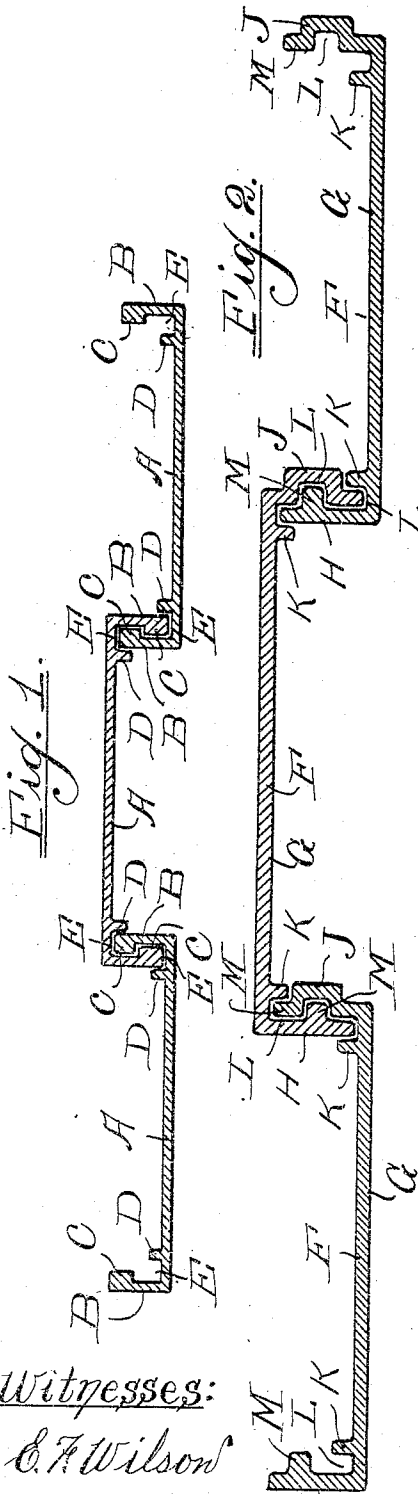


G. E. NYE.

INTERLOCKING METAL SHEET PILING.

APPLICATION FILED DEC. 17, 1904.



Witnesses:

C. F. Wilson

F. Schlotfeld

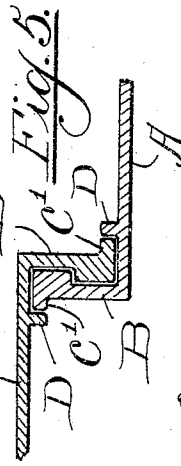
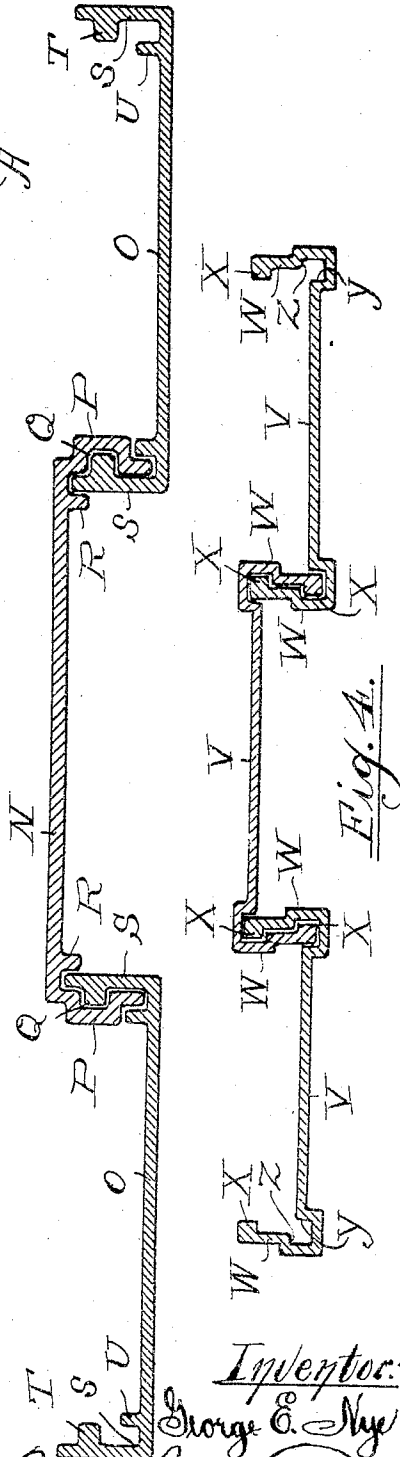


Fig. 3.



Inventor:

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UNITED STATES PATENT OFFICE.

GEORGE E. NYE, OF CHICAGO, ILLINOIS.

INTERLOCKING METAL SHEET-PILING.

SPECIFICATION forming part of Letters Patent No. 782,872, dated February 21, 1905.

Application filed December 17, 1904. Serial No. 237,284.

To all whom it may concern:

Be it known that I, GEORGE E. NYE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Interlocking Metal Sheet-Piling; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel construction in interlocking metal sheet-piling, the object being, primarily, to provide interlocking units having the requisite strength and positive locking means, which can be rolled, and thus made at relatively small expense, and which when interlocked form very durable and efficient piling; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a horizontal section of sheet-piling constructed in accordance with my invention. Figs. 2, 3, and 4 are similar sections of slightly-modified forms of construction. Fig. 5 is a similar fragmentary section showing a further modification applicable particularly to the specific construction shown in Fig. 1.

In the construction of metal sheet-piling the expense of securing together a number of members, such as channel-beams, angle-irons, Z-bars, and plates, is exceedingly great, and, furthermore, renders the piling extraordinarily heavy without imparting the requisite strength and stiffness, and hence such piling is rendered relatively very expensive.

The primary object of my present invention is to provide sheet-piling units which are capable of being produced by rolling and which are provided with suitable interlocking devices which render such units exceedingly stiff and interlock them securely with one another.

To these and other ends my invention comprises a plurality of units A, each comprising substantially a channel-bar, the free ends of the flanges B of which are provided on their opposing faces at their free ends with ribs or projections C, extending over substantially

one-half the depth of the flanges. On the web portions of said bar, inwardly of said flanges, are ribs or projections D, extending parallel with said flanges and between which and the latter recesses E are formed of a width substantially equal to the thickness of the free ends of the flanges with their projections and of a depth substantially equal to the width of said projection C, each of said recesses E of one member or unit A being adapted to receive the free end of the flange B of an adjacent member of unit together with its projection, said units being thereby securely interlocked and held against relative movement in every direction except longitudinally.

In Fig. 2 I have shown an interlocking unit F, comprising a web portion G, having flanges H and J on its side edges and projections K inwardly of said flanges H and J, the latter being provided, respectively, on their inner faces with recesses or grooves L and projections or ribs M, said grooves L in the flange H of one unit F being adapted to receive the projection or rib M of another of said members F, the said grooves and projections forming part of the interlocking means. The free ends of said flanges H and J of each member are adapted to be received between said flanges and the projections K of adjacent members, such flanges being thus respectively held against relative movement in every direction except longitudinally.

In Fig. 3 I have illustrated another modified form of construction, in which two members N and O are provided, the member N forming the female member and the member O the male member. In such construction the flanges P on the side edges of the member N are provided in their opposing faces with longitudinal grooves or recesses Q and with projections R inwardly of said flanges, while the flanges S of the male members O are provided on their opposing faces with longitudinally-disposed projections or ribs T and inwardly of said flanges with ribs U, corresponding to the projections R of the member N, said projections being adapted to enter said recesses and the free ends of the flanges of both members being adapted to be received between the projections R and T of the other member,

thereby interlocking said members against relative movement in all directions except longitudinally.

In Fig. 4 I have illustrated a further modification, in which the web V of each unit is stepped at its side edges and the flanges W are stepped at their inner ends to form substantially rectangular recesses open on one corner, in which the free ends of the flanges W of adjacent members are adapted to be received, said flanges W being provided at said free ends on their opposing faces with ribs or projections X, the shoulders Y and Z, forming the short walls of said recesses, serving the purpose, respectively, of the projections on the webs of the units in the other forms of construction above described to engage the outer faces of the free ends of the flanges W of adjacent units and to engage the projections X thereof.

My said sheet-piling is very durable and efficient and can be produced at a minimum cost by reason of the fact that the units composing the same can be rolled in substantially the same manner as channel-bars and I-beams and by reason of this fact can be produced at minimum cost and are of minimum weight consistent with the requisite strength and when interlocked are exceedingly efficient in every respect.

In rolling the units it will be necessary in the final operation to turn up the flanges, and to accomplish this means, such as a roller, must bear against the web and provide an abutment against which the flange is bent, as otherwise a sharp turn cannot be effected. As there is very little room provided between the projection D, Fig. 1, and the adjacent flange for the insertion of a roller, it may be necessary to provide more room, and in the event that this should become necessary the projection D may be moved inwardly, as shown in Fig. 5, and a projection C' provided on the outer face of each of the flanges B at the free ends thereof to increase the width to correspond with the increased width of the space between the flange B and said projection D.

I claim as my invention—

1. Interlocking sheet-piling comprising a plurality of members provided on their side edges with flanges and with projections inwardly of said flanges, said flanges being provided on their opposing faces with grooves and

projections, each of said projections being adapted to interfit with a groove of an adjacent member.

2. Interlocking sheet-piling comprising a plurality of units each comprising a plate provided on its side edges with flanges and inwardly of said flanges with projections between which and said flanges the free edges of the flanges of adjacent units are received to hold said units against relative movement in one direction, and means disposed on the opposing faces of the flanges of each unit adapted to interlock to hold said units against relative movement in another direction.

3. Interlocking sheet-piling comprising a plurality of units each comprising a channel-bar provided on the opposing faces of its flanges with interlocking devices, and inwardly of and adjacent said flanges with devices adapted to engage the free edges of the flanges of adjacent units.

4. Interlocking sheet-piling comprising a plurality of units each consisting of a channel-bar the flanges of which are provided on their opposing faces with interlocking devices, and means disposed inwardly of said flanges to engage the free ends of the flanges of adjacent units and hold said flanges relatively in position to cause said interlocking devices to engage each other.

5. A unit for interlocking sheet-piling comprising a channel-bar provided on the opposing faces of its flanges adjacent the free ends thereof with projections, and on its web portion adjacent said flanges with shoulders between which and said flanges recesses are formed in which the free ends of the flanges of adjacent units are adapted to be received.

6. A unit for interlocking sheet-piling comprising a channel-bar provided on the opposing faces of its flanges adjacent the free ends thereof with projections, and on its web portion adjacent said flanges with projections between which and said flanges the free ends of the flanges of adjacent units are adapted to be received and projections of said flanges maintained in relative engagement.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

GEORGE E. NYE.

Witnesses:

RUDOLPH WM. LOTZ,
F. SCHLOTFELD.