Nov. 10, 1931. K. SCHROEDER 1,831,427

IRON PILING

Filed June 26, 1930

Fig. 1.

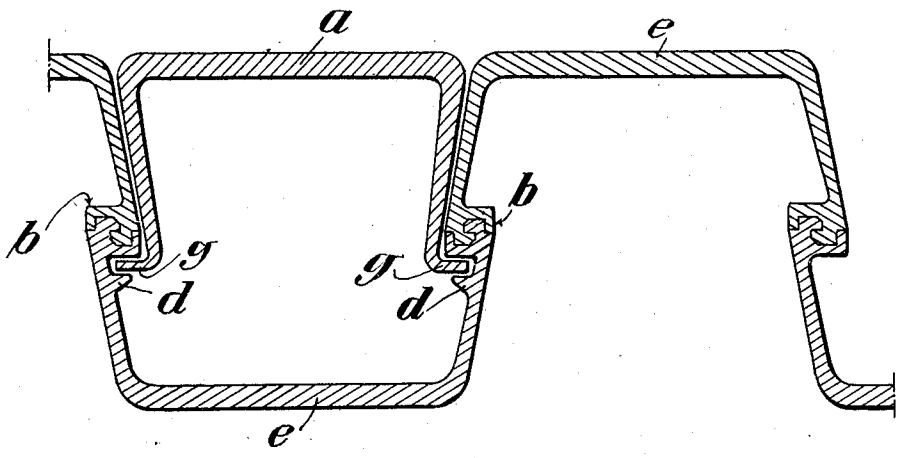
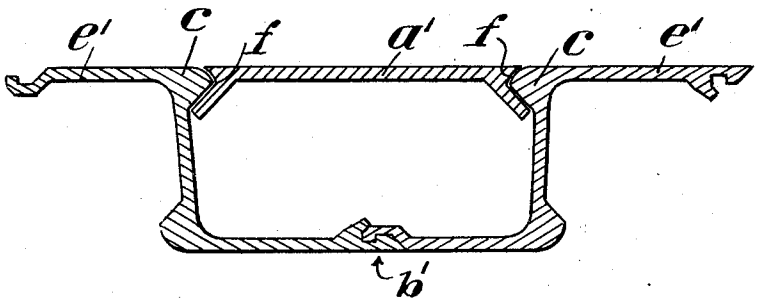


Fig. 2.



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IRON PILING

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Iron piling for coffer dams and other purposes is now generally formed of either Z-shaped sections or channel shaped sections which are locked together to produce the so-called wave piling, a horizontal cross section of which has a corrugated or sinusoidal outline. In these walls so formed the joints between the Z-shaped sections are generally located at the outermost points of the structure, i. e. those most remote from the medial plane of the assembled piling. In the case of the walls formed of channel sections, the joints are usually located substantially in the medial plane of the wall.

Both varieties of such piling as now made and above described are often found unsuitable because they do not present on either side a substantially plane surface. This is because of their corrugated or wave forms in which only the crown portions of the wave outline lie in one and the same plane on either side of the completed structure, said crown portions being separated by intervening slots or channels of nearly the same width.

According to the present invention this drawback is removed by applying intermediate pieces of supplemental sections which close the above described slots or gaps along at least one side of the piling assembly.

Two forms of construction embodying the invention are shown by way of examples thereof in the accompanying sheet of drawings in which

Fig. 1 is a plan view of a portion of a piling assembly showing a wall built of channel sections, and

Fig. 2 is a similar view of a part of a wall built of Z-shaped sections.

Throughout the drawings like reference characters indicate like parts.

In Fig. 1 a supplemental section *a* is shown in cross section inserted in one side of the corrugated or sinusoidal wall built of channel sections *e*, *e*, thereby closing the gap between two pairs of channel sections lying adjacent one to another upon that side of the medial plane.

This intermediate piece or supplemental section *a* not only closes the gap in which it is placed, but also increases the resistance of the completed structure to bending and other strains. To further develop this function, and also to secure the supplemental section *a* in position, the interlocking portions of the main channel sections forming the joints or locks *b*, *b*, between them may have exterior shapes of such character that each may be embraced or engaged by a hook-like, outwardly extending end *g*, *g*, formed on the supplemental section *a*, thus locking the latter into the structure as a reenforcing element therefor. On account of the special form of the flanges or side walls of the channel sections *e* being inclined outwardly at angles slightly less than 90 degrees with reference to the medial plane, the intermediate piece or supplemental section *a* is held against movement toward the medial plane by its wedging action between the adjacent walls of each two neighboring main sections. Also, when found suitable, special ridges or ribs *d* may be formed along the inner walls of certain of the main channel sections *e*, *e*, to further lock the intermediate piece or supplemental section *a* against movement in this direction.

If the piling is built from Z-sections, as shown in Fig. 2, each main section *e'* may, for instance, be provided with ribs, ridges, shoulders or projections *c* made integral with said main sections along the exterior of each bend therein, or fastened to said main sections in any well known manner. Such ridges, ribs, shoulders or projections cooperate with substantially flat supplemental sections *a'*, the edges of which are provided with grooves *f*, *f*, to embrace and engage said ribs *c*, *c*, and thereby lock said supplemental section *a'* into the gap or channel existing between two adjacent main sections *e'*, *e'*, said main piling sections *e'*, *e'*, being locked together along their abutting edges in any desired manner, as indicated at *b'*.

As the result of either of these constructions a piling assembly is formed which has a surface upon at least one side lying all substantially in one and the same plane, and the said structure is also materially strengthened and stiffened by the insertion of the interlocking supplemental sections *a* or *a'*.

Having described my invention, I claim:

1. In a system of sheet piling comprising a plurality of interlocking main sections adapted, when asembled, to form a structure of generally sinusoidal horizontal cross section with a series of surface elements lying substantially in one and the same plane, the combination with said above-described apparatus, of a plurality of supplemental facing sections, adapted to fit into any of the recesses in the surface of said sinusoidal structure, and having surface elements which will then also lie substantially in said above-mentioned plane and thereby render that face of the system of sheet piling substantially continuous.

2. A combination such as defined in claim 1 in which the joints between said interlocking main sections form inwardly extending projections along the walls of each channel existing in the sinusoidal outline of piling, and in which said supplemental sections have outwardly extending projections adapted to interlock with said inwardly extending projections; whereby said supplemental sections are respectively locked in proper positions.

3. A combination such as defined in claim 1 in which the joints between said interlocking main sections form inwardly extending projections along the walls of each channel existing in the sinusoidal outline of piling, and which said supplemental sections have outwardly extending projections adapted to interlock with said inwardly extending projections, and all of which projections extend along lines parallel to the edges of all said main sections; whereby said supplemental sections may be slid downwardly into interlocked position with the main sections after the latter have been set in place.

4. A combination such as defined in claim 1 in which the joints between said interlocking main sections form inwardly extending projections along the walls of each channel existing in the sinusoidal outline of piling and in which said supplemental sections have outwardly extending projections adapted to interlock with said inwardly extending projections, and in which the main sections adjacent each supplemental section are provided with grooves along which said projections on the supplemental sections may slide when the parts are being assembled.

5. A combination such as defined in claim 1 in which both said sets of sections have walls which are oppositely but uniformly inclined to the medial plane of the sheet piling structure when the piling is assembled; whereby said supplemental sections may be wedged in between adjacent main sections.

6. In a sheet piling system in which a plurality of channel sections of uniform cross-section have slightly flaring side walls which are provided with interlocking grooves and projections along their edges so that they may be keyed together to form a continuous structure of generally sinusoidal horizontal cross-section, the combination with said above-described structure, of a plurality of supplemental channel sections of substantially the same width as the main sections at their channel bottoms but having side walls slightly inclined inwardly; whereby said supplemental sections may be wedged into the channels existing in the sinusoidal outline of the main piling structure.

7. In a sheet piling system comprising a plurality of Z-shaped sections provided with means for uniting their edges so that they will form a structure of generally sinusoidal horizontal cross-section, the combination, with said above-described structure, of a plurality of supplemental sections having substantially flat faces which are adapted to be slid down along any of the parallel channels existing in either face of said main piling structure, and to interlock therewith in position such that their exterior faces will lie substantially in one and the same plane with that in which lie the crowns of the sinusoidal main structure on that side of the piling; whereby a facing surface may be produced on either side of said piling structure substantially all of which will lie in said one and the same plane.

8. A combination such as defined in claim 7 in which said Z-shaped sections have projecting ridges extending along the exterior of each bend in their cross-sectional outline, and in which said supplemental sections are provided with grooves along their edges adapted to receive said projections when the parts are slid into assembled relation.

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