

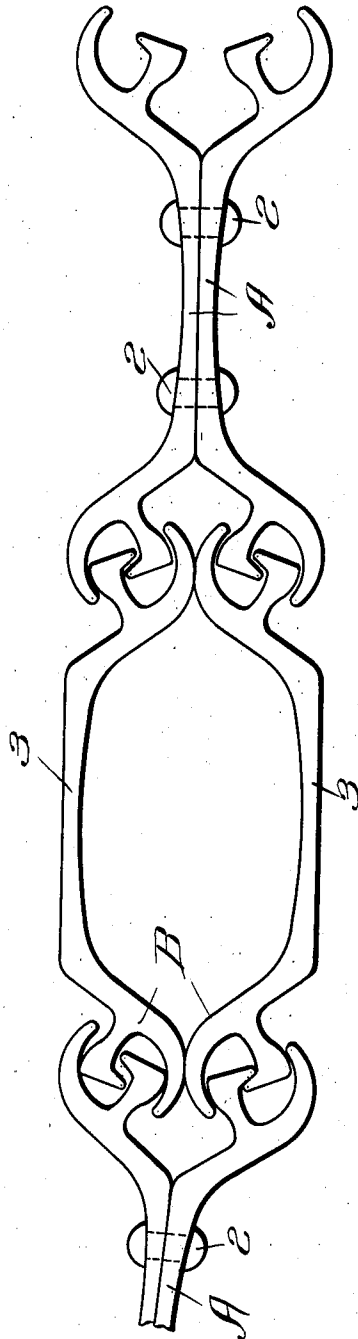
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METAL SHEET PILING SECTION AND WALL.

APPLICATION FILED JULY 1, 1912. RENEWED OCT. 6, 1919.

1,338,287.

Patented Apr. 27, 1920.



Witnesses:
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UNITED STATES PATENT OFFICE.

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METAL SHEET-PILING SECTION AND WALL.

1,338,287.

Specification of Letters Patent. Patented Apr. 27, 1920.

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To all whom it may concern:

Be it known that I, CLOUD CLIFFORD CONKLING, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Metal Sheet-Piling Section and Wall, of which the following is a specification.

My invention relates to a special form of steel sheet piling particularly adapted for locations where the pressures on the work, due to great head of water or liquid mud, is too great to be resisted by single piling sections.

Heretofore for heavy braced work I have devised the so called arched-web piling, in which the modulus and moment of resistance of the section are greatly increased, but with the increased demands on metal sheet piling, cases arise involving extraordinary loads, and for these special cases I have devised the special form of built up section here described which is made by combining and riveting two of my said arched-web sections together the result being that the modulus and moment of resistance, with reference to the neutral axis of the two sections so combined, are much greater than twice that of a single section with reference to its own neutral axis.

My invention will be understood by reference to the drawing herewith, of which the single view shows in plan, a portion of a wall in which my combined sections are used.

A indicates the special combined section referred to, which consists of two arched-web sections set back to back and secured together by rivets 2 2.

These sections are then assembled in the wall alternately with other arched-web sections 3 arranged as at B with a pocket between. The result is that the interlocks at each joint are doubled and the modulus and moment of resistance are much more than doubled. The increase in the moment of resistance of the piles thus combined, over the sum of the moments of the two separate, is over 60% for the back to back arrangement at A and substantially 250% for the arrangement with the pocket at B. It will be understood that A indicates the combined or "composite" section as distinguished from the "simple" sections 3—3 from which it is made up.

Where the two sections are combined back to back and riveted together as shown, such a combined section can be considered as integral, with the very important results indicated of increase in strength, as against the same two sections when used uncombined.

Such combination from two piles riveted together hold the adjacent piles on each side firmly in their relative positions causing said adjacent piles to act together.

This effect is increased where said adjacent piles are further fastened by transverse bolts or by filling the large pocket, between the two single sections, with concrete, or by pouring the open interlocking pockets of the double joint, with grout after the wall has been driven.

By thus filling the large pockets and the small pockets of the interlocks with concrete the combined piles, individually or collectively, can be used as bearing piles as well as sheet piles.

It will be understood that all the advantages of the interlocking joint are retained including the possibility of a sufficient degree of angular arrangement for most purposes, for with the design here shown there can be an angular adjustment of the sections, with relation to each other, up to an angle of 6 degrees. The tensional and shearing strength of the double interlocking joint for one of these combined piles is twice as great as the smaller properties in case of a single pile.

I claim:

1. A wall of metal sheet piling comprising two different forms of elements alternately arranged, one being a composite section formed of piling sections having on their edges interlocking members and having their webs arched, the webs of said sections having their convex sides opposed and rivets uniting the webs, the second section consisting of two arched sections similar to the half sections used in the preceding but set reversely with the arched webs arranged outwardly and the interlocking elements in contact to leave a main pocket between the two simple sections.

2. A wall of metal sheet piling comprising two different forms of elements alternately arranged, one being a composite section formed of piling sections having on their edges interlocking members and having their webs arched, the webs of said sections

having their convex sides opposed and rivets uniting the webs, the second section consisting of two arched sections similar to the half sections used in the preceding but set reversely with the arched webs arranged outwardly and the interlocking elements in contact to leave a main pocket between the two simple sections for a concrete filling, and the alternative sections of the composite wall being interlocked with the adjacent sections by means of the interlocking members on the edges.

3. A double wall of metal sheet piling comprising alternate elements, one being a composite element formed of piling sections secured together, each section having on its edges interlocking members adapted for independent interlocking engagement with members of an adjacent section and the second element consisting of two piling sections each having interlocking members on its edges and secured by interlocking engagement with the sections of the first element, substantially as described.

4. A double wall of metal sheet piling comprising two different forms of elements alternately arranged, one being a composite element formed of piling sections secured together, each section having on its edges interlocking members adapted independently to interlock with members of adjacent sections and the second element consisting of two piling sections each having interlocking members on its edges and secured by interlocking engagement with the sections of the first element and said piling sections being of similar form and having arched web portions and the sections of the alternate elements being reversely arranged, substantially as described.

5. A wall of metal sheet piling compris-

ing two different forms of elements alternately arranged, one being a composite element formed of piling sections having on their edges interlocking flanges and having their webs arched and said sections being secured together with the convex sides of the webs in contact and with the interlocks spaced, the second element consisting of two arched sections similar to the half sections used in the preceding element but set reversely with the web portions spaced and the interlocking elements in contact to leave a main pocket between the simple sections and the alternative sections of the composite wall being interlocked with the adjacent sections by means of the interlocking members on the edges, substantially as described.

6. A double wall of metal sheet piling comprising two different forms of elements alternately arranged, one being a composite element formed of piling sections having on their edges interlocking flanges and having the webs arched and secured together by rivets or bolts, the second element consisting of two arched sections similar to the half sections of the first element and secured by interlocking with the sections of the first element and the piling sections of the alternate elements being set reversely, one with the convex sides of the arched web opposed and the other having the web portions spaced to form a pocket therebetween, substantially as described.

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

CLOUD CLIFFORD CONKLING.

Witnesses:

J. A. NOE,

A. L. MCGEE.