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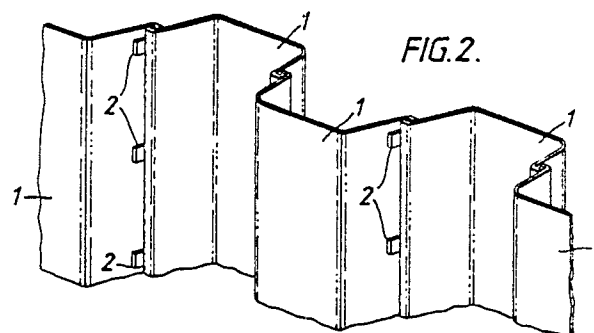
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54 **Piling.**

57 This invention relates to the provision of piles (1) the lengthwise edges of which are formed to define a trough and in which the piles are so disposed that the troughs interlock, the inner faces thereof in adjoining piles being clamped tightly together by wedges (2) sited at intervals along the length of the piles between the outer face of the trough on one said pile and the adjacent surface of the adjoining pile. The piles may be of commonly known Larssen section, the interlock or 'clutch' between them then lying on the centreline of the piling structure.



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PILING

This invention relates to sheet piling and more particularly relates to interlocking piling sections and wedges for enhancing the degree by which adjoining sections are locked together and thereby improving the structural efficiency of the piling.

Interlocking sheet piling is used for a multiplicity of purposes associated with eg earth and water retaining structures and the need frequently exists to ensure that movement between adjoining piles is prevented, both in service and, on occasions, during piling. Hitherto, this has frequently been effected by either continuous welding or intermittent welding or spot welding or crimping. Such processes however require either the provision of plant at the steel works or dedicated on-site equipment and as such are expensive and time-consuming.

It is an object of this invention to mitigate this problem.

From one aspect the present invention provides piles the lengthwise edges of which are formed to define a trough and in which the piles are so disposed that the troughs interlock, the inner faces thereof in adjoining piles being clamped tightly together by wedges sited at intervals along the length of the piles between the outer face of the trough on one said pile and the adjacent surface of the adjoining pile.

The piles may conveniently be of the commonly known Larssen section, the interlock or 'clutch' between them then lying on the centreline of the piling structure.

The wedges may comprise a plate having a number of teeth formed on each side, the plate having a tapered nose to aid initial insertion and the leading face of each tooth likewise being tapered towards said nose, at least one tooth having a restricted length and a stub-ended trailing face whereby, when the wedge is driven such that the whole of said one tooth is engaged by the adjoining piles, withdrawal is inhibited.

Preferably a said 'one' tooth of restricted length may be provided on each side; indeed more than one such teeth may be provided on each side; arranged in staggered rows. Additionally other teeth may be provided, of greater height than said one teeth and disposed rearwardly thereof in the direction of drive of the wedge.

The 'head' of the wedge may conveniently be enlarged for ease of driving, a shoulder being provided from the inner side of which the said 'other' teeth extend.

The taper on the nose may define a sharper angle than that on the leading faces of the teeth.

In order that the invention may be fully understood one embodiment thereof will now be de-

scribed, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a plan view of interlocked Larssen piles;

Figure 2 is a perspective view of Figure 1 in which the siting of the wedges is more apparent;

Figure 3 is a side elevation of the wedge; and

Figures 4,5 and 6 are sections B-B, C-C and D-D on Figure 3, respectively.

Referring now to Figures 1 and 2 of the drawings, Larssen-section steel piles 1 are shown interlocked with diagrammatically illustrated wedges 2 driven-in at intervals along the piles' length, from one side only, in the clutched region (alternative arrangements are possible such as the wedges being driven in from both sides but only along alternate interlocks).

The wedges are shown in more detail in Figures 3 to 6:

In particular, each wedge 2 has a tapered nose 3 and a shouldered head 4. A row of ridged teeth 5 is provided on one side 6 of the wedge and a matching row of teeth 7 is correspondingly sited on the opposite side 8, each tooth being triangular in section and having its leading face tapered to align with the end of the tapered nose.

An additional pair of such teeth 9 is likewise sited on the side 8 but set back from the level of the leading faces of the teeth 5,7.

A pair of teeth 10 of greater height and larger cross section than the others mentioned is sited on the side 6 and these extend rearwardly to the shoulder 4 to provide a degree of support therefor against the hammering action.

The wedge may conveniently be forged from steel.

The design of the wedge thus described makes it evidently easy to drive in and, with penetration into and between the mating surfaces beyond the stub or butt end of the teeth 5 and 7, a practical impossibility for inadvertent detachment.

Although the invention has been described with reference to the embodiment illustrated, it is to be understood that other forms of interlocking piling, eg Frodingham type, may readily be secured by wedging in the fashion described. Further, different teeth formations, shapes and locations than those shown may readily be adopted on the wedge.

Claims

1. A piling structure comprising piles the lengthwise edges of which are formed to define a

trough and in which the piles are so disposed that the troughs interlock, characterised by the inner faces thereof in adjoining piles being clamped tightly together by wedges 2 sited at intervals along the length of the piles between the outer face of the trough on one said pile and the adjacent surface of the adjoining pile. 5

2. A piling structure according to claim 1, characterised in that the piles are of the commonly known Larssen section, the interlock or clutch between them lying on the centreline of the said structure. 10

3. A piling structure according to claim 1 or claim 2, characterised in that the wedges comprise a plate having a number of teeth formed on each side, the plate having a tapered nose 3 to aid initial insertion and the leading face of each tooth 5 or 7 likewise being tapered towards said nose, at least one tooth having a restricted length and a stub-ended trailing face whereby, when the wedge is driven such that the whole of said one tooth is engaged by the adjoining piles, withdrawal is inhibited. 15 20

4. A piling structure according to any one of claims 1 to 3, characterised in that a said 'one' tooth of restricted length is provided on each side of the wedge. 25

5. A piling structure according to any one of claims 1 to 3, characterised in that a plurality of said 'one' teeth of restricted length is provided on each side of the wedge, arranged in staggered rows. 30

6. A piling structure according to any one of claims 3 to 5, characterised in that a shoulder 4 is provided on the head of the wedge remote from the nose to sustain driving forces, the wedge including a number of teeth 10 extending towards the nose from said shoulder of larger width and height than the said one teeth. 35

7. A piling structure according to any one of claims 3 to 6, characterised in that the taper on the nose defines a sharper angle than the taper on the teeth. 40

8. A piling structure according to any one of claims 1 to 7, characterised in that the wedge is made from forged steel. 45

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