July 22, 1941. L. R. GIFFORD 2,249,818

SHEET PILING

Filed Oct. 22, 1938

Fig. 1.

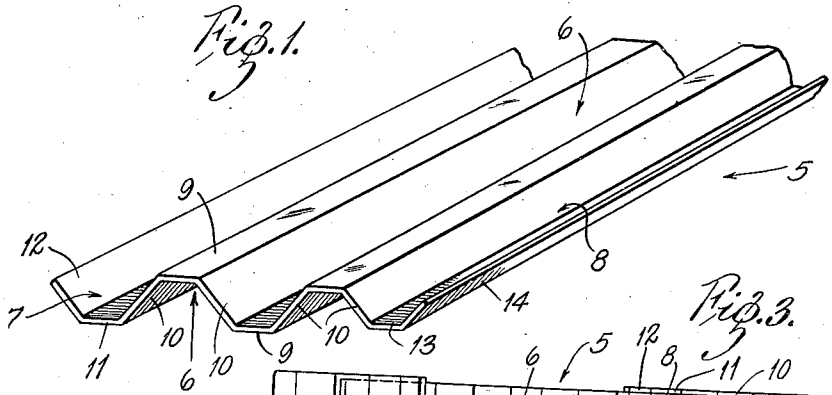


Fig. 2.

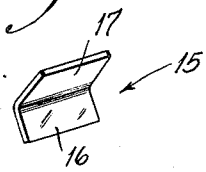


Fig. 3.

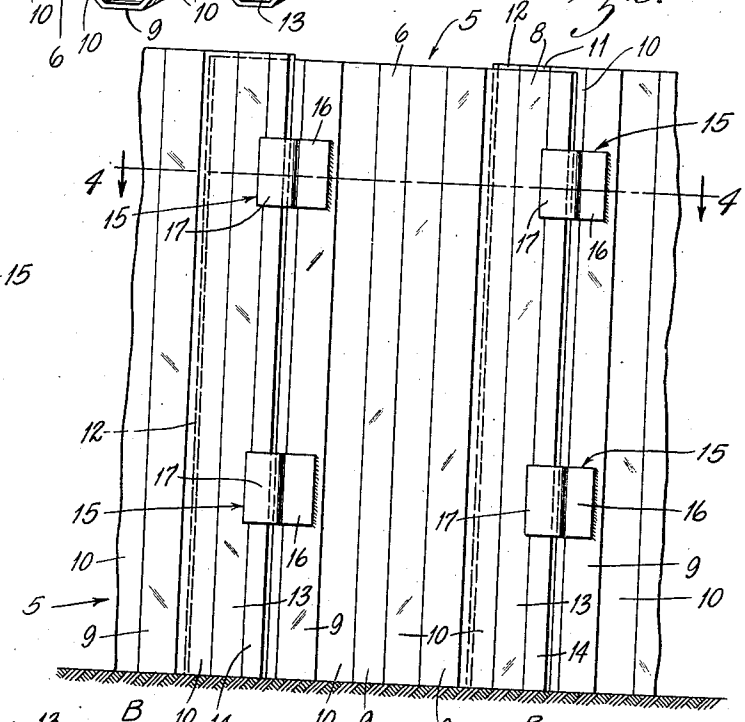
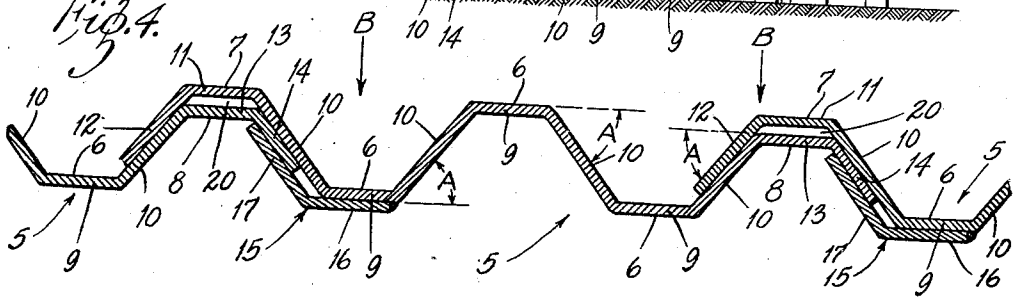


Fig. 4.



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SHEET PILING

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Application October 22, 1938, Serial No. 236,405

2 Claims. (Cl. 61—60)

The present invention relates generally to sheet piling, and more particularly to steel sheet piling comprising interlocked piles each having a plurality of corrugations.

An object of the present invention is to provide novel sheet piling comprising piles each having a plurality of corrugations of a cross-section which increases the strength of the piling for a given thickness of material.

Another object is to provide sheet piling of a cross-section to achieve a tight joint between individual piles.

Another object is to provide sheet piling comprising individual piles of multiple corrugations, the end corrugations of which are adapted to be wedged into interlocking relation.

Another object is to provide sheet piling, each individual pile of which comprises multiple corrugations, one end corrugation being of lesser depth than the remaining corrugations to fit within the standard end corrugation of an adjacent pile to provide a wedged joint.

Another object is to provide sheet piles which are of simplified construction, and which are adapted to be readily formed into a water-tight wall by being driven into the ground in the usual manner.

Other objects and advantages will be apparent from the following description, taken in conjunction with the accompanying drawing, in which:

Fig. 1 is a perspective view of a fragment of a sheet pile constructed in accordance with the teachings of the present invention;

Fig. 2 is a perspective view of a clip adapted to be fixed to the pile shown in Fig. 1;

Fig. 3 is a side view of piling comprising a plurality of individual piles of the configuration of the pile shown in Fig. 1; and,

Fig. 4 is a section on the line 4—4 of Fig. 3.

Referring to the drawing more particularly by reference numerals, 5 indicates generally a sheet pile constructed in accordance with the teachings of the present invention (Figs. 1 and 4). The pile 5 includes a plurality of intermediate corrugations 6 and end corrugations 7 and 8 of the cross-section shown in Fig. 4. The intermediate corrugations 6 comprise flat central walls or faces 9 and flat side walls or faces 10. The end corrugation 7 includes a flat central wall 11 of the same width as the flat central walls 9 of the corrugations 6 and flat side walls 10 and 12, the wall 12 having a free edge. The end corrugation 8 includes a central flat wall 13, which is of a greater width than the flat central wall 9 of the intermediate corrugations 6 due to the lesser depth thereof, and flat side walls 10 and 14, the side wall 14 terminating in a free edge. The angles A between the side walls and the flat central walls of the corrugations 6, 7, and 8 are of the same degree.

Clips 15 (Fig. 2), each comprising obtusely disposed portions 16 and 17, are fastened by welding, or otherwise, to the flat wall 9 of the corrugation 6 contiguous to the corrugation 7 in a manner to space the portions 17 from the flat side wall 10, as is evident from an inspection of Fig. 4.

In Figs. 3 and 4, three piles 5 are shown in driven relationship. The piles 5 are preferably driven so that the pressure set up by restrained water, earth, or the like, is in the direction of the arrows B. It is, therefore, apparent that the corrugation 7 of the intermediate pile 5 is forced into a wedge-like sealing engagement with the corrugation 8 of the left-hand pile 5, and that the corrugation 7 of the right-hand pile 5 is forced into wedge-like sealing engagement with the corrugation 8 of the intermediate pile 5. The central flat walls 13 of the corrugations 8 are of predeterminately greater width than the flat central walls 11 of the corrugations 7, the depth of the corrugation 8 being less than the depth of corrugation 7, so that the flat side walls 10 and 12 of the corrugations 7 are forced into sealing relation with the flat walls 14 and 10, respectively, of the corrugations 8. There is an initial space 20 between the flat central walls 11 and 13 of sufficient depth to insure clearance so that the pressure of the restrained earth, water, or the like, will produce a wedging action and maintain the seal between adjacent piles 5. The clips 15, of course, are effective in guiding a pile 5 being driven relative to a driven pile 5, and assist in maintaining contiguous piles 5 in associated relation after they are driven.

The strength of the piles 5 is considerably greater for a given thickness of material than the strength of the conventional piles having a cross-section approximating a sine curve. The use of the described cross-section increases the section modulus of any given width of piling of the same depth parallel to the neutral axis having the same number of corrugations per unit of length of wall.

It is apparent that there has been described a connection between contiguous sheet piles which comprises what may be termed a continuously effective wedge action. The truncated V cross-sections of the contacting end corrugations provide this continuously effective wedging action,

since the central flat wall or bottom of the truncated V of one corrugation is of a predetermined greater width than the corresponding portion of the other corrugation due to the greater depth, thus insuring contacts of the converging side walls of the truncated V.

The sheet pile described is preferably of steel, although for particular uses other material may be employed. The number of corrugations per pile can, of course, be more or less than the number shown in the accompanying drawing. Further, the particular angle between the side walls and the central walls of the corrugations may be varied, as may the widths of the side walls and central walls.

It is to be understood that the foregoing description and accompanying drawing have been given by way of illustration and example, and not for purposes of limitation, the invention being limited only by the claims which follow.

What is claimed is:

1. Sheet piling comprising a plurality of interlocking sheet piles, each pile including a plurality of corrugations, said corrugations comprising intermediate corrugations and end corrugations of truncated V-configuration, one end corrugation of each pile being of greater face width than the other end corrugation and being adapted to engage in the narrower faced corrugation of the adjacent pile, the contacting ends of contiguous piles being in wedge locked engagement.

2. Sheet piling comprising a plurality of sheet piles, each pile including a plurality of corrugations, each contacting end corrugation including a flat central face and flat side faces, the flat central face of the interiorly disposed contacting corrugation being of greater width than the flat central face of the exteriorly disposed contacting corrugation.

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