-connection 5 to which is attached a suitable flexible hose 6 terminating in the discharge nozzle 7 which is convenient for manipulation in feeding the material to the forms. To the connection 5 is also attached an air hose 8 communicating with a pipe 9 leading from any suitable source of compressed air supply (not shown), the hose 8 being also provided with a regulating valve 10. The comminuting mill 4 is adapted to be driven by means of a belt 11 from any convenient source of power.

By means of the feed hose 6, and the compressed air connection 8, the material entering into the wall construction is adapted to be introduced within the form 3 as fast as necessary, and at the same time the driving power from the compressed air supply feeds the material into the forms in such a forcible manner as to effect, simultaneous with the feeding action, also a tamping and compressing action whereby the material, as it is fed in position, is also firmly compacted therein as fast as it is discharged from the nozzle 7.

It is of course obvious that all this operation might be carried out by hand, including the packing or tamping of the material into place; or, as an alternative tamping device, or additional means of this sort, a compressed air tamping tool 12 may be provided, having a hose 14 connecting it with the compressed air pipe 9, communication with which is controlled by an air valve 15. By the pneumatic tamping action of the device 12, moved from point to point over the material being molded, the packing action upon this material may be prolonged

to any extent that may be necessary for producing the desired hardness and firmness of the molded material.

It is found that walls constructed in this manner, using dry earth materials, and packed firmly into molded position without added moisture or any packing or binding material, after being allowed to set or cure, and harden in permanent form, possess very great strength and durability, these properties including not only high tensile strength, but great crushing resistance, either with or without any reinforcing elements. One of the great advantages of the improved method or process resides in the fact that use is made of the earth materials or deposits that are found right upon the ground where the building is to be constructed, and such materials simply being gathered together at random and nothing being added unless it is desired to select certain other materials on account of their quality, color or special adaptability for the purpose, and a certain amount of binder being added to increase the tensile strength of the wall if this be deemed advisable. The material thus chosen is simply run through the mill 4 where it is intimately ground and mixed, and at once conducted by the hose 6 to the nozzle 7, and thereby discharged into the forms. The force of the discharge from the nozzle effects, simultaneous with the feeding of the material, a most efficient packing or compressing action of the material within the form, thus producing the desired hardness or firmness of the material as it is deposited. This also serves to drive out any excess moisture from the material, as well as to effectively mold and fill out the spaces within the form, so as to conform to all the surface details desired to be imparted by the outlines or contour of the forms. As already stated, the material may be packed in place by hand, or by the mechanical device 12, or any other well known means adapted to produce an equivalent result, of ramming the earth material into place.

In addition to more intimately binding the earth materials into a solid homogenous mass for composing the wall, the fibrous material, such as roots, fibers, hay, straw or the like, serves to promote the drying action, since the mingled fibers, throughout the material, aid in conducting the moisture away. The fibrous ingredients improve the surface texture of the wall when completed, and prevent cracking, wearing or sloughing away of its outer surface, as well as producing a surface better adapted for the holding of furring strips, siding shingles or other finishing material, which may be secured in place by any of the means usually employed for that purpose. This character of surface is also well adapted for the application of a plaster finish, or of waterproofing, and affords a ready background for the treatment of the surface with wash-coats, colorings, oils, paints and the like, when applied as a wash, dip or spray. It may also be stated, that if desired, the materials entering into the wall's composition may be given a preliminary chemical treatment for enhancing the waterproof properties of the wall, for rendering it entirely impervious to water and moisture under all conditions.

In all cases, however, the improved method has the great advantage of speeding up the building process, as the forms can be shifted immediately after the packing operation for the progressive molding steps, and the molded portion of the wall will not only retain its form but will at once permit the application of plastering or other finishing material without the delay incurred with wet walls which must be allowed a much longer period to dry and harden.

While I have illustrated and described what I now regard as the preferred mode of practicing the invention, I desire to reserve the right to make such changes or modifications, that may fairly fall within the scope of the appended claim.

What I claim is:

The dry process of earthen building construction which consists in mixing comparatively dry comminuted earth material with shredded fiber to an appropriate binding consistency, forcibly feeding the mixture into a molding form and thereby producing a simultaneous tamping or compressing action to pack the material within the mold, and thereafter, without adding any moisture or other binding ingredient, allowing the mixture to dry and harden into a permanent state with portions of the shredded fiber exposed at the exterior surface of the mixture to form a binder for an exterior coating to be applied thereto.

In witness whereof I hereunto affix my signature.

FRANK B. DAGGETT.