No. 850,043. PATENTED APR. 9, 1907.

G. E. NYE.

INTERLOCKING METAL SHEET PILING.

APPLICATION FILED DEC. 13, 1906.

Fig. 1.

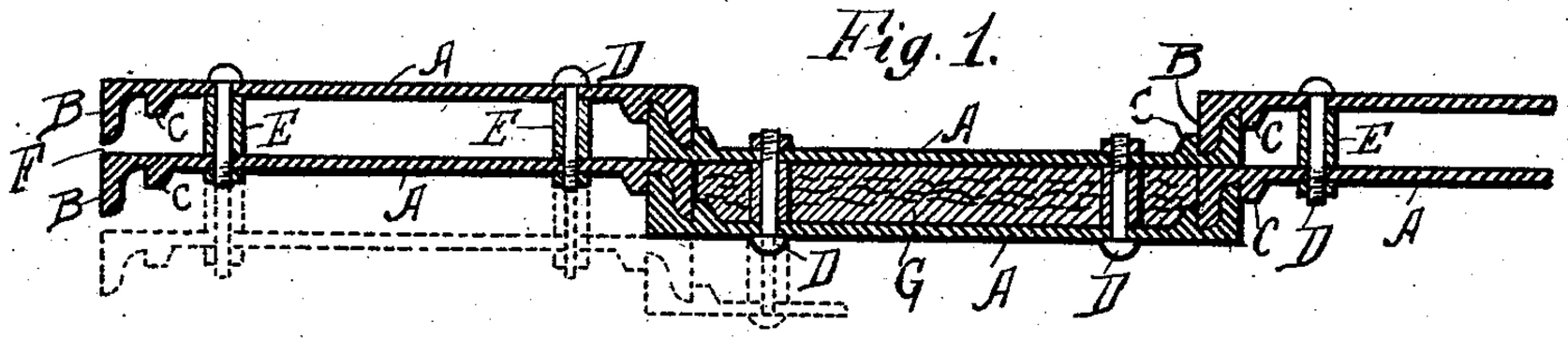


Fig. 2.

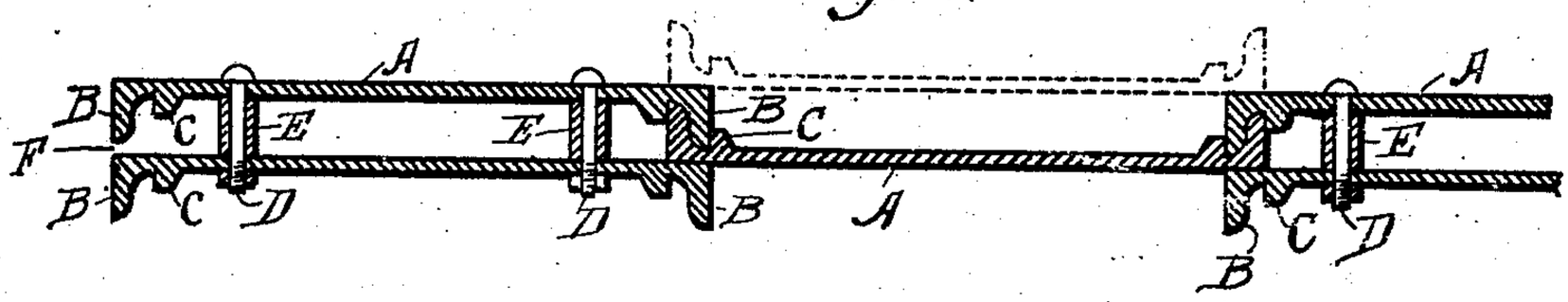


Fig. 3.

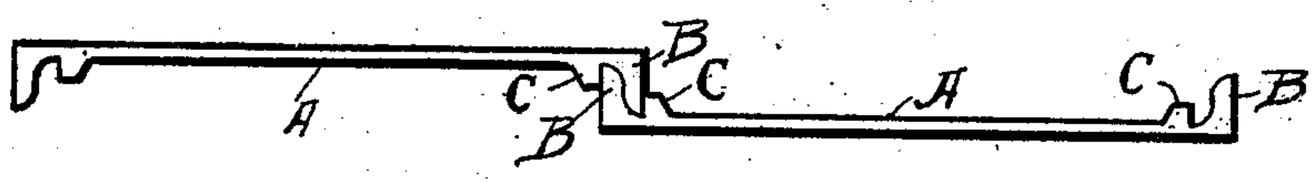
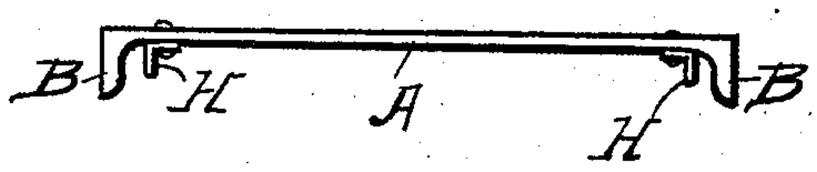


Fig. 4.



WITNESSES:

Arthur C. Lotz

H. C. Barker.

INVENTOR.

George E. Nye

BY Rudolph Ivy

ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE E. NYE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO GUSTAVUS A. KREIS, OF CHICAGO, ILLINOIS.

INTERLOCKING METAL SHEET-PILING.

No. 850,043. Specification of Letters Patent. Patented April 9, 1907.

Application filed December 13, 1906. Serial No. 347,663.

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.

This invention relates to a novel construction in interlocking metal sheet-piling, the object being to provide piling of this character which is very simple and durable and which at the same time may be employed when disassembled as ordinary structural iron and which, furthermore, may be so arranged as to provide a single wall suitable for lining for ditches, as in sewer-building or similar light excavating, or which may be built up to form a double hollow interlocking-wall suitable for any purpose for which piling of this character may be employed, and 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 plan section of sheet-piling constructed in accordance with my invention to form a continuous hollow wall. Fig. 2 is a similar section showing a wall comprising alternate single and double units. Fig. 3 is a plan view showing said piling as adapted for lining of ditches and other light excavations. Fig. 4 is a plan of a modified form of unit constructed in accordance with my invention.

My present invention contemplates an improvement upon the construction shown in Patent No. 832,407, granted to me October 2, 1906, said patent showing channel-bar units provided on the outer faces of their webs with projections inwardly of their side edges and parallel with the flanges thereof.

My present invention embodies the reverse of the construction shown in said patent—namely, in providing the projections on the inner faces of the webs inwardly of and parallel with the flanges. In the construction of hollow units by coupling two of said single units in either case provides a device which is suitable for all purposes for which piling of this character is used; but the disposition of said projections, as shown and as will be hereinafter described in this application, is advantageous over the disposition of said projections on the outer faces of the webs, for the reason that the single units are thus better adapted for light work, such as ditching and similar light excavating. In work of the last-named character it is not necessary that the units shall interlock to hold the same against relative movement in all directions, but each unit should merely provide a guide for the next adjacent unit in driving the latter, and said units should engage each other only to an extent sufficient to prevent free relative lateral movement longitudinally of the ditch or excavation, and, further, so as to provide a relatively water-tight joint between such adjacent units.

The most important object of my present invention is to provide sheet-piling by means of which a continuous hollow wall may be formed and in which each of the hollow units may be filled with a suitable packing to render the entire wall absolutely water-tight and which by reason of the exclusive use of what I term "double units" will be sufficiently strong to withstand any strains to which piling of this nature is subjected.

To this and other ends I provide channel-bar members A, provided on their side edges with flanges B, thicker at their bases than at their free ends, and inwardly of said side edges and parallel with said flanges with ribs C, disposed on the inner faces of the webs adjacent to said flanges B. The reinforcement of the flanges at their bases is essential, as it not only enables the channel-bars to be more easily rolled, but also provides the requisite strength where it is most needed. The said units may be driven so as to engage each other, as shown in Fig. 3, to form a wall suitable for the lining of ditches and similar more or less shallow excavations.

For the general uses for which piling of this nature is generally employed, however, I prefer to use hollow units, such units each comprising two of said channel-bar members A, disposed parallel with each other and secured together by means of bolts D, passing through the webs of said members A, and their sleeves E disposed between said members, said sleeves being of a length equal to or greater than the width of the outer faces of the flanges B, so that said members will be disposed a distance

apart sufficient to provide slots F in the side faces thereof equal to or slightly greater in width than the thickness of the webs of said flanges. Such hollow units may be alternated with single units in the manner shown in Fig. 2, or the same may be interlocked with each other, as shown in Fig. 1, the flanges of adjacent units being oppositely disposed and one flange of each entering the other and engaging a flange and projection C thereof, thus holding said units against movement in all directions relative to each other except longitudinally. Each of said hollow units may further be filled with the packing G, as shown in Fig. 1, to render the joints between adjacent units absolutely water-tight. If desired, the thickness of the wall of sheet-piling may be further increased by assembling three or more of said channel-bar members to form a unit, as indicated in dotted lines in Fig. 1, and thus obtaining a wall of any desired strength.

It is preferable to form the ribs or projections C integral with the member A; but the same may also be formed by securing angle-irons H to the inner faces of the webs adjacent to and parallel with the flanges B, as shown in Fig. 4. The double wall may also be assembled so as to bring all of the hollow spaces in the various units into relative alinement, as shown in dotted lines in Fig. 2.

The construction herein shown and described obtains only slight advantages over the construction shown in my patent above specified, such advantages consisting mainly in leaving the outer faces of the webs of the channel-bar members free of projections, and thereby better adapting the same for ordinary uses of structural iron, and, further, in enabling a better double interlock of adjacent units to be obtained. This last advantage is not particularly important, however, as the interlocking devices serve more particularly as guides in driving the piling.

The units illustrated in the aforesaid patent could also be similarly assembled to form a continuous hollow wall and with practically equal advantage, but are not adapted to be assembled singly for light work, such as is illustrated in Fig. 3.

The novelty residing in the present invention is defined in the appended claims.

I claim as my invention—

1. A sheet-piling unit consisting of a channel-bar member having plane edge flanges thicker at their bases than at their free ends and provided inwardly of said flanges on its inner face with ribs disposed parallel with said flanges, two of said members being disposed parallel with each other and secured together to form a hollow unit provided with longitudinal slots in its sides, said units being disposed side by side so that their flanges overlap and engage each other on their inner faces to prevent relative lateral movement in one direction and said ribs engaging the outer faces of said flanges adjacent their free ends and preventing relative lateral movement of said units in the other direction.

2. Interlocking sheet-piling comprising units each consisting of two channel-bar members having plane edge flanges thicker at their bases than at their free ends, said members being disposed parallel with each other and secured together so that their flanges are in alinement with each other, there being longitudinal slots in the sides of said units, a rib on the inner face of each of said channel-bar members inwardly of and parallel with one of the flanges thereof, said units being disposed edge to edge and the flanges of adjacent units being oppositely disposed, one flange of each entering the other and engaging one of the flanges and one of said ribs of the other unit at its free end.

3. Interlocking sheet-piling comprising units each consisting of two channel-bar members secured together and disposed parallel with each other, said members having plane edge flanges thicker at their bases than at their free ends, the outer faces of the said flanges thereof being flush with each other, there being longitudinal slots in the sides of said units, said units being disposed side by side and one flange of each entering the other unit and engaging a flange of the latter to form a continuous hollow wall, the hollow spaces thereof being adapted to receive a packing to render said wall water-tight, and means integral with said units and disposed adjacent the flanges thereof and engaging the flanges of adjacent units to limit relative lateral movement of said units in one direction.

4. Interlocking metal sheet-piling comprising units each consisting of two channel-bar members disposed parallel with each other and secured together to form a hollow unit, the edge flanges of said members being plane and thicker at their bases than at their free ends and extending in the same direction, there being longitudinal slots in the sides of said hollow units, said units being disposed side by side and one flange of each entering the other, ribs integral with and disposed on the inner face of the web of one of said channel-bar members of each hollow unit adjacent the flanges thereof and engaging the free end of the entering flange to hold the same against lateral movement in a direction inwardly of said hollow unit.

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

GEORGE E. NYE.

Witnesses:
RUDOLPH WM. LOTZ,
H. C. HARPER.