

Sept. 29, 1953

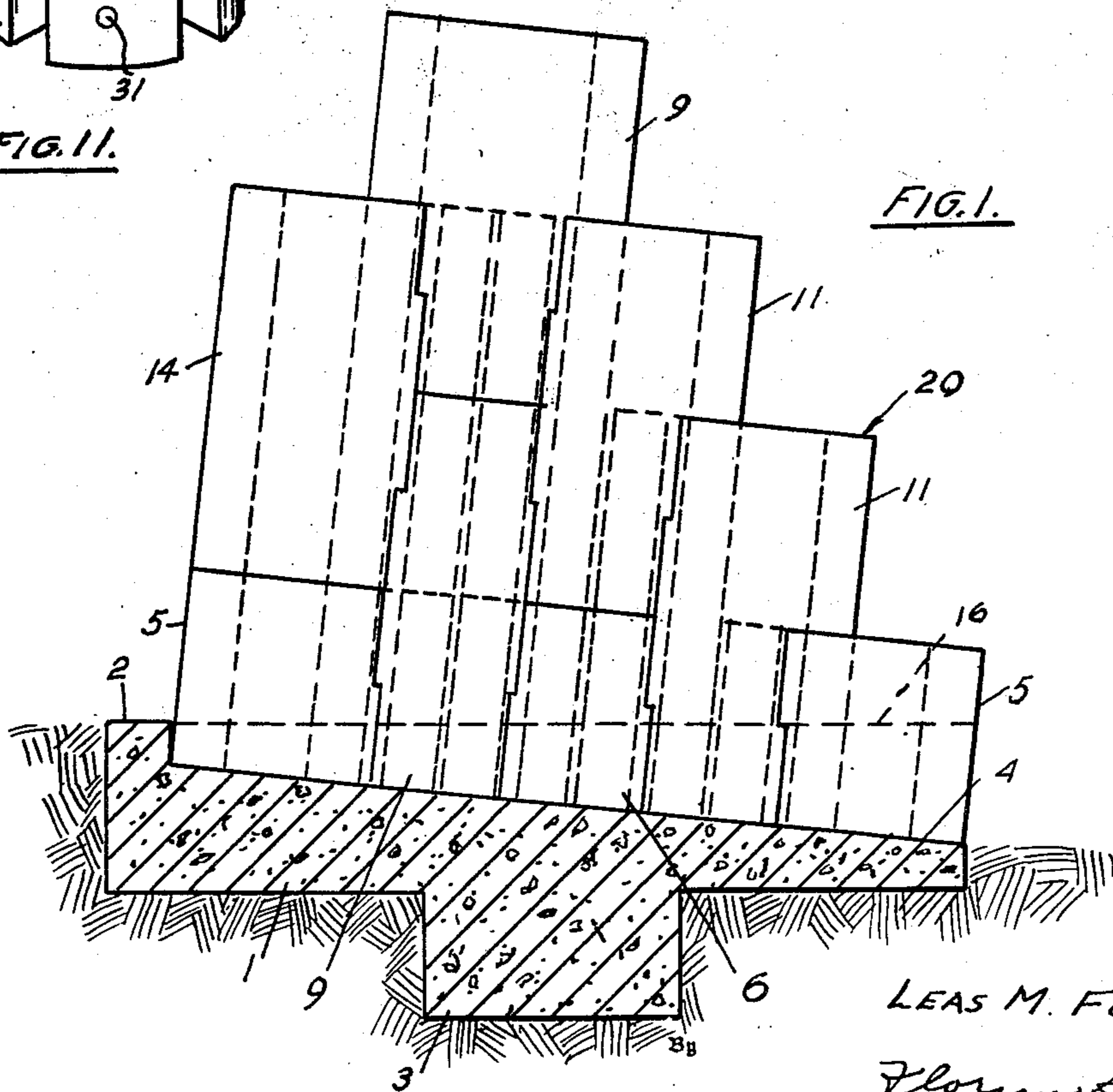
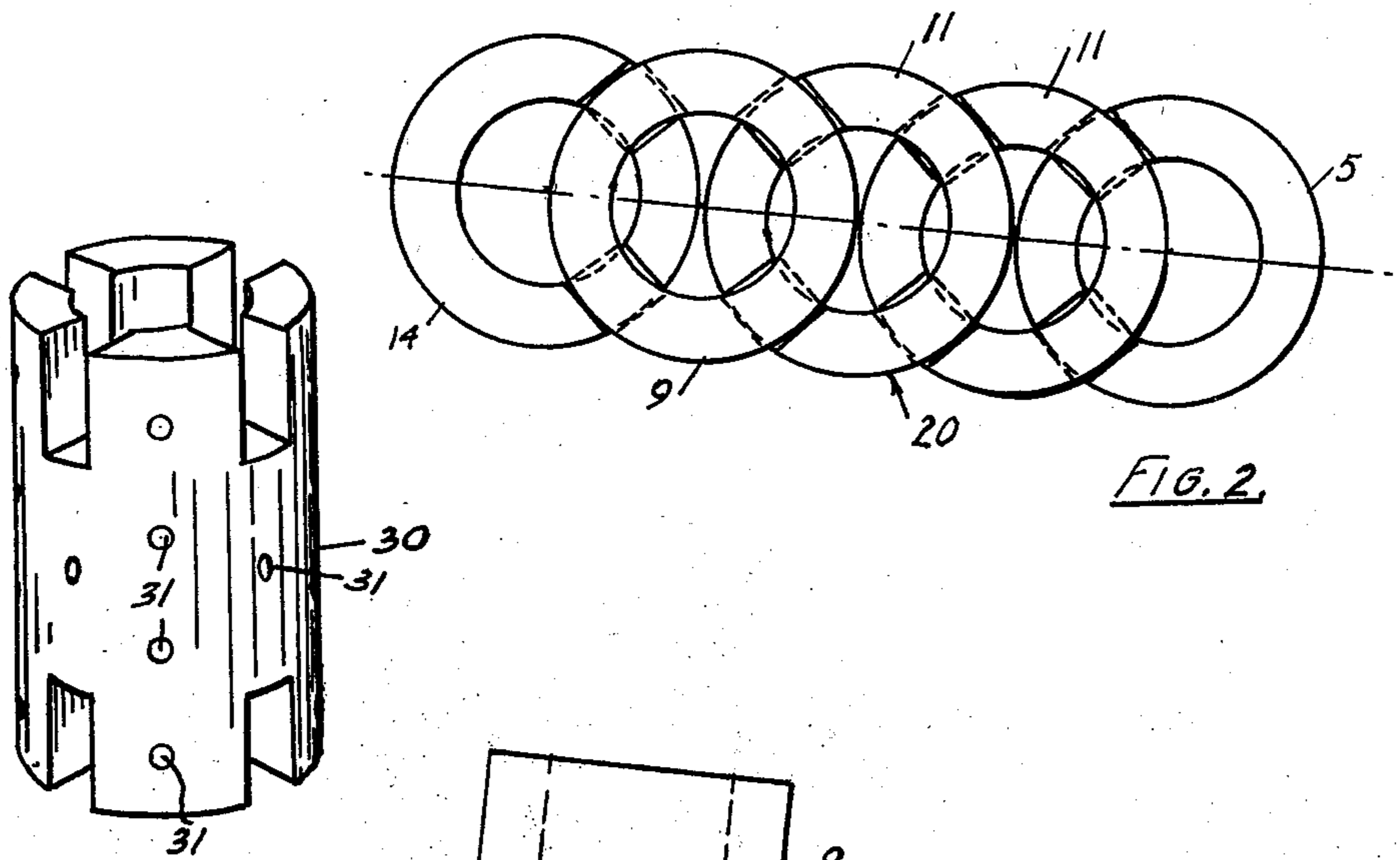
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2,653,450

RETAINING WALL STRUCTURE

Filed Aug. 4, 1949

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

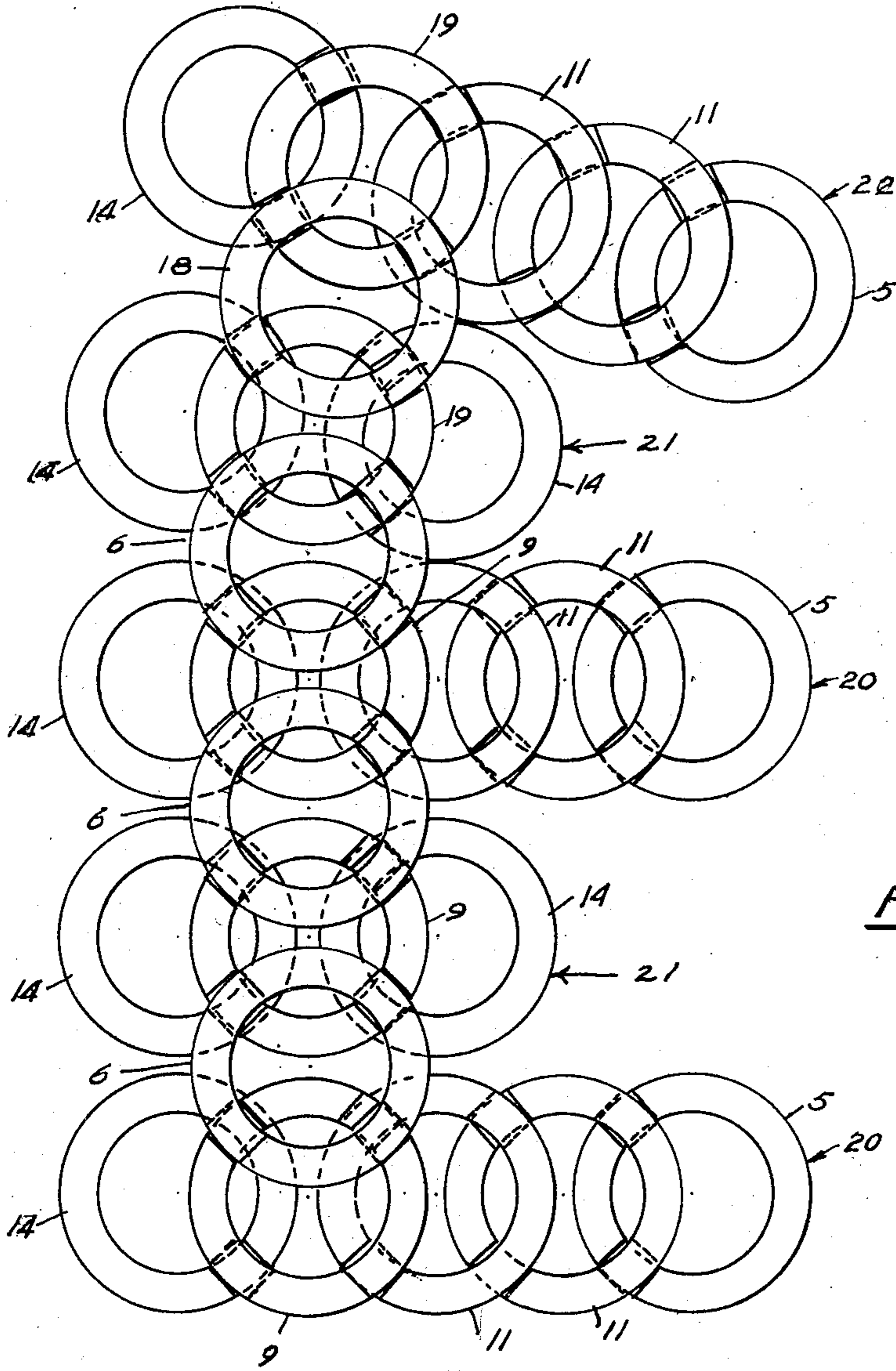


FIG. 3.

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3 Sheets-Sheet 3

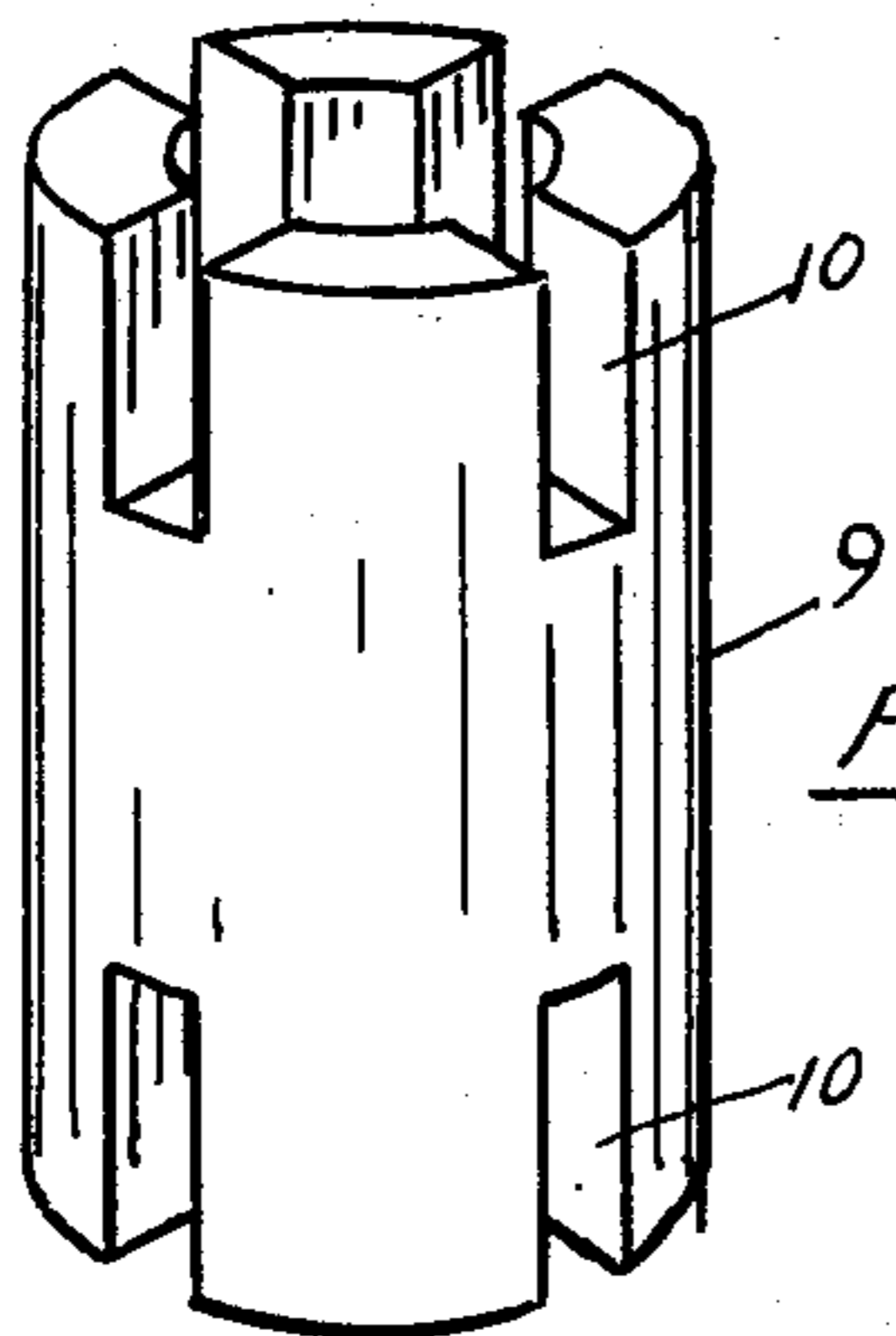


FIG. 4.

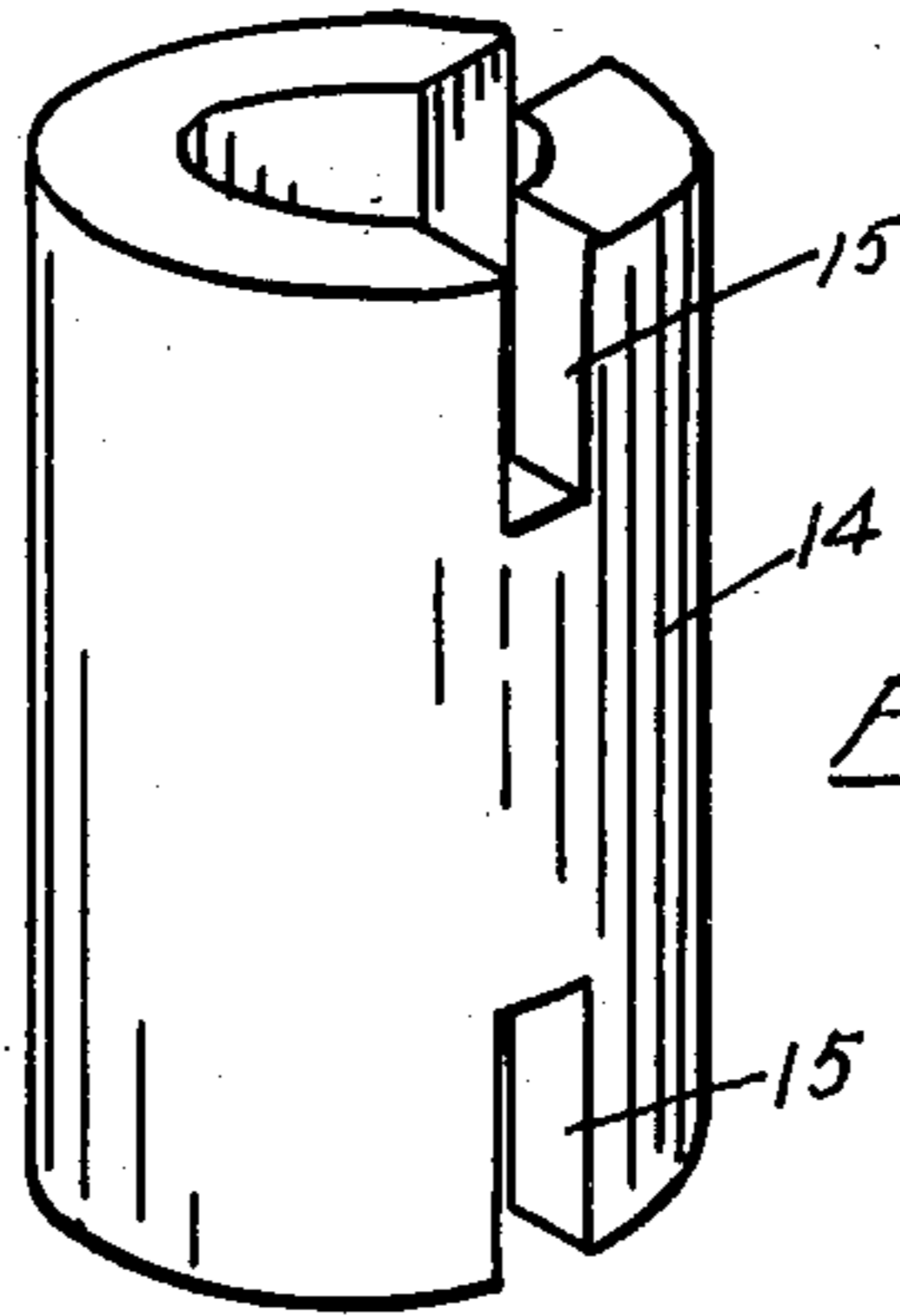


FIG. 5.

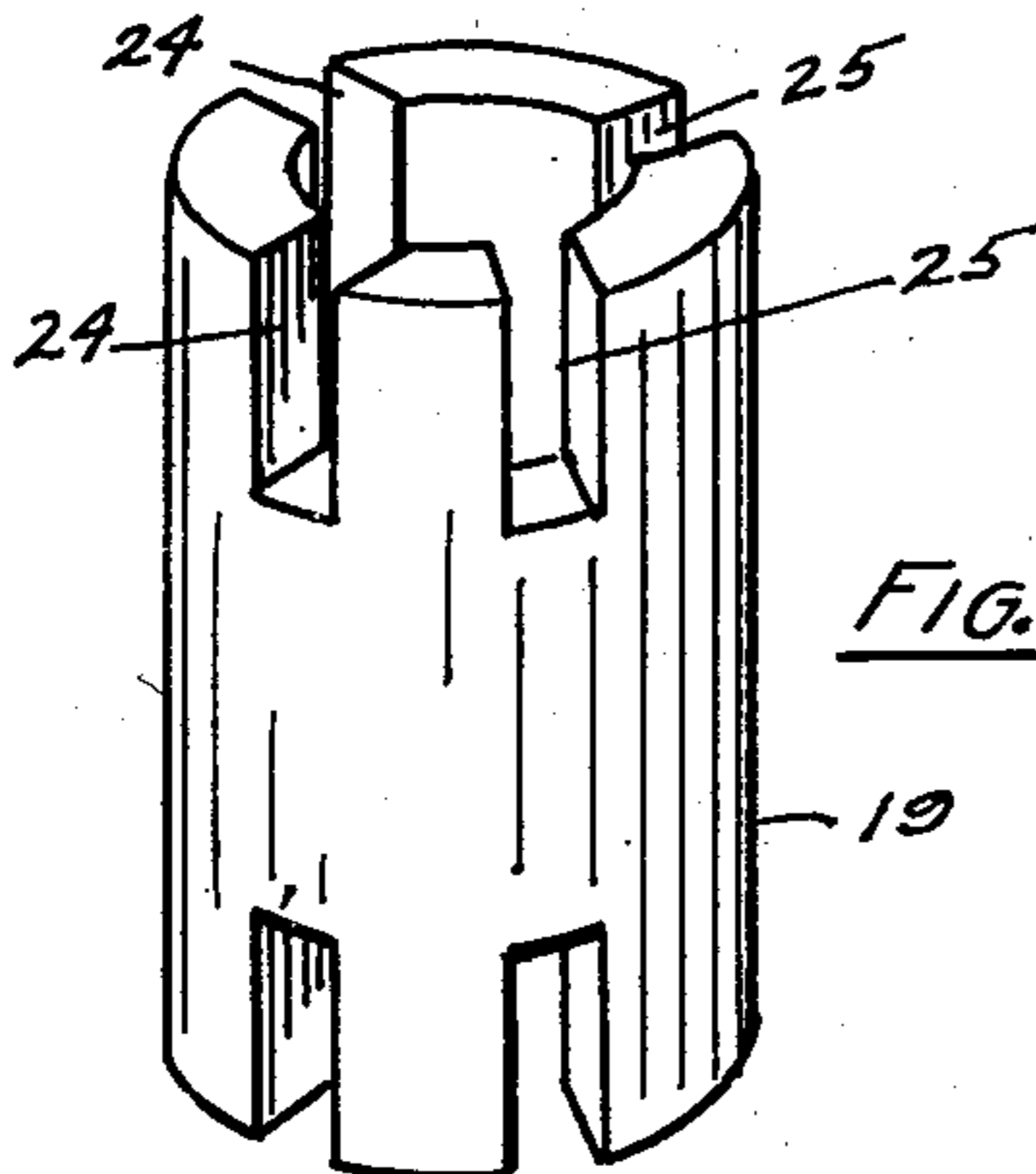


FIG. 6.

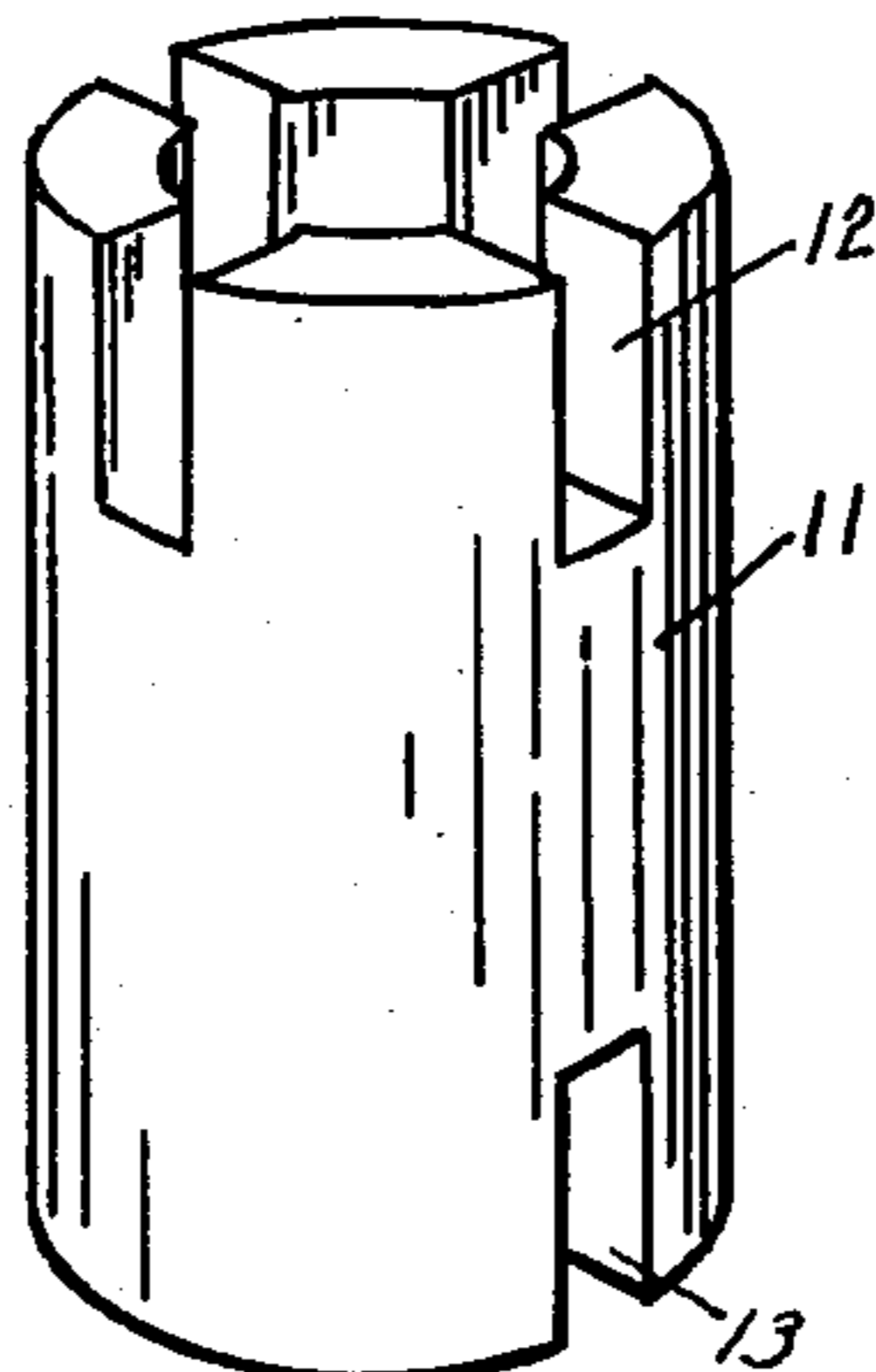


FIG. 7.

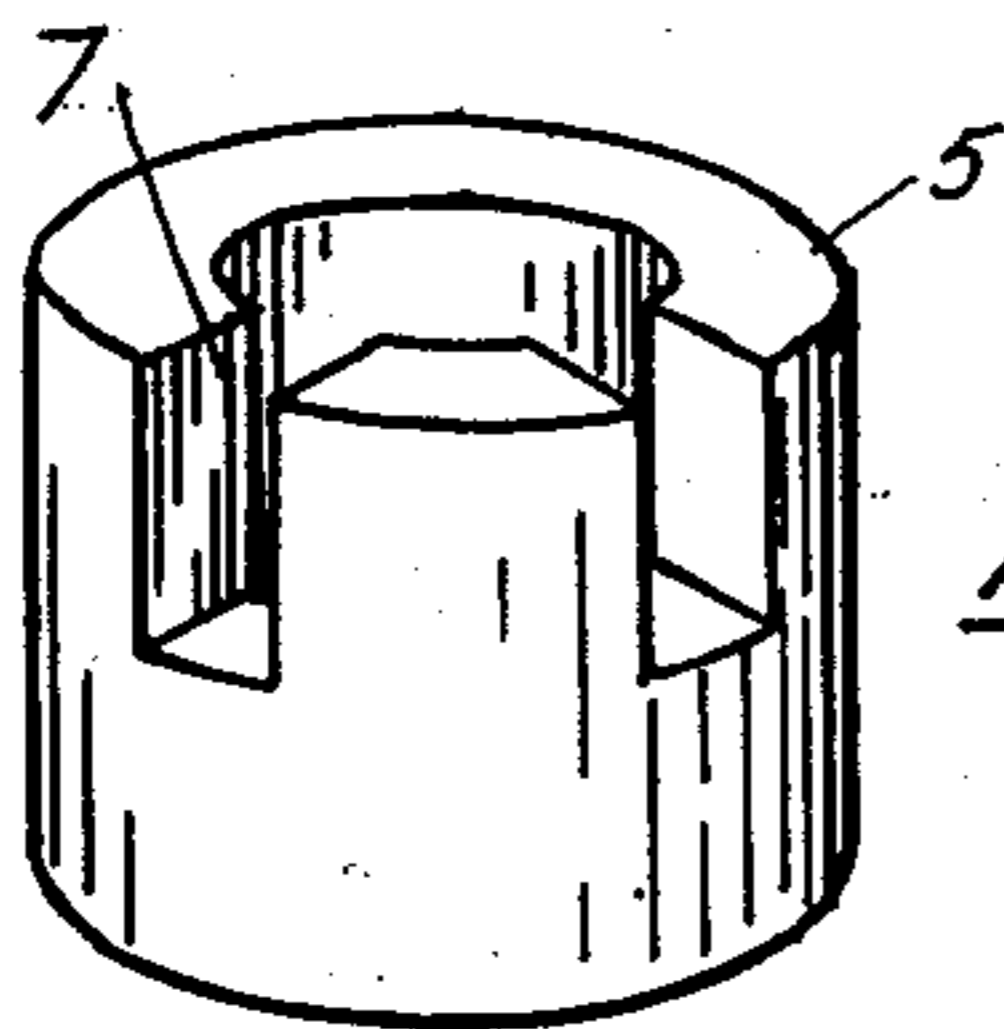


FIG. 8.

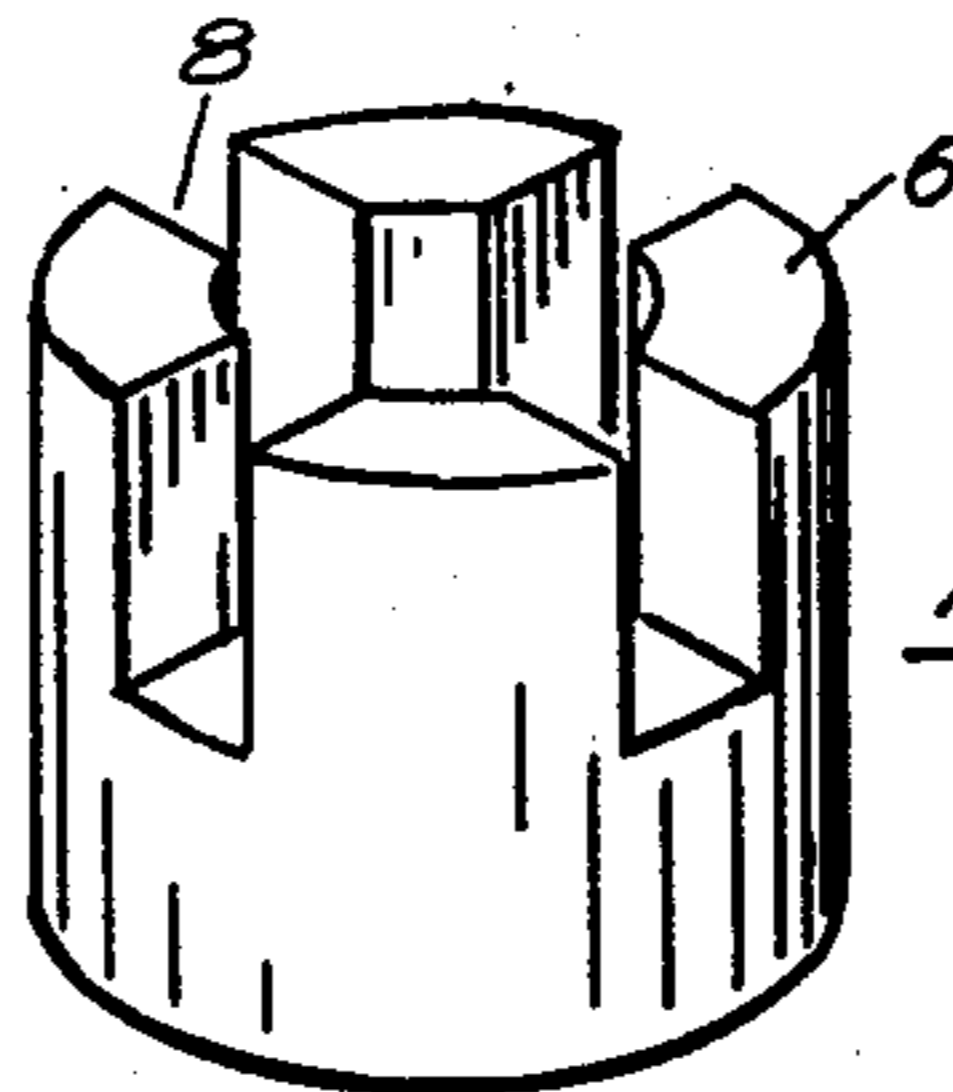


FIG. 9.

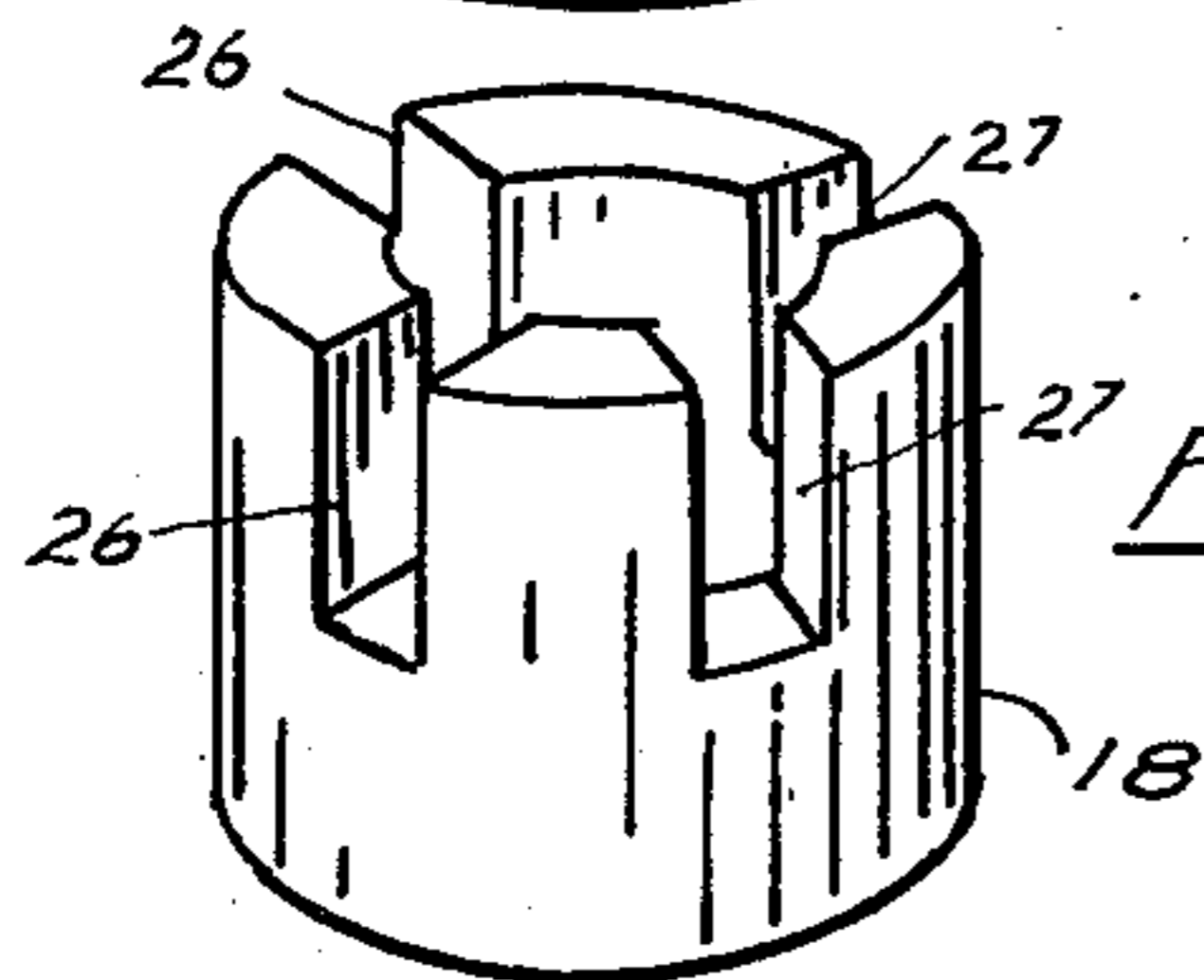


FIG. 10.

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# UNITED STATES PATENT OFFICE

2,653,450

## RETAINING WALL STRUCTURE

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Application August 4, 1949, Serial No. 108,601

1 Claim. (Cl. 61—39)

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This invention relates generally to retaining wall structures and more particularly to a built up, prefabricated retaining wall structure having interlocking, hollow cylindrical blocks providing a hollow body into which cement, concrete, or like plastic material may be poured.

In the construction of retaining walls, it is now necessary for a skilled carpenter to build forms for pouring concrete. It is desirable to widen the base of a retaining wall, but it has been found extremely difficult to build forms to provide a laterally extending base portion and particularly one in which reinforcing rods are provided. It is furthermore particularly difficult to build forms for a curved concrete retaining wall. Much time is necessary in these prior retaining walls to cure the concrete therein because of the thickness thereof and in many instances, they have not held up inasmuch as the thick walls of concrete are not fully cured. It requires a long period of time before the forms can be removed in these prior retaining walls because of the slowness in the drying of the concrete, especially where a stream or body of water is adjacent the retaining wall. A skilled man in concrete construction is required to mix and pour the concrete in prior retaining walls.

It is, accordingly, an object of my invention to overcome the above and other defects in the construction of retaining walls and it is more particularly an object of my invention to provide a retaining wall structure which is simple in construction, economical in cost, economical in manufacture, and efficient in operation.

Another object of my invention is to provide a retaining wall which may be built up with unskilled labor.

Another object of my invention is to provide a retaining wall with a novel footing which resists lateral movement of the wall.

Another object of my invention is to provide a plurality of hollow, interlocking, fully cured, prefabricated, cylindrical blocks which form a retaining wall and also provide a hollow body into which concrete may be poured.

Another object of my invention is to provide simple means for constructing a curved retaining wall.

Other objects of my invention will become evident from the following detailed description, taken in conjunction with the accompanying drawings, in which

Fig. 1 is a side elevational view of my novel retaining wall;

Fig. 2 is a fragmentary plan view of the in-

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terlocking upper blocks in my novel retaining wall;

Fig. 3 is a plan view of a curved retaining wall utilizing my novel interlocking blocks;

Fig. 4 is a perspective view of an interlocking block utilized in my novel retaining wall with four equally spaced interlocking slots on opposite ends thereof;

Fig. 5 is a perspective view of an interlocking face block for forming a lateral face of my novel retaining wall having two slots on each end of one side thereof;

Fig. 6 is a perspective view of another type of interlocking block with the longitudinally extending slots on the end thereof being unequally spaced to form a curved wall;

Fig. 7 is a perspective view of an interlocking block with only two slots on one end thereof;

Fig. 8 is a perspective view of an interlocking half block of the face type in which two slots are provided on one end and one side thereof;

Fig. 9 is a perspective view of an interlocking half block with four slots on one end thereof;

Fig. 10 is a perspective view of an interlocking half block with the slots therein being unequally spaced so as to provide a curved retaining wall; and

Fig. 11 is a perspective view of a block as shown in Fig. 1 with laterally extending apertures in the wall thereof.

Referring now to the drawings, I show in Figs. 1 and 2 a concrete footing 1 with an upwardly extending marginal flange 2 on the front side thereof and a depending tongue 3 to prevent sidewise movement of the footing 1. The footing 1 is preferably reinforced with suitable wire (not shown). The top surface 4 of the footing 1 is tapered at an angle of approximately 5° from a horizontal plane, the inclination being towards the wall to be retained and away from the flange 2. The inclined top surface of the wall opposes the tendency of the blocks on the footing to creep on the top thereof due to the earth pressure on the blocks away from the material to be supported and the flange 2 further opposes any creeping movement of the wall. Under ordinary circumstances, a trench may be dug to form a trough in which concrete may be poured to form the footing 1 with the tongue 3 thereby requiring no forms except for the marginal flange 2. Even when a form is required for the footing, only very simple side boards are necessary without any ties or other means for tying them together.

In forming my novel retaining wall, the founda-

tion course is formed by laying in transverse alignment two plain faced cylindrical half blocks 5 (Fig. 3) on the front and rear side of the footing 1 and a half block 6 (Fig. 9) in the center thereof. The plain faced interlocking half blocks 5 have two longitudinally extending slots 7 spaced 90° apart on one side and end thereof and the interlocking half block 6 has four slots 8 equally spaced around the circumference of one end thereof. An interlocking block 9 shown in Fig. 4 with equally spaced, longitudinally extending slots 10 on opposite ends thereof interlocks with the slotted ends of the center half block 6 and the front half block 5 and an interlocking cylindrical block 11 shown in Fig. 7 with four equally spaced slots 12 on one end thereof and two slots 13 on one side of the other end thereof interlocks the back half block 5 and the central half block 6, the four slotted ends of block 11 interengaging the two slots on the ends of back half block 5 and center half block 6. A cylindrical interlocking block 14 with aligned, longitudinally extending slots 15 spaced 90° apart on opposite ends thereof and one side of the block 11 interlocks with the upper end of interlocking block 9 in the second row to provide a front plain face surface along with the lower plain faced half block with which it is concentrically aligned and upon which it seats. The four slotted ends of an interlocking block 11 engage two slots on the upper end of each of the interlocking blocks 9 and 11 in the second tier. The slotted end of an interlocking block 9 is then interlocked with two adjacent slots on the upper end of each of the blocks 14 and 11 in the third tier thereby providing a row 20 of four tiers of pyramided blocks with three half blocks in the foundation course, two whole blocks in the second course, two whole blocks in the third course, and one whole block in the fourth course, all interlocked transversely. These built up blocks are then aligned longitudinally on the base 1 and the adjacent top blocks of each row of blocks are interlocked longitudinally by an interlocking block 9 as shown in Fig. 2 to secure the rows of blocks together longitudinally. Inverted half blocks 6 are then preferably provided as cap blocks to secure the top interlocking blocks 9 together and to provide a comparatively smooth upper surface. The retaining wall is thus built up by my novel prefabricated blocks and these provide a hollow body into which concrete may be poured. There are no forms to remove and after the concrete is poured, it is not necessary to wait several weeks before the retaining wall may be used for its contemplated purpose. In manufacturing my novel interlocking blocks, it will be evident that they may be manufactured and stored months in advance so that they are well cured and provide a firm, well constructed retaining wall. Because of their circular configuration, no tie rods or wires are necessary to provide great strength. I preferably set the blocks at a slight inclination as on the inclined surface 4 on the base 1 to make it more difficult for the retained earth to move the retaining wall laterally.

In constructing a retaining wall in accordance with my invention, I have found it desirable to

pour concrete between the interlocking blocks after the first and second course of blocks are laid to provide an inclined drainage surface 16 which will drain water from between the course of the retaining wall. In Fig. 11, I show an interlocking block 30 with transversely extending apertures 31 in the wall thereof so that concrete may exude therefrom to form a more solid wall if this is desired.

In Fig. 3, I show my novel interlocking blocks used in a curved wall. The row 20 of four tiers of the transversely aligned blocks are the same as the row 20 of four tiers of the blocks shown in Figs. 1 and 2. In this instance, I provide intermediate rows 21 of two base and built up interlocking blocks so that the rows 20 with three base blocks may extend at an acute angle to the front face of the wall thereby curving the wall. The interlocking longitudinal blocks 19 and 18 for locking the different rows together in a curved wall are shown in Figs. 6 and 10. The slots 24 and 25 in block 19 and the slots 26 and 27 in half block 18 are unequally spaced from each other to permit the rows 20 and offset rows 22 to be interlocked and positioned out of parallel transverse alignment with each other.

It will be evident from the foregoing description that I have provided novel prefabricated, hollow, interlocking cylindrical blocks to form a strong retaining or like wall without the building of forms or the use of reinforcing tying rods or wires. The hollow blocks may be filled with slag, dirt, or any other material than concrete in certain installations.

I have found it preferable to use the footing 1 although it is not absolutely necessary.

Various changes may be made in the specific embodiment of my invention without departing from the spirit thereof or from the scope of the appended claim.

What I claim is:

A retaining wall for supporting loose material along one side thereof comprising a footing, the top surface of said footing being downwardly inclined toward the material to be supported, the outer top edge of said footing having an upwardly extending flange, and a plurality of rows of transversely extending open ended blocks arranged on said footing, each block having a plurality of equally spaced slots in the periphery thereof extending longitudinally thereof, said blocks stacked in tiers transversely of the wall and interlocked by means of said slots, the uppermost tier of blocks of each stack being offset longitudinally of the wall and interlocking adjacent transverse stacks of blocks together.

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