

C. R. HALL.
CONCRETE STRUCTURE.
APPLICATION FILED MAR. 8, 1911.

1,020,645.

Patented Mar. 19, 1912.

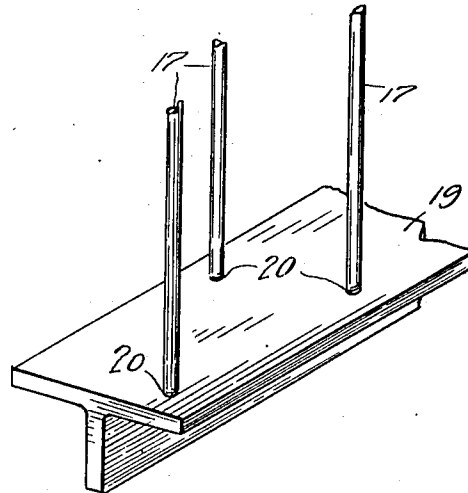
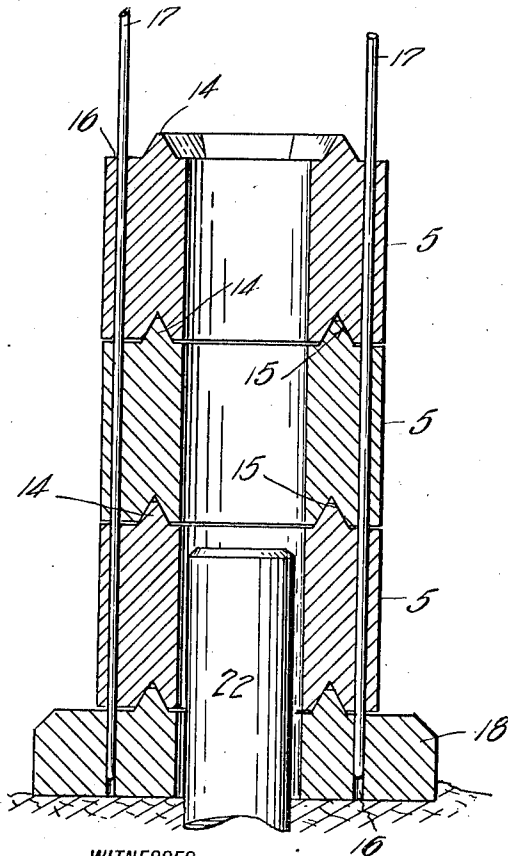
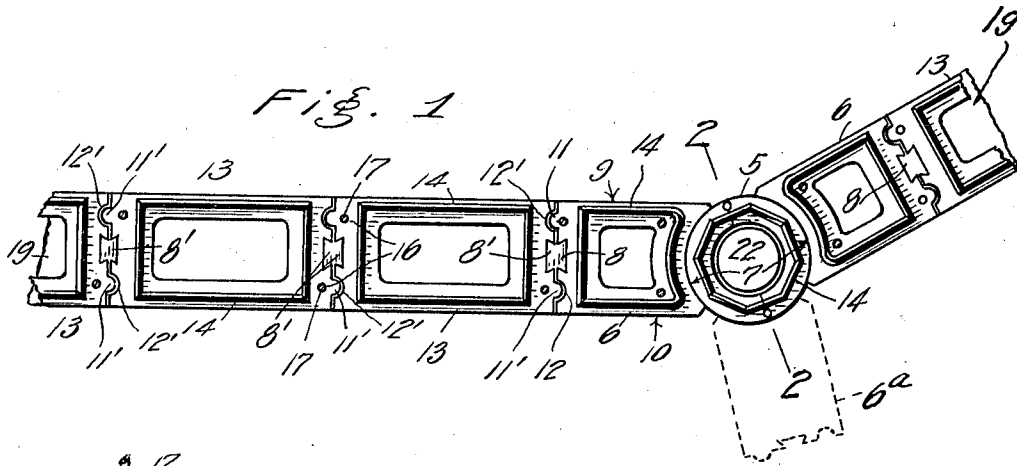


Fig. 3

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CONCRETE STRUCTURE.

1,020,645.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed March 8, 1911. Serial No. 613,165.

To all whom it may concern:

Be it known that I, CHARLES R. HALL, a citizen of the United States, residing at Seabeck, in the county of Kitsap and State of Washington, have invented certain new and useful Improvements in Concrete Structures, of which the following is a specification.

This invention relates to that class of reinforced concrete structures which is adapted for construction of sea-walls, pier-heads, piling or the like which is at least partially submerged in water.

The object of the present invention is the provision of an improved means or system of block formation whereby efficient and durable structures of the above mentioned types are readily erected and in situations where a homogeneously constructed wall would be impractical.

The invention consists in the novel construction and combination of elements as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a sea wall showing an embodiment of my invention. Fig. 2 is a vertical section taken through 2—2 of Fig. 1. Fig. 3 is a perspective view of a foundation support for the wall members such as may be utilized to support a wall over an irregular sea-bottom or where the latter is of a soft or unstable nature.

In carrying out my invention, I employ a number of interfitting wall members composed of hollow concrete blocks of sizes suitable to the structure and with regard to the facilities for handling the same.

Referring to Fig. 1, the numeral 5 designates a circular block. 6 are blocks each provided at an end with a concavity 7 to fit against the periphery of the block 5. At the opposite ends of blocks 6 and centrally of their widths are dove tail recesses 8. Between a recess and the inner and outer block-faces 9 and 10, respectively, are a protuberance 11 and a recess 12 which are arranged symmetrically so that correspondingly disposed recess and protuberance provided on the end of adjoining ends of blocks 13 will register therewith. The last named blocks are provided at both ends with the dove-tail slots 8' and the above mentioned devices, the protuberances 11' and recesses 12', which are interfittable with the adjoining elements of similar blocks or

of the type of blocks indicated by 6. In assembling the blocks the ends are not usually juxtaposed but separated to afford interstices for a filling cement to bind same together into a rigid body. The opposing dove-tail slots are filled with cement to make a lock tie between the adjacent blocks of each tier thereof.

The afordescribed blocks are further characterized by having a rib 14 projecting upwardly from the upper surface of each and a correspondingly shaped groove 15 (see Fig. 2) in the lower face, so that superposed blocks will have the rib of the lower one extend into the groove of the block next above, and so on to the upper tier of blocks, as will be understood from an inspection of Fig. 2. The blocks are further provided with spaced holes 16 for the reception of vertical rods 17 which serve to guide the blocks as they are successively lowered to mate with the ones next below. In Fig. 2, I show a stack of blocks supported upon a base block 18 having the rib 14 but unprovided with a groove 15. Where such a base block is employed, the rods 17 should be fitted in the holes therefor of the base block in order that the rods will be held upright and in parallel for receiving the blocks deposited thereupon. Similarly, base blocks may be provided for the other blocks 6 and 13, though a T-shaped girder 19 (Fig. 3) of cast or rolled iron is deemed preferable, as the alinement of the horizontal rows of blocks are more readily effected.

Where a girder is adopted the bars 17 are desirably screw threaded at their lower ends to engage threaded holes 20 in the girder.

In constructing a wall, the block elements are laid up in horizontal rows, with cement binder in the interstices. Where the wall is straight, the entire structure can be formed with blocks of the type indicated by 13. Where there is an angle in the wall a column of the blocks 5 would be used at the bend with flanks of blocks 6 which in turn make the connection with the blocks 13. By making the blocks 5 circular and the flanking blocks 6 concave, it is evident that various angles can be made in a wall face. Under certain conditions such a corner as made by blocks 5 may be reinforced by a vertical row of blocks, as indicated by broken lines 6', Fig. 1, to furnish a buttress of the same. The blocks 5 may also be used

in isolated columns to serve in the nature of piles for supporting a wharf superstructure, or the like.

Best results are insured by first driving
5 into the ground a post 22 (Figs. 1 and 2)
of timber axially to each column of blocks 5
for the purpose of obviating any horizontal
displacement at the time of erection or sub-
sequently if subjected to any longitudinally
10 acting forces of sufficient moment to disturb
the same as, for example, the dynamic force
of a high surf found in certain locations
along the sea coast.

The invention is extremely simple, the
15 blocks can be made of standard sizes and
under normal conditions of weather and sea
a wall comprising blocks of the above de-
scribed nature may be quickly constructed.

What I claim, is—

A wall including horizontal rows of 20
blocks, the opposing ends of the blocks
formed with symmetrically arranged pro-
tuberances and grooves to provide inter-
fitting connections between the adjacent
blocks of each horizontal row, the opposing 25
ends of the blocks further provided with
opposing dove-tail grooves for the reception
of a filling of cement to constitute a binder
between the ends of the blocks, and verti-
cally extending rods projecting through the 30
ends of each of the blocks.

CHARLES R. HALL.

Witnesses:

PIERRE BARNES,
H. BARNES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
