Dec. 5, 1933. W. J. PATTON 1,937,781

DIKE

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FIG. 1.

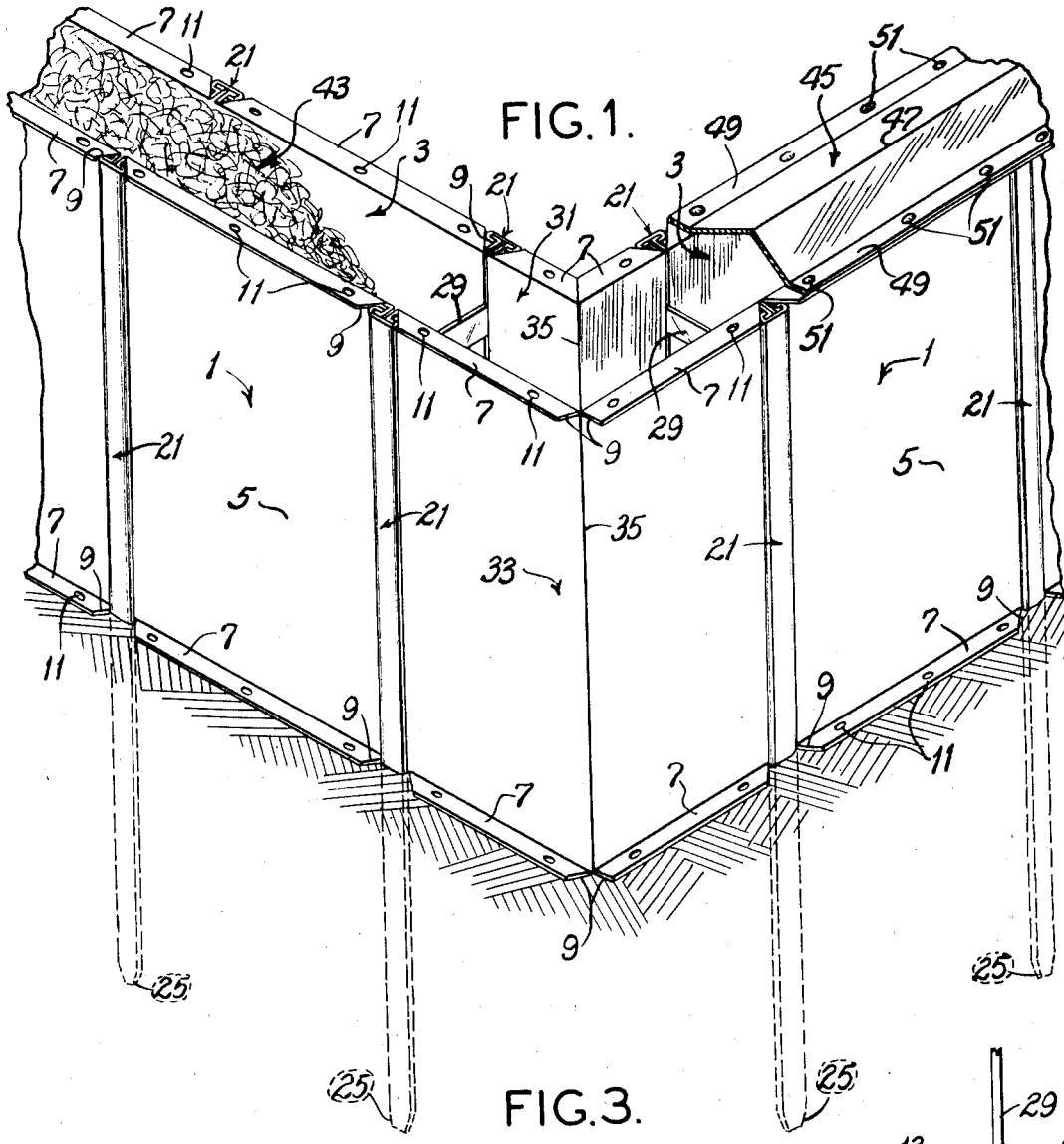
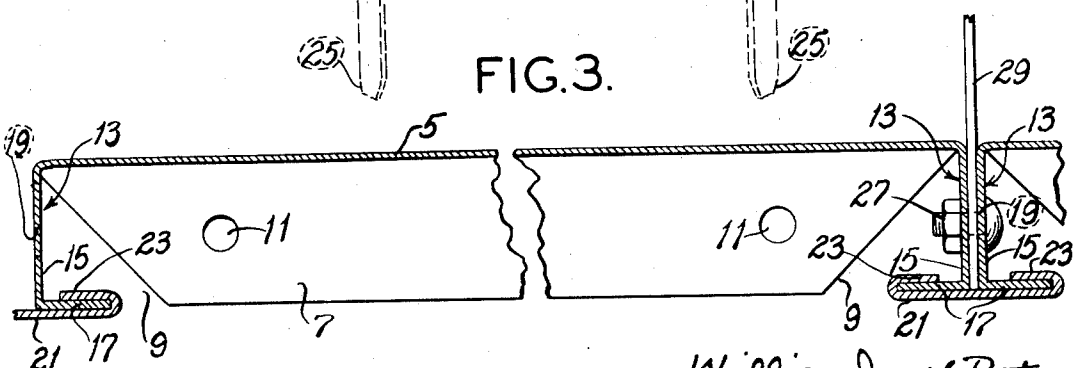


FIG. 3.



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FIG. 4.

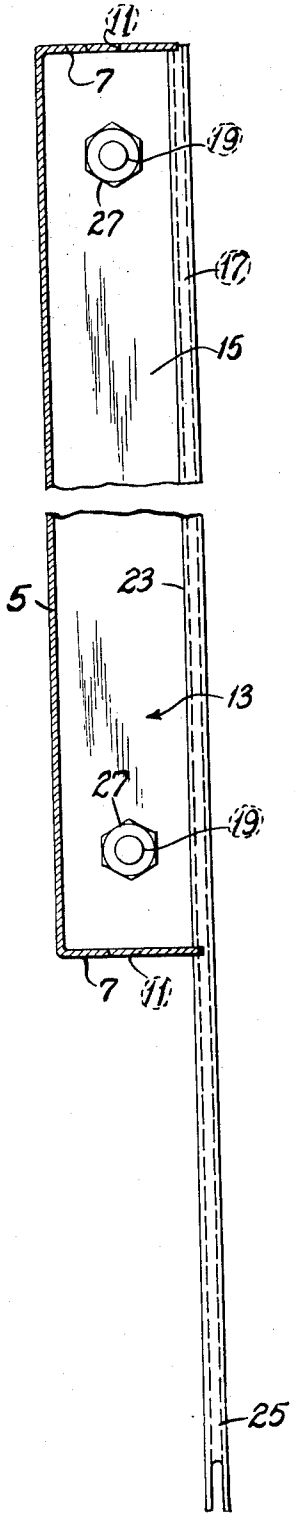


FIG. 2.

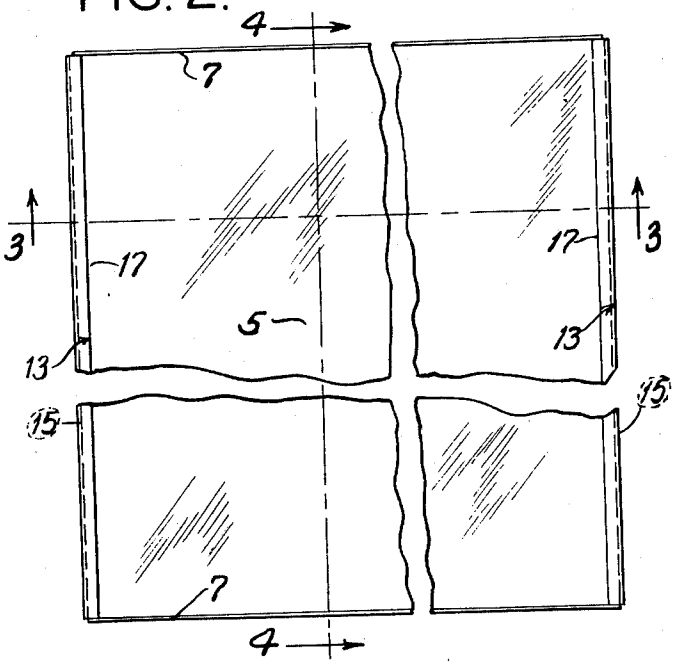
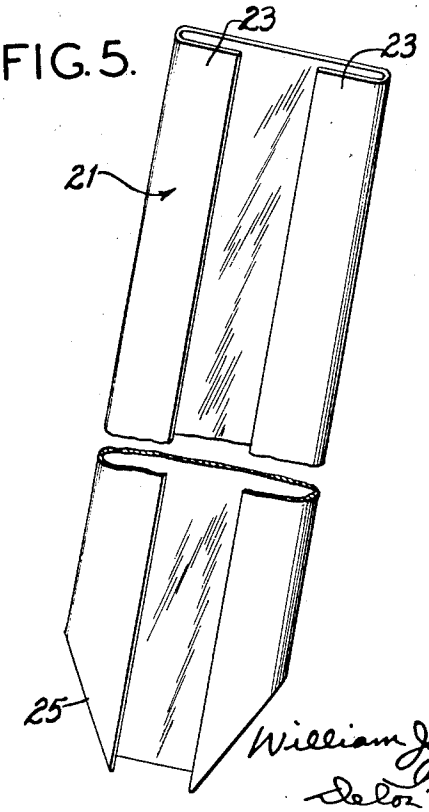


FIG. 5.



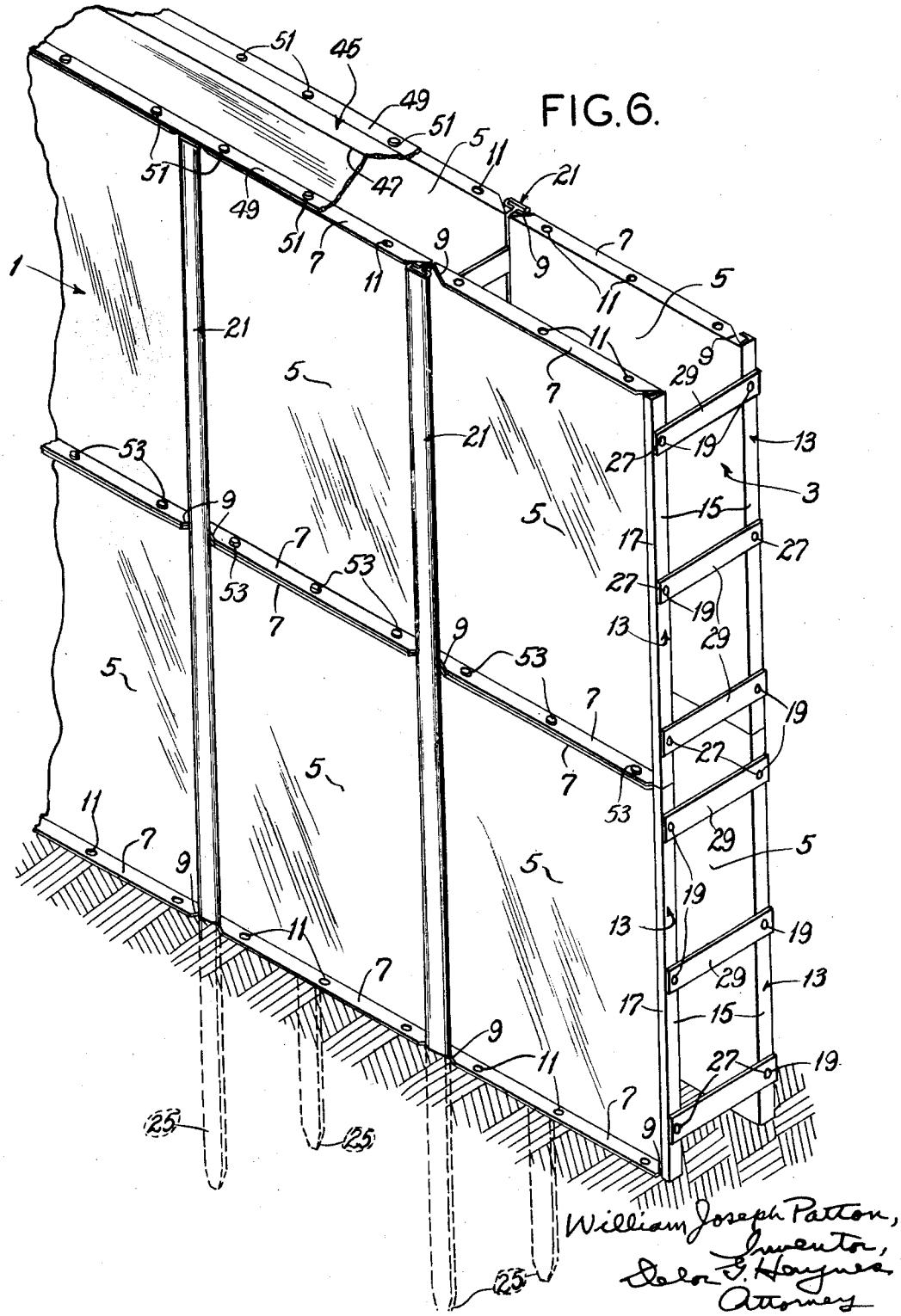
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FIG. 6.



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UNITED STATES PATENT OFFICE

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DIKE

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Application December 31, 1931
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8 Claims. (Cl. 61—39)

This invention relates to dikes, and with regard to certain more specific features to sectional-wall dikes adapted particularly for use as an enclosing wall for bulk storage tanks of oil and other hazardous liquids.

Among the several objects of the invention may be noted the provision of a dike of the class described which is formed from a plurality of standardized parts, regardless of the particular size or shape of dike being constructed; a dike of the class described which is formed throughout from sheet metal, such as sheet iron or sheet steel; a dike of the class described which when disassembled is adapted to be packed in a minimum of space for storage, shipping or the like; a dike which, when assembled in operation, is rigid and strong and, when occasion requires, is also fire-proof; a dike of the class described which requires no foundation for installation, and which may be erected from its disassembled parts in a minimum of time with a minimum of tools; and, the provision of a dike of the class described which is relatively economical in construction and which may be fabricated at a minimum cost. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which is illustrated one of various possible embodiments of the invention,

Fig. 1 is a trimetric view of an assembled dike in position;

Fig. 2 is a plan view of a wall-section of the dike of Fig. 1;

Fig. 3 is a horizontal section taken substantially along line 3—3 of Fig. 2, on an increased scale, and including means by which adjacent wall-sections are joined together;

Fig. 4 is a vertical section taken substantially along line 4—4 of Fig. 2, on an enlarged scale, and including means by which adjacent sections are secured together;

Fig. 5 is a trimetric view of a lock plate; and,

Fig. 6 is a trimetric view illustrating an alternative assembly of the dike.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now more particularly to Fig. 1, there are illustrated at numerals 1 and 3 a pair of spaced walls. The walls 1 and 3, formed as hereinafter described, constitute a hollow retainer which, when in operation, is filled with earth or like ballast material to provide for desirable rigidity and insulation of the dike.

The walls 1 and 3 are substantially identical, but oppositely facing. They comprise a number of sheet-metal wall-sections 5, the conformation of which is illustrated more in detail in Fig. 2. The sections 5 may be of any size compatible with the purpose to which the dike is to be put. It has been found advantageous to construct the sections of sheet iron, suitably galvanized, or sheet steel or the like. For example, ten gauge galvanized sheet iron has been found to be suitable for a wall-section approximating four feet wide and five to six feet high.

The top and bottom of the sections 5 are bent as at numeral 7 (see also Figs. 3 and 4) to form top and bottom flanges, which are substantially identical. The end portion of the flanges 7 is cut away as at numeral 9 (Fig. 3) for purposes to be described hereinafter. A suitable number of holes 11 (three holes are usually sufficient) are drilled in the flanges 7 at spaced intervals.

Referring again to Fig. 2, the side portions of the wall-section 5 are bent as at numeral 13 to form sidewardly disposed hollow flanges. The shape of the hollow flanges 13 may be seen by reference to Fig. 3, in which it will be seen that they comprise a portion 15 at right angles to the sheet 5, and a portion 17 at right angles to the portion 15 and parallel to the sheet 5. The portions 15 of the flanges 13 are provided with holes 19 similar to the holes 11 in flange 7.

The section 5 as thus formed, with substantially identical top and bottom and substantially identical side flanges, comprises the unit from which the dike is assembled. In order to secure adjacent sections 5 together, a lock plate 21 (Fig. 5) is provided. The lock plate 21 comprises a strip of sheet metal, which may be made of somewhat heavier material than the material from which the sections 5 are formed, and which has its side portions doubled back thereon as at numeral 23. The spaces between the portions 23 and the main body of the plate 21 are of sufficient width to accommodate a single thickness of the material from which the sections 5 are formed. The plate 21 is desirably made considerably longer than the sections 5. The lower end thereof, constituting a supporting stake, is tapered as at numeral 25, whereby a ready penetration of earth or soil is secured.

The sections 5 are assembled into a completed

wall or dike in substantially the following manner:

A suitable number of sections 5 are placed side by side, with the hollow flanges 13 of adjacent members juxtaposed. Thus juxtaposed, it will be seen that the resulting composite flange has a general T-shape, extending from the plane of the wall-sections. Bolts 27 (Fig. 4) are now passed through the holes 19 in the portions 15 of said flanges 17 to secure the adjacent sections together. One of the plates 21 is now slid over the head of the T, comprising the extending portions 17 of the flanges 13, in the manner indicated in Fig. 3. The plate, in a manner of speaking, envelopes the flanges. The fit can desirably be easy, so that the plate slides on without necessitating the application of blows. In position, the plate 21 is a vertical reenforcing element for the sections 5, and, additionally, is a means for securely holding adjacent sections 5 together. The lower ends of the stakes 21 are driven, preferably with a maul or the like, into the earth where the dike is to be erected, as indicated in Fig. 1, and thus hold said dike in upright position.

The assembly of a complete dike includes a pair of spaced walls, as shown in Fig. 1. For the purpose of spacing such walls, a number of cross pieces 29 are provided. The cross pieces 29 are preferably placed between adjacent sections 5 when said sections are assembled, so that the bolts 27 may serve the double function of securing said sections together and also holding said spacing strips 29 in position. If desired, the spaced walls may be battered; that is, instead of being erected parallel to each other, they may be positioned so that the bottoms are spaced farther apart than the tops, or vice versa.

Special wall-sections 31 and 33 are desirably provided for assembly with the wall-sections 5 wherever there is a turn or bend in the wall. The wall-sections 31 and 33 are in general similar to the sections 5, with the exception that they are provided in their central portions with a suitable bend 35. In most instances, this bend 35 comprises a right angle. Section 31, it will be seen, is enough shorter than the section 33 to compensate for the distance that the walls 1 and 3 are spaced apart. Aside from the bends 35 the sections 31 and 33 are similar in construction to the sections 5. That is, they are provided with top and bottom flanges 7, and side flanges 13.

When the dike is assembled as a complete pair of spaced walls 1 and 3, with all necessary turns therein, it is desirable that it be filled with earth, sand, rocks, or other suitable ballast and insulating material 43. It will be seen that the ballast material 43 imparts weight and rigidity to the dike as a whole.

With the space between the walls 1 and 3 thus filled, a cover portion 45 is now affixed to the top flanges 7. The cover 45 comprises a peaked portion 47, having sidewardly disposed flanges 49, the flanges 49 having holes 51 placed at suitable intervals to meet the holes 11 in the flanges 7. When the cover 45 is in position, bolts are passed through the juxtaposed holes 51 and 11, and the cover portion is thus secured on the dike. The peaked portion 47 serves the desirable purpose of shedding rain and the like, and at the same time preventing the elements from reaching and wetting the ballast material 43.

From the foregoing it will be seen that a sectional wall dike is provided which requires no foundation for its installation. It is not even necessary that a trench be dug, as the ends of the stakes 21 provide ideal anchoring members, although it is desirable under some circumstances that the walls be embedded, say for six or eight inches, in the earth. Further, it will be seen that a structure is provided having a minimum number of different parts; that is, the various parts of the dike are standardized to a great extent.

All of the parts hereinbefore described may easily be formed, it will be seen, by simple rolling and stamping operations. The production cost of the wall is thereby greatly reduced. The parts each possess individual rigidity, which not only contributes to the rigidity of the assembled wall, but also makes them easier to handle and pack for shipping. Thus, the sections 5 are rendered vertically rigid by the sideward flanges 13, and horizontally rigid by the top and bottom flanges 7. The sections 5 are reversible, this feature also contributing to the ease with which the walls are assembled. That is, either flange 7 may be top or bottom, and either flange 13 may right or left side.

Fig. 6 illustrates a manner in which walls of more than unit height may be assembled from the same parts hereinbefore described. In this figure, wall-sections 5 are juxtaposed horizontally, as hereinbefore, by the flanges 13, and vertically as well, by the flanges 7. Bolts 53 hold the flanges 7 together.

It will be apparent that the wall-sections 5 may readily be assembled into a wall or dike of single thickness, disposing of the spaced second wall, as occasion may demand. Such a single wall is frequently useful as a temporary wall or dike.

While the structure as hereinbefore described is designed primarily for use as a dike around bulk oil storage tanks and the like, it will be apparent that its use is not so confined. For example, it may be used in road construction work and the like as a temporary or permanent culvert wall or ditch wall. In general, it may be said that it finds use wherever a rigid, fire-proof, erosion-inhibiting, easily installed wall structure is desirable. The wall-sections need not be flat, but may readily be provided with suitable curvatures so that the resulting assembled wall is curved. The invention also finds application in the field of containers, such as ash-pits and the like.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A sectional wall comprising a plurality of wall-sections of substantially rectangular shape, each of said sections having flanges on each side thereof, said flanges on adjacent sections being juxtaposed to form a continuous wall from said plurality of sections, and a plurality of locking plates, said locking plates being shaped to slide over and secure said juxtaposed flanges together, said locking plates being longer than said juxtaposed flanges, whereby they may be driven into the earth to support said wall in upright position.

2. A sectional wall comprising a plurality of substantially rectangular sheet metal sections, each of said sections being provided with top and

bottom flanges for horizontal stiffening of the section, and with sideward flanges for vertical stiffening of the section, said sideward flanges of adjacent sections being juxtaposed to form a continuous wall, and locking plates sliding upon and securing together said juxtaposed sideward flanges, thereby maintaining said sections in longitudinal assembly, said locking plates being longer than said juxtaposed flanges, the excess length serving, when driven into the earth, as means for supporting said wall in upright position.

3. A dike comprising a pair of sectional walls, each of said walls comprising a plurality of sections, each of said sections having flanges on each side thereof, said flanges comprising portions at an angle to said sections and end portions at an angle to said first-named portions, said first-named portions of adjacent wall sections being juxtaposed and locking plates sliding upon and engaging said end portions of juxtaposed flanges; said locking plates having extensions adapted to be driven into the earth to support said walls in upright position; and means secured to said wall sections and spacing said walls uniformly apart throughout their length.

4. A dike comprising a pair of sectional walls, each of said walls comprising a plurality of sections, each of said sections having top, bottom, and sideward flanges thereon, said flanges serving to make said sections both horizontally and vertically rigid, said sideward flanges comprising portions at an angle to said sections and end portions at an angle to said first-named portions, said first-named portions of adjacent wall sections being juxtaposed, and locking plates sliding upon and engaging said end portions of juxtaposed flanges; said locking plates having extensions adapted to be driven into the earth to support said walls in upright position; and means secured to said wall sections and spacing said walls uniformly apart throughout their length.

5. A dike comprising a pair of sectional walls, each of said walls comprising a plurality of sections, each of said sections having top, bottom, and sideward flanges thereon, said flanges serving to make said sections both horizontally and vertically rigid, said sideward flanges comprising portions at an angle to said sections and end portions at an angle to said first-named portions, said first-named portions of adjacent wall sections being juxtaposed, and locking plates sliding upon and engaging said end portions of juxtaposed flanges; said locking plates having extensions adapted to be driven into the earth to support said walls in upright position; and means secured to said wall sections and spacing said walls uniformly apart throughout their length; and cover means extending across the interval between said walls at the top thereof, said cover means being secured to said top flanges of said wall sections.

6. A dike comprising a pair of spaced walls, each of said walls comprising a plurality of sections, each of said sections having outwardly facing flanges on each side thereof, the flanges of adjacent sections being juxtaposed, and, in juxtaposed position, presenting composite flanges of T-shape, locking plates sliding over the heads of said composite flanges and thereby securing said sections together, said locking plates having portions thereof driven into the earth to support said walls in upright position, spacing means secured at their ends between opposite juxtaposed flanges of said pair of walls, and ballast material filling the space between said walls.

7. A dike comprising a pair of spaced walls, each of said walls comprising a plurality of sections, each of said sections having outwardly facing flanges on each side thereof, the flanges of adjacent sections being juxtaposed, and, in juxtaposed position, presenting composite flanges of T-shape, locking plates sliding over the heads of said composite flanges and thereby securing said sections together, said locking plates having portions thereof driven into the earth to support said walls in upright position, spacing means secured at their ends between opposite juxtaposed flanges of said pair of walls, and ballast material filling the space between said walls, said wall sections each being also provided with top flanges, and cover means secured to said top flanges of opposite sections of said pair of walls.

8. A sectional wall comprising a plurality of wall sections of substantially rectangular shape, said sections being juxtaposed in edge-to-edge relationship to form a continuous wall from said plurality of sections, and means securing said sections together in said edge-to-edge relationship, said means including portions extending beyond the sections, whereby said portions may be driven into the earth to support said wall in upright position.

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