F. S. EDINGER.

CONCRETE SLAB CONSTRUCTION FOR THE PROTECTION OF EMBANKMENTS.

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1,164,708. Patented Dec. 21, 1915.

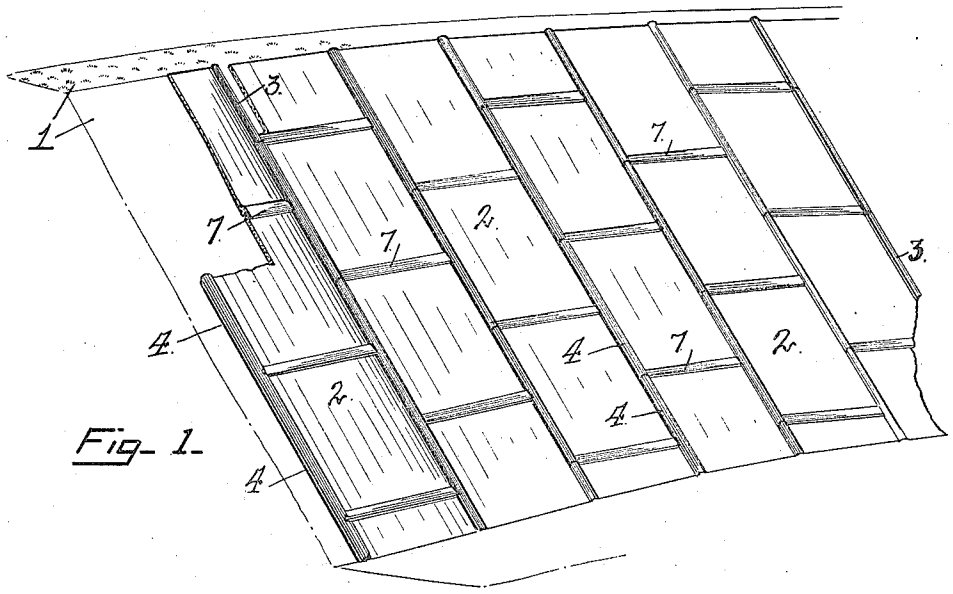


Fig. 1.

Fig. 2.

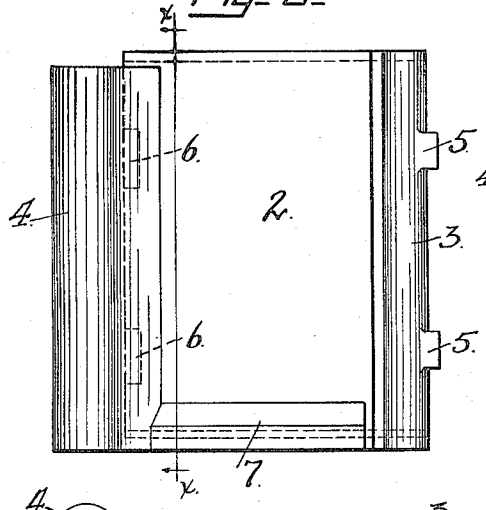


Fig. 3.

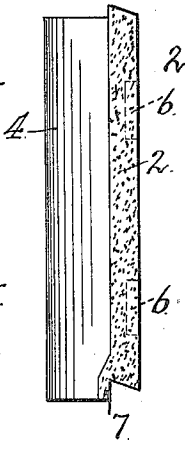
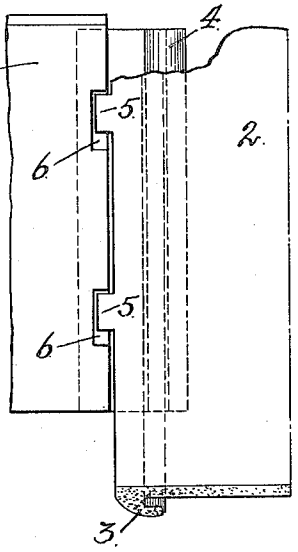


Fig. 4.



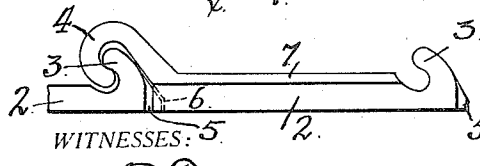


Fig. 5.

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CONCRETE-SLAB CONSTRUCTION FOR THE PROTECTION OF EMBANKMENTS.

1,164,708. Specification of Letters Patent. Patented Dec. 21, 1915.

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To all whom it may concern:

Be it known that I, FRED S. EDINGER, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Concrete-Slab Construction for the Protection of Embankments, of which the following is a specification.

My invention relates to the protection of embankments for any purpose, as, for example, against wave wash, effect of current or erosion of any nature, and particularly to that form of protection which is afforded by a facing of concrete. In common practice this involves the carrying to the work of the separate ingredients, sand, gravel and cement, and, where reinforcement is used, the provision and handling of the wire mesh. It also involves the shifting and changing of these materials along the length of the embankment, their preparation and mixing along the line of work, their necessarily inconvenient installment in place, subject to inaccuracy and want of skill, and, involving generally all those disadvantages of waste in time, labor and material which naturally attend a work of this character done *in situ*.

My invention has for its object the remedying of all these difficulties by providing for the initial convenient and skilful preparation of the units of a concrete construction, reinforced or not, as may be the case, capable of being easily transported to the work and there handled, carried about, and installed with a minimum of labor and with the best result.

To this end my invention consists in an embankment facing-construction composed of suitably interlocking concrete slabs, the interengaging coaction of which is such as to lock the slab-units against relative dismembering movement both parallel with the embankment or away therefrom, while still providing for the necessary expansion joints, to give the facing construction sufficient flexibility to enable it to conform to the surface on which it lies.

My invention also consists in the novel concrete-slab construction as a protecting facing for embankments, which I shall now fully describe by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my concrete-slab construction showing it applied as a protection to the face of an embankment. Fig. 2 is a top plan of one of the slab-units of said construction. Fig. 3 is a section on the line x—x of Fig. 2. Fig. 4 is a bottom view of fragments of two slab-units, showing their interlocking. Fig. 5 is an end view showing the interlocking of two slab units.

1 is an embankment of any kind, the face of which may have to be protected, say, for example, against wave or current wash or other erosion. Upon this face is laid my interlocking concrete-slab construction. This is composed of separate units in the form of concrete-slabs 2, each of which may or may not be reinforced. These slabs are made at any convenient place, more or less remote from the embankment, and are of a size which will enable them to be readily handled by one or two men. The slabs 2 are formed integrally with interlocking instrumentalities of any suitable nature, shape or location which will enable them to be readily fitted together and when so fitted in the complete facing will prevent them from unlocking, but will still allow the facing sufficient flexibility in its joints to permit it to conform to the embankment. For this purpose, I deem the locks here shown well adapted.

Along one edge of each slab is formed a hook-flange 3, and along its other edge is formed a complementary hook-flange 4. These flanges may be of any suitable cross-section and need not be continuous along said edges, though they are so shown here. The hook flanges are, as shown in Fig. 5, sufficiently complete with respect to each other that while locking the slabs against dismemberment in a direction perpendicular to the face of the embankment, they still permit a flexibility or hinge movement sufficient to enable the facing to conform to the surface of the embankment.

On the edge of the slab, below the hook flange 3 is formed a key 5 and on the other edge is formed a corresponding key-socket 6. There may be one or more of these keys and sockets in each slab; two of each are here shown.

In laying up these slab-units to form a complete facing, it is good practice to make them break joints, as I have shown in Fig. 1. In this laying up or assembling, the hook flanges 3 and 4 of adjacent slabs readily engage while the keys and sockets 5 and 6 of

said slabs also engage. The hook-flanges by being complemental, obviously prevent any unlocking of the slabs from the completed facing, by a movement of one relatively to the other in a direction away from or perpendicular to the face of the embankment.

The engagement of the keys and sockets 5 and 6 positively prevent relative unlocking movement of the slabs by sliding or slipping, that is, by a movement parallel with the face of the embankment. If desired, one end of each slab may be formed with a projecting flange 7 adapted to overlap the adjacent end of the next slab. In this case, the key-sockets 6 of the slabs are made longer than the keys 5, so that a slight end play is provided to enable the flange 7 of one slab to fit over the adjacent end of the next slab in overlapping relation. This lock at 7 covers the end meeting joints of the slabs.

I claim:—

1. A concrete-slab facing-construction for the protection of embankments comprising a plurality of independent concrete-slabs, opposite edges of said slabs being formed integrally with complemental hook-flanges, interengaging for hinge movement and preventing dismembering movement of the slabs in a direction away from the face of the embankment, and said edges being also formed integrally with interengaging instrumentalities for locking said slabs against relative disengaging movement in a direction parallel with the face of the embankment.

2. A concrete-slab facing-construction for the protection of embankments comprising a plurality of independent concrete-slabs, opposite edges of said slabs being formed integrally with complemental hook-flanges, interengaging for hinge movement and preventing dismembering movement of the slabs in a direction away from the face of the embankment, and said edges being also formed integrally with interengaging keys and sockets for locking said slabs against relative disengaging movement in a direction parallel with the face of the embankment.

3. A concrete-slab facing-construction for the protection of embankments comprising a plurality of independent concrete-slabs, opposite edges of said slabs being formed integrally with complemental hook-flanges, interengaging for hinge movement and preventing dismembering movement of the slabs in a direction away from the face of the embankment, and said edges being also formed integrally with interengaging instrumentalities for locking said slabs against relative disengaging movement in a direction parallel with the face of the embankment, and one end of each of said slabs being provided with a projecting flange adapted to overlap the adjacent end of the next slab.

4. A concrete-slab facing-construction for the protection of embankments comprising a plurality of independent concrete-slabs, opposite edges of said slabs being formed integrally with complemental hook-flanges, interengaging for hinge movement and preventing dismembering movement of the slabs in a direction away from the face of the embankment, and said edges being also formed integrally with interengaging keys and sockets, for locking said slabs against relative disengaging movement in a direction parallel with the face of the embankment, said keys having a slight endwise play in said sockets, and one end of each of said slabs being provided with a projecting flange adapted to overlap the adjacent end of the next slab.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRED S. EDINGER.

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