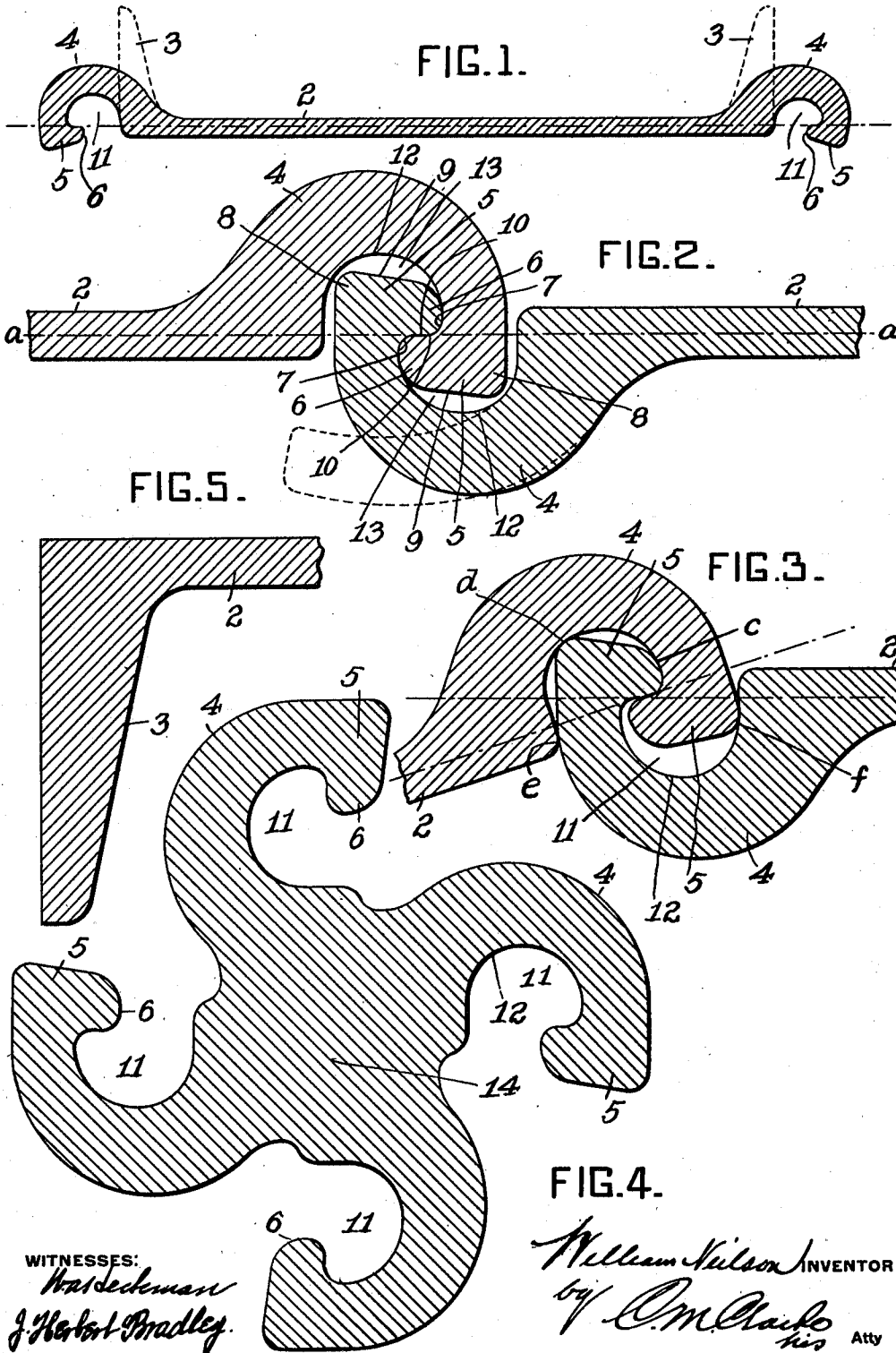


W. NEILSON.
PILING.

APPLICATION FILED JUNE 19, 1911.

1,003,778.

Patented Sept. 19, 1911.



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PILING.

1,003,778.

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To all whom it may concern:

Be it known that I, WILLIAM NEILSON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Piling, of which the following is a specification.

My invention consists of an improvement in metal piling, of the class wherein a series of rolled metal piles are connected together at their edges by means of co-acting holding portions, capable of relative longitudinal movement and providing for lateral deflection of the several piles of a series when connected.

The particular object of the invention is to provide a construction which may be rolled from a channel section to provide, along each edge of the pile, a specially formed hook terminal adapted to interfit and co-act with a correspondingly formed terminal of an adjacent pile, whereby to provide at any position which the piles may assume with relation to each other, a strong tight joint, capable of resisting the various strains, and whereby, at varying positions, different portions of the interengaging terminals will be maintained in binding contact.

A further object is to so construct the terminals that the interengaging hold, one with the other, will be increased in proportion to the strain.

In various forms of rolled metal piling heretofore constructed and designed, employing flanged sections, there is more or less tendency to open up the joint under strain, due to the spreading or wedging action of the parts.

In my present invention, which is of the type of a former application filed Feby. 15, 1911, Serial No. 608,780, I form the pile in the fewest number of rolling operations, from an original channel form, either of the commercial standard proportions, or specially rolled as may be desired, utilizing the metal and so distributing and shaping it, with relation to the main body portion of web of the section, as to best secure the objects in view.

In the drawings accompanying the specification, Figure 1 is a cross sectional view

of a pile made in accordance with my invention, indicating the channel flanges from which the terminals of the pile are formed, in dotted lines. Fig. 2 is a similar view, enlarged, showing the edges of adjacent piles in interlocked position for a straight wall arrangement. Fig. 3 is a similar view, showing one of the piles deflected from the plane of the other. Fig. 4 is a cross sectional view of a specially rolled section as used in making corner or partition junctions. Fig. 5 is a partial sectional view of a standard channel section from which the pile is formed.

It will be understood that the several sections of piling, shown in cross sectional views in the drawings, are of the desired length for use in the usual manner of using such devices, by driving one after the other, in interengaging relation, to form a continuous series.

Each pile consists of a longitudinal web portion 2 having boundary edges arranged to telescopically interfit and co-act with the edges of adjoining piles. In the blank from which the pile is formed, the channel flanges, indicated in dotted lines at 3, 3, are bent around to provide the main shank 4 of the hook terminal, the general tapering cross sectional dimensions of the channel 3 being maintained substantially out to the point defined by the line *a, a*. Said line defines the direction of the inner face of the terminal hook 5 and extends transversely across the end of the hook portion of the pile and in the same plane as the central line of the web 2. The inner terminal 6 of the hook 5 is tapered toward a rounded point as shown, while the inner neck of the hook 5, at 7, is rounded to about the same curvature to receive and form a good bearing for the co-acting terminal 6 of the adjacent interfitting pile, as in Fig. 2. The outer shoulder of the hook 5 is substantially right angled or slightly acute, as at 8, having a rounded corner terminal, the face 9 of the hook 5 being flat as shown between said corner and the terminal 6. The hook as thus formed is somewhat bulbous in cross section with the abruptly bent backwardly turned interengaging terminal having the inner face flat on the same plane as the central line *a, a*,

as stated. The receiving cavity 11 of the pile as thus formed is interiorly rounded as indicated at 12, generally semicircular in form, adapted to receive the hook terminal 5 with ample clearance, but whereby the walls of said hook will, when inserted as shown, lie somewhat closely adjacent to the inner wall 12 of cavity 11, with an intervening space 13. When two co-acting piles are interlocked in the manner shown, their engaging faces 10, 10, and the rounded terminals 6, 6, fitting into the recessed cavities 7, 7, provide a tight joint, somewhat wedge-like in its nature, and whereby pulling strains on the piles tending to separate them, will serve to wedge the contacting faces more closely together.

As illustrated in Fig. 3, one of the piles is capable of very considerable deflection with relation to the other and, due to the formation of the hook terminal 5 and its rounded corners 6, 8, and the exterior of the main shank 4, the parts will be maintained in interfitting engagement, making contact at the four different points *c*, *d*, *e* and *f* respectively. The same engagement will be made quite independent of which pile is deflected with relation to its companion. In either position of the piles, the space 13 may be utilized for holding a filler of any suitable material or substance, whereby to pack the joint.

In Fig. 4, I show a specially jointed section, consisting of the central longitudinal body portion 14 having extending from it at suitable positions, a plurality as two, three or four hook members, depending upon the desired number of joints to be made. These hook members are of the same shape, proportions and arrangement as the hook members 4 of the pile sections just described. The manner of using said jointed section will be readily understood without further illustration or description, beyond the mere statement that the hook terminals of the pile sections are telescopically engaged with the hook members of the joint section according to the direction of the wall to be built, the holding effect and coöperation being the same as described as to the pile sections. The joint section may be made as shown in the drawing and all or certain ones of its hook members utilized as desired, or the joint section may be made with the particular number of hook members required for the work in view, and arranged around the central core 14, at positions suitable for the direction of the piling wall to be connected therewith.

The particular advantages of the invention reside, as to the pile member, in its facility of manufacture from a channel form; the advantages arising from the co-acting single hook members without the ne-

cessity of supplemental bracing portions; and the facility for erecting piling structures in any desired direction laterally, due to the construction of the pile sections themselves and of the connecting junction member, when required.

By making the contacting inner faces 10 of the hook terminal 5 in alinement with the center line of the main web, the strains are equally divided between the piles when joined, and the terminals snugly fit each other, with ample facility for constant engagement or various positions assumed by the piles in use.

It will be understood that the pile may of course, be rolled in different weights and proportions as to cross section and may be otherwise changed or varied by the manufacturer in specific features of detail, within the scope of the following claims:

1. A rolled metal pile comprising a web portion and an integral laterally curved connecting portion extending beyond the plane of the web, rounded backwardly thereinto and terminating in a hook terminal having a flat inner face coinciding with a plane extending centrally through the web of the pile.

2. A rolled metal pile comprising a web portion and endmost integral laterally curved connecting portions extending beyond the plane of the web, rounded backwardly thereinto and terminating in hook terminals having flat inner faces coinciding with a plane extending centrally through the web of the pile.

3. A rolled metal pile formed from a channel section, each flange terminating in a hook at one end having a flat inner face corresponding with a plane extending centrally through the web of the pile and an interiorly rounded recess and an exteriorly shouldered terminal, substantially as set forth.

4. A rolled metal pile comprising a web portion having a semi-circular portion at each end thereof and on one side only of the center line of the web, said portion being formed at each edge into a hook having a reversed terminal provided with a flat bearing face, the plane of which extends centrally through the web of the pile.

5. A rolled metal pile comprising a web portion having a flange at each end thereof and on one side only of the center line of the web, said flange being formed at each edge into a hook having a reversed terminal provided with a bearing face, the plane of which extends centrally through the web of the pile, said bearing face being continued interiorly and exteriorly whereby to define a receiving cavity for the hook of a co-acting pile and a rounded outer surface corresponding to the surface of the original

flanged section respectively and merging into the web of the pile, substantially as set forth.

the planes which coincide with the center of the web or body portion of the pile members. 10

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM NEILSON.

Witnesses:

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W. A. HECKMAN.

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