Jan. 8, 1957 O. M. SUMMERS 2,776,559

BLOCK WALL

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FIG-1

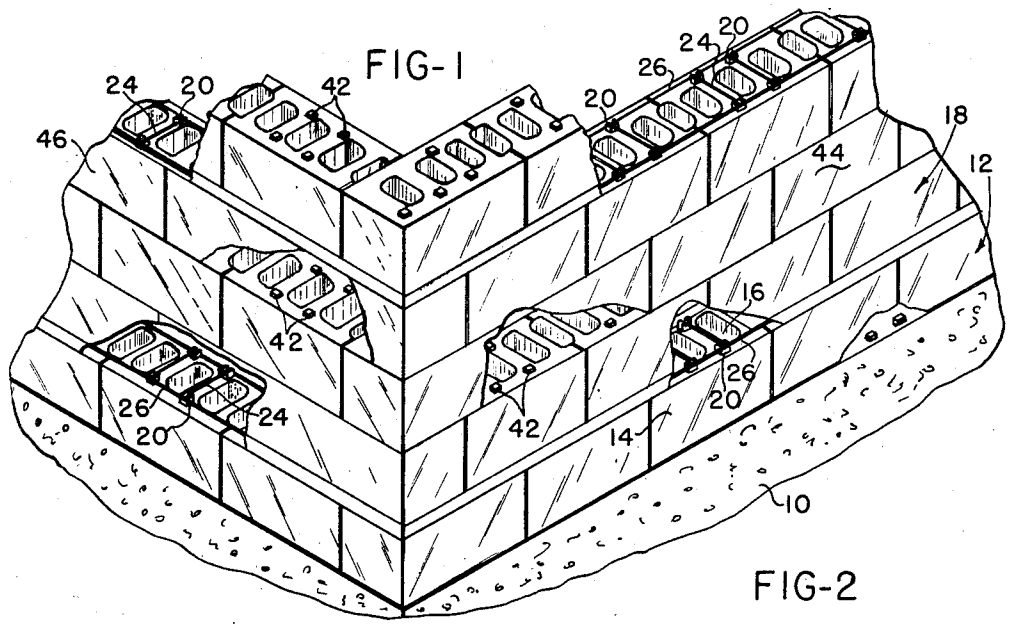


FIG-2

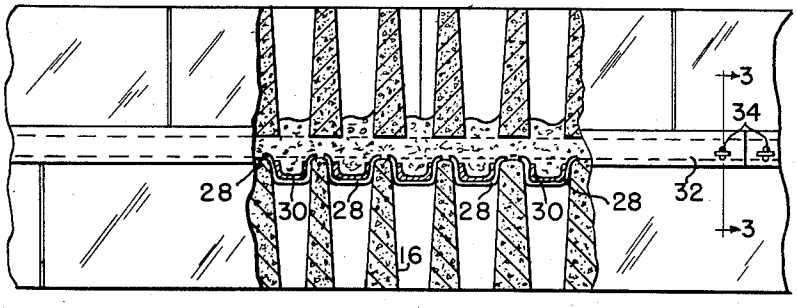
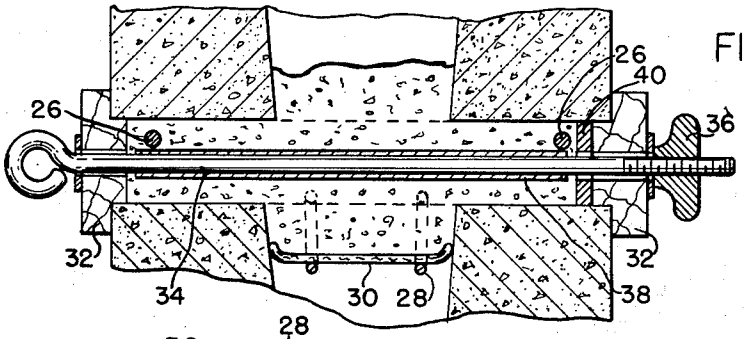


FIG-3



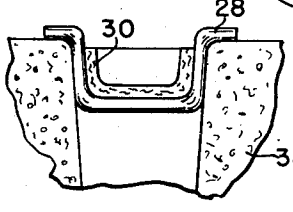


FIG-4

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FIG-5

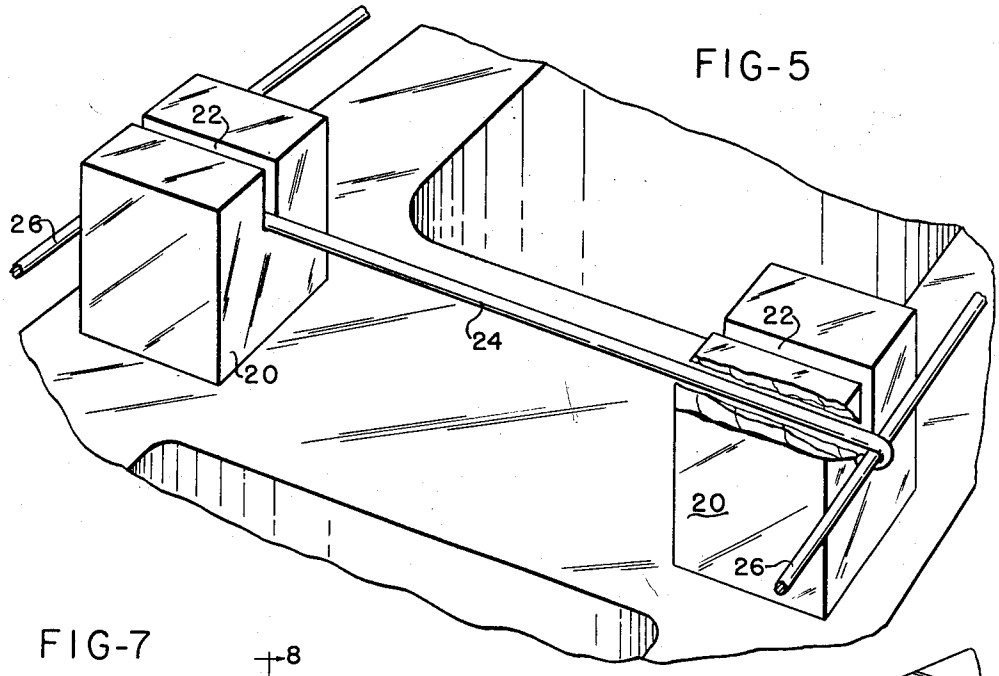


FIG-7

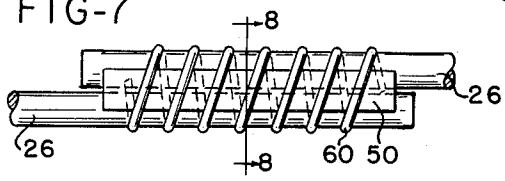


FIG-8

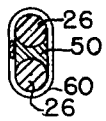
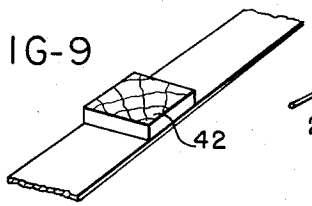


FIG-9



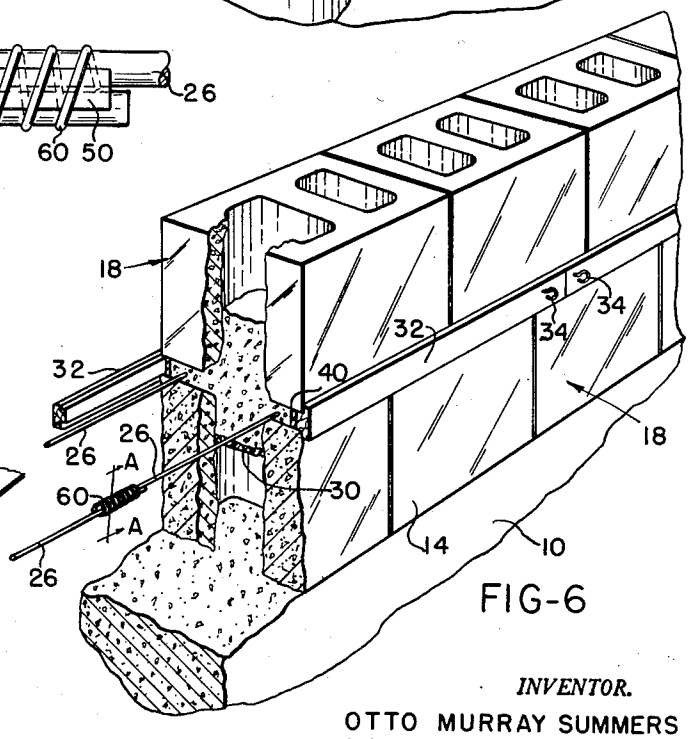
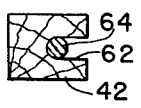


FIG-6

FIG-10



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2,776,559

BLOCK WALL

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Application September 3, 1952, Serial No. 307,609

3 Claims. (Cl. 72—30)

This invention relates to a building arrangement, particularly as to the walls thereof, and to a method of erecting the walls.

More particularly still, this invention relates to a building wall or the like laid up from blocks, and to a method of erecting such a wall.

Blocks such as concrete blocks or cinder blocks offer a convenient and economical means of erecting walls for buildings and the like, but heretofore the convenience of utilizing these blocks was at least partially offset by the fact that a great deal of manual labor was required in applying the mortar to the joints between the blocks by hand. Also, the full strength of such walls has never been developed because there is a tendency for the walls to be somewhat weak at the joints, and under extremely adverse conditions, such as ground shifting and the like, block walls will sometimes collapse before being completed.

With the foregoing in mind, the primary object of this invention is the provision of a method of erecting block walls and partitions and the like for building structures and other installations in which the drawbacks referred to above are eliminated.

Another object of this invention is the provision of a wall of the nature referred to above, and a method of erecting the wall which will eliminate a great deal of the labor attendant to the erection of block-type walls in the conventional manner.

Still another object of this invention is the provision of a method of erecting a wall so that the wall has greater strength than a wall laid up in the conventional manner.

Still another object of this invention is the provision of a block-type wall, and a method of laying up the wall which imparts a pleasing appearance to the finished wall.

Still another object is the provision of a method of laying up the block-type wall with extreme rapidity, thereby permitting the wall to be laid up in less time than by conventional methods.

These and other objects and advantages will become more apparent upon reference to the following specification taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a corner wall erected according to my invention;

Figure 2 is a side view of a portion of the wall partly broken away;

Figure 3 is a vertical sectional view indicated in line 3—3 on Figure 2;

Figure 4 is a detailed view drawn on a somewhat larger scale than Figure 2;

Figure 5 is a perspective view showing one pair of spacers that are located between consecutive courses of the blocks, and the manner in which the spacers are employed for supporting reinforcing wires or rods;

Figure 6 is a perspective view showing a dowelled joint between consecutive courses of blocks and the reinforcing members therein;

Figure 7 is a view showing how reinforcing rods or wires can be connected together at their ends;

Figure 8 is a sectional view indicated by line 8—8 on Figure 7;

Figure 9 is a perspective view showing how a flexible strip can be employed for supporting some of the spacers; and

Figure 10 is a sectional view indicating how some of the spacers can be employed for supporting reinforcing rods or wires.

In general, in the practice of my invention, I employ conventional concrete or cinder blocks of the type having cored openings and lay up a wall with these blocks by placing spacers between consecutive courses of the blocks for holding them in proper spaced relation and level.

A certain number of the joints between consecutive courses of the blocks are made wider than the regular joints and retaining means are placed in the cored holes of the lower layer of blocks of this joint so that a continuous concrete dowel can be poured into the joint through the cored holes in the upper layer of the blocks. A joint of this type can be employed at the first, second, third or fourth joint as may be desired to provide for the necessary strength and rigidity of the finished structure.

The others of the joints between successive courses of the blocks are somewhat narrower than the described dowel joint, and a suitable mortar mix is supplied thereto after the wall has been laid up completely by means of a gravity or pressure guns. The net result is a wall which is erected extremely rapidly, thus saving time and labor, and which is extremely strong due to the dowelled joints between certain ones of the courses of blocks.

Referring now to the drawings somewhat more in detail, in Figure 1 there is a poured foundation or footing at **10** and on which is placed a first course **12** of building blocks **14** which may be cement or cinder blocks and which is the vertically extending cored passages **16**. I prefer to grout the first course of the blocks in place and permit the mortar to set up before adding the next course of blocks and which is generally indicated at **18**.

Prior to laying the second course of blocks, I place on top of the first course of blocks a plurality of end grain wood spacers **20** which are slotted as at **22** for receiving the transverse wire or bar **24** that has its ends formed to hooked configurations so as to engage and support the reinforcing wires or rods **26** extending lengthwise of the wall being erected.

I also place on the top of each of the cored openings **16** in the course of blocks **12** a pair of U-shaped supporting wires **28** and thereon the paper or cardboard cup **30** which forms an effective closure of the cored openings **16**.

I then lay the course of blocks **18** in place on top of the spacers **20**. The spacers **20** may be positioned individually or may be mounted on a strip of flexible material as will be later described in connection with Figure 9.

There is then placed on each side of the joint between the courses of blocks the wood or metal form strips **32** which preferably include a tenon extending into the joint a predetermined distance. These strips are apertured for receiving tie bolts **34**, having wing nuts **36** and which hold the form strips firmly in place.

A paper tube **38** is preferably placed around each tie bolt **34** so that the tie bolt can readily be withdrawn after a cement joint is poured into the space between the blocks.

On the outside face of the wall there may be placed a decorative strip such as tile or glass, as indicated at **40**,

beneath the form strip and which will provide a decorative effect after the form strip has been removed.

At this point, thin cement is poured or hosed through the cored openings **16** in the upper course of blocks to secure the joint between the blocks and up to about three-fourths of an inch above the bottom surface of the top row of blocks. The appearance of the joint at this time will be as it is shown in Figures 2, 3 and 6.

Thereafter, relatively short end grain spacer blocks **42** are laid in spaced relation on top of the course of blocks **18** and a third course of blocks **44** is laid thereon. The blocks **42** may be laid in place as individual members, but also may advantageously be secured to a flexible metal strip or to a paper strip, as indicated in Figure 9.

After the course of blocks at **44** is laid up still another course **46** can be placed thereon with spacer blocks **42** therebeneath.

At this time another dowelled joint may be provided in the same manner as the dowelled joint described above. If, at this time, the cement mix in the already poured dowel joint has set up, the form strips **32** can be removed and employed for closing in the sides of the joint between the fourth and fifth courses of blocks. If the said joint is not set then other form strips can be applied and the dowel joint between the fourth and fifth courses of blocks poured in place.

The wall is completely erected in the above described manner, and thereafter the narrow joints between the ends of adjacent blocks and the narrow horizontal joints, determined by the spacer blocks **42**, are filled with a cement mix, preferably by means of a power gun, and also preferably from the top of the wall down.

The wall being erected will, of course, be wet down during construction according to conventional techniques so that the proper curing of the cement will be had to provide for the greatest final strength.

The recesses on the opposite sides of the dowel joints may either be left as they are when the form strips are removed or may be filled. In either case the wide joints provided in the manner described give a pleasing appearance to the completed wall, and the esthetic effect may be still further enhanced by using a colored mortar if desired.

The reinforcing rods or wires **26** preferably are continuous around the entire structure being erected, and for very large structures the wires or rods will be welded together to give a continuous length. In certain cases, however, the arrangement of Figures 7 and 8 can be employed and wherein the adjacent ends of the reinforcing elements **26** are brought into overlapping relation with a filler element **50** therebetween and a coil spring **60** of the proper shape is disposed around the reinforcing elements and filler member. Any tendency for the rods to part will be prevented by the spring **60**.

Normally, the joints in which the spacer blocks **42** are located will not require any reinforcing, but should it be desired to reinforce these joints, then the blocks **42** may be slotted as at **62** in Figure 10 for receiving the reinforcing element **64**.

From the foregoing it will be appreciated that I have devised a wall structure made up of blocks and a method

of laying up the wall in which standard blocks can be employed, and also wherein the wall can be erected very quickly and will have a high degree of strength when completed.

The advantage of using standard building blocks is important because otherwise an expense would be encountered in providing such block shapes which would naturally detract from the economy of the finished structure.

By utilizing the dowel joint of my invention in combination with standard blocks, a wall structure having substantially the strength of a monolithic structure of about the same dimensions is obtained.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions, and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

I claim:

1. In a block wall, a course of cored blocks, cup-like elements supported in the cores of the blocks adjacent the upper surface thereof, spacer means distributed over the upper surface of said course of blocks, a second course of cored blocks in staggered relation to the first course and resting on said spacer means, and a reinforcing wire structure supported between said courses of blocks and extending lengthwise thereof, said structure comprising a pair of parallel longitudinally extending wire elements and spaced transverse elements therebetween, means for securing the ends of said transverse elements to said longitudinal elements, said spacer means provided with a supporting surface carrying said reinforcing structure intermediate the top and bottom surfaces of the joint space between said first and second courses of blocks, and a solid continuous cast-in dowel of masonry material completely filling the joint between said courses of blocks and extending upwardly into the cores of the upper course of blocks.

2. In a block wall as claimed in claim 1, with each of said spacer means comprising a block having a groove extending tarnsversely of said courses, each of said transverse wire elements having the end portions thereof received in the grooves of a pair of spacer blocks.

3. In a block wall as claimed in claim 1, wherein a plurality of spacer means are secured to a flexible strip, and said strip is positioned longitudinally upon said first course of blocks in the joint space between said first and second courses.

References Cited in the file of this patent

UNITED STATES PATENTS

860,927	Mann	July 23, 1907
1,070,921	Saltiel	Aug. 19, 1913
1,186,592	Mathews et al.	July 13, 1916
1,742,103	Sholtes	Dec. 31, 1929
1,870,926	Sawyer	Aug. 9, 1932
2,013,736	Stirrup	Sept. 10, 1935
2,055,184	Stirrup	Sept. 22, 1936
2,198,399	Tefft	Apr. 23, 1940
2,313,211	Aldriich	Mar. 9, 1943
2,329,189	Dill	Sept. 14, 1943
2,546,356	Boyd	Mar. 27, 1951