July 8, 1924. 1,500,377

D. W. DODSON

WALL CONSTRUCTION

Filed March 7, 1921

Fig. 1

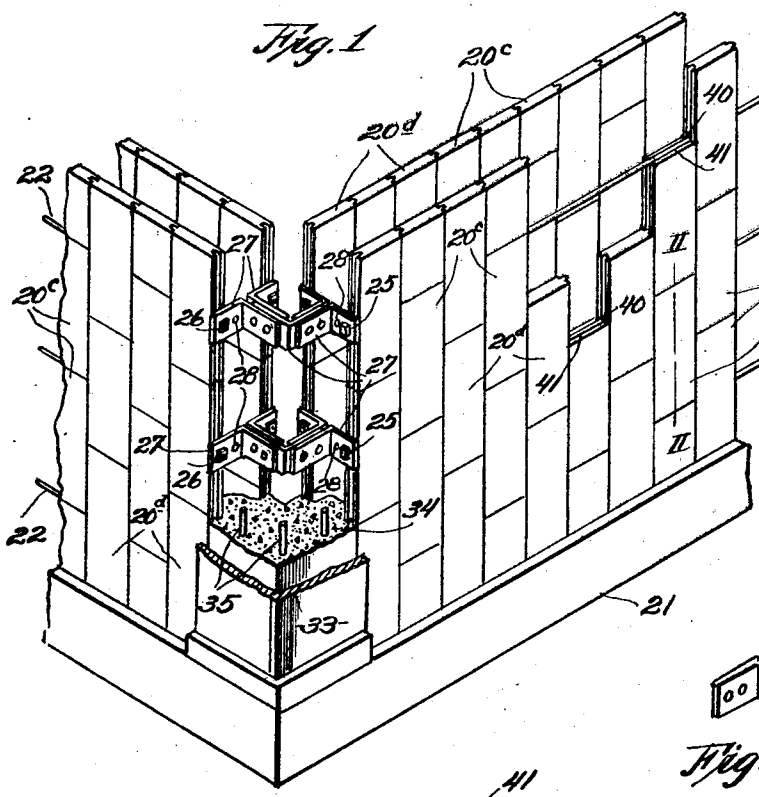
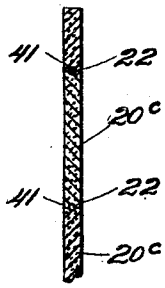


Fig. 2



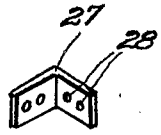


Fig. 3

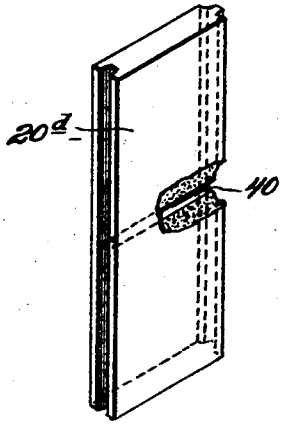


Fig. 4

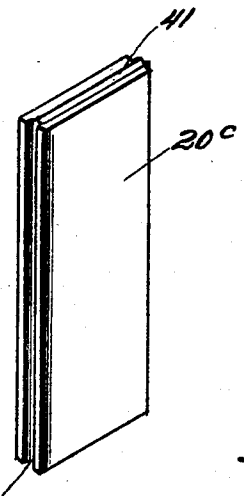


Fig. 5

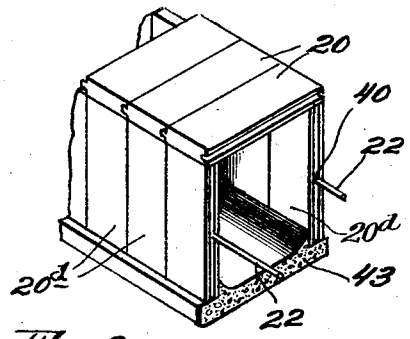


Fig. 6

Witness:

R. C. Hamilton

Inventor:

David W. Dodson,

By Thorpe & Gerard,

Attorneys.

Patented July 8, 1924. 1,500,377

UNITED STATES PATENT OFFICE.

DAVID W. DODSON, OF WICHITA, KANSAS.

WALL CONSTRUCTION.

Application filed March 7, 1921. Serial No. 450,266.

To all whom it may concern:

Be it known that I, DAVID W. DODSON, citizen of the United States, and resident of Wichita, county of Sedgwick, State of Kansas, have invented a certain new and useful Improvement in Wall Constructions, of which the following is a complete specification.

The present invention relates to improvements in wall construction, with particular reference to the walls of buildings or like structures, and aims to provide an improved type of construction making use of concrete material, with a view to eliminating the necessity for the use of forms for retaining the concrete material until it has become set or hardened.

To this end I have devised an improved process of building construction in which one of the steps of the process consists in assembling and permanently positioning the curtain structure of a wall between its pillars or pilasters prior to the pouring of the concrete material used in the construction of such pillars or pilasters. The improved process further consists in the construction of a curtain structure of sectional concrete units, and making use of tie-rods for securely retaining the assembled units, the ends of which rods are securely anchored within the concrete of the pillars or pilasters by the pouring of the concrete material for the latter as the final step of the process.

As an improved feature of wall construction, the invention comprises a curtain wall structure made up of a plurality of stave or slab units assembled in wall form, together with tie or anchoring rods arranged to retain the stave or slab units of the curtain in upright position, these rods having their ends permanently secured or anchored within the material forming the concrete pillars or pilasters at the ends of the curtain wall.

It is further sought to provide an improved wall construction which is adapted to be easily and quickly assembled by unskilled labor, and at materially less cost than similar walls as now made from concrete material, and without sacrificing in any way as to strength, durability or in the attractive finish or appearance of the construction.

With the foregoing general objects in view the invention will now be described by reference to the accompanying drawings illustrating types of wall construction embodying the proposed features of improvement, after which the novel features therein will be particularly set forth and claimed.

In the drawings—

Figure 1 is a fragmentary perspective view showing a building wall construction, embodying the present features of improvements;

Figure 2 is a detail sectional view of a portion of a wall, representing a section on a line II—II of Figure 1;

Figure 3 is a perspective view illustrating the bracket element used for anchoring the ends of the rods;

Figures 4 and 5 are enlarged perspective views illustrating the two types of slabs or staves used in the improved wall construction; and

Figure 6 is a fragmentary perspective view illustrating a wall formation for trench work.

Referring now to the drawing in detail, this illustrates the improved wall construction as made up of sections or units in the form of staves or slabs of concrete material, and of substantially uniform shape and size, and preferably of tongue-and-grooved character as shown. Some of these slabs or panels, as the panels 20^d, are provided with central transverse passages 40, through which to thread a set of tie rods 22, while the remaining slabs or panels 20^e are formed with suitable end grooves 41, for receiving the rods 22 as hereinafter explained. Each wall construction is designed to be made up of one or more wall curtain structures, each composed of a plurality of the slabs or panels 20^e and 20^d. As illustrated in Figure 1, each curtain wall is composed of a set of vertically alined panels 20^e alternating with a set of similarly alined panels 20^d, with the panels of adjoining sets in staggered relation, and supported upon a suitable abutment or foundation 21 which has been previously prepared, and retained in such assembled form by means of a set of anchoring rods 22 threaded through the passages 40 of the panels 20^d, and also through the passages formed by mating grooves 41 of the abutting ends of the panels 20^e. One end of each of the rods 22 is formed with a bolt head 25 for engagement with one of the corner or partition brackets 27 (having openings 28 for said rods), while its other end is threaded and fitted with a nut 26 for clamping engagement with another of the brackets 27, and thereby securely clamping

and retaining the wall sections or units in their upright position.

For the construction of corner or partition pilasters or pillars, the forms 33 are prepared in advance for the pouring of the concrete material 34 having the usual reinforcing rods 35, these pillars or pilasters being constructed, of course, at the lines of intersection of the various curtain walls made up of the panels or slab units 20^c and 20^d. The assembling of the curtain or panel structures is completed before the pouring of the pillars or pilasters, thereby securing the units of each panel or curtain structure together in the proper rigid and permanent relation and independent of any supporting connections with the corner or partition pillars or pilasters. After the tie or anchoring rods 22 have been tightened and firmly clamped, the concrete is poured for the various pillars 34, which results in completely enveloping the anchoring brackets 27, and their connections, with this concrete material, so that a complete solid and rigid pillar structure is produced, which likewise serves to securely and permanently bind all the parts of each curtain wall in the form in which they have been assembled.

The wall may be made in either single form, or in double form as shown in Figure 1, this latter construction having the curtain walls in spaced relation with an air space between them, or such space as may be desired for the purpose of pouring concrete material thereinto and producing a solid concrete wall. In this form of construction each pair of angle brackets 27 (the corresponding pair of adjoining and parallel wall curtains) is suitably secured to one arm of an intermediate angle bracket 27, the other arm of which serves as a means of connection with the pair of angle brackets 27 projecting from the corresponding portion of the adjoining wall curtains. After all the bracket parts have been connected and secured in this relation, the pillar or pilaster is formed by the pouring of the concrete material 34, the space between the parallel wall curtains being also adapted to be filled with the concrete material for producing a solid wall construction, if desired.

The improved form of wall construction is also well adapted for use in irrigation work in the construction of what are called lateral ditches or trenches, in which application of the improvement the side walls of the trench may be formed by the use of the staves 20^d having the openings 40 for the tie-rods 22 the said staves or slabs being arranged side by side in upright position upon the opposite sides of the foot or foundation 43 of the trench. The tie-rods 22 may be tightened and securely clamped at intervals by means of concrete posts as already indicated, and the trench closed by means of plain slabs or staves 20 arranged crosswise upon top of the two walls of the staves 20^d.

From the foregoing it will be apparent that I have devised a simple, and yet practical and efficient wall construction having the desired features of advantage as explained in the statement of the objects of my invention. One of the principal points gained is the elimination of the necessity of any form work for the pouring, molding and setting or hardening of the concrete materials used in the construction of the wall curtain or panel between the corner pillars or pilasters. This eliminates not only the cost of said form material, but materially cuts down the labor expense since any high-priced skilled labor is not required, and furthermore a substantial saving in time is made because of the time saved that would be otherwise wasted in setting up and tearing down the form lumber and allowing the concrete to set or harden. All that is necessary in the present improved process is to assemble the requisite number of the concrete slabs or staves upon the foundation 21 and to the desired height, secure these slabs together in either of the fashions above explained by means of the tie or anchoring rods 22 having their ends connected at the corners to the tie or anchoring rods 22 of the adjacent wall curtain or panel, all prior to any work being done toward the pouring of the concrete for the corner pillars or pilasters. This enables the wall panels or curtains to be more accurately alined or trued up into proper permanent form before the final and permanent hardening of the material, after which, when the connections are all properly adjusted and securely tightened, the concrete is poured for the construction of the corner pillars or pilasters, with the result that the whole construction then assumes the strength, solidity and firmness of a solid concrete formation. The described construction is suitable not merely for plain building walls alone, but may be employed with entire success in the construction of building work such as elevators and mills, silos, fences, sign boards, aqueducts, or sewers, bridge abutments, or any of such types of construction as would be plainly satisfied by the present improvements.

It may further be pointed out that one of the features of advantage characterizing the improved construction is in the convenience and ease with which the parts may be handled in assembling the same for erecting the wall, the different units or slab parts fitting exactly where they belong, and the work of connecting up the tie rods and tightening or adjusting the same being carried out with no difficulty whatsoever. In this connection it is also worthy of note that the construction of the improved wall is such as readily lends itself to the making

of portable buildings, it being obvious that in knocking down such a wall structure as may be produced by the present sectional form the concrete corner structures are first broken away, after which it is only necessary to loosen or unscrew the rods 22 and thereby allow the slabs or staves to be taken down and stored away intact for later use when desired. It will also be understood that the exterior finish of the wall may be of any suitable finishing material desired, the character of the slab units or staves being particularly well adapted for the application of stucco material. It is apparent also that a strong, permanent and durable, as well as comparatively inexpensive construction is possible by means of the above described improvements, and while I have illustrated and described what I now regard as the preferred form of embodiment thereof, I desire to reserve the right to make such changes or modifications as may fairly fall within the scope of the appended claims.

What I claim is:

1. A building wall construction comprising a curtain wall structure consisting of a plurality of sets of vertically alined slabs assembled in wall form with the slabs of adjoining sets in staggered relation, anchoring rods embedded in said slabs in the plane of the wall and acting to retain the same in upright position, said rods being threaded through the intermediate portions of the slabs of every other set and also intersecting the abutting ends of the slabs of the remaining sets and said ends being formed with grooves for accommodating said rods, and tightening means connected with said rods and operative to clamp said slabs securely in assembled relation.

2. A concrete wall construction comprising a plurality of concrete slabs adapted to be assembled in wall form, and an anchoring rod threaded through said slabs and acting to retain the same in upright position, said rod being provided with clamping nuts operable to tighten said rod and thereby securely clamp said slabs in assembled relation.

3. A building wall construction comprising a pair of curtain wall structures each consisting of a plurality of stave or slab units assembled in wall form, anchoring rods threaded through said slabs in the planes of said walls and acting to retain the same in upright position, anchoring brackets for each of said curtain walls at the adjoining ends thereof, means connecting the brackets of one wall to the brackets of the other wall, and clamping nuts threaded on the ends of said rods in engagement with said brackets for tightening said rods and securely clamping said slabs in assembled relation.

4. A building wall construction comprising two pairs of spaced parallel curtain wall structures each comprising a plurality of stave or slab units assembled in wall form, anchoring rods serving to retain the stave or slab units of each curtain wall in upright position, anchoring brackets for each of said pairs of curtain walls at the adjoining ends thereof, means connecting the brackets of one pair of walls to the brackets of the other pair of walls, and clamping nuts threaded on the ends of said rods in engagement with said brackets for tightening said rods and securely clamping said slabs in assembled relation.

In witness whereof I hereunto affix my signature.

DAVID W. DODSON.