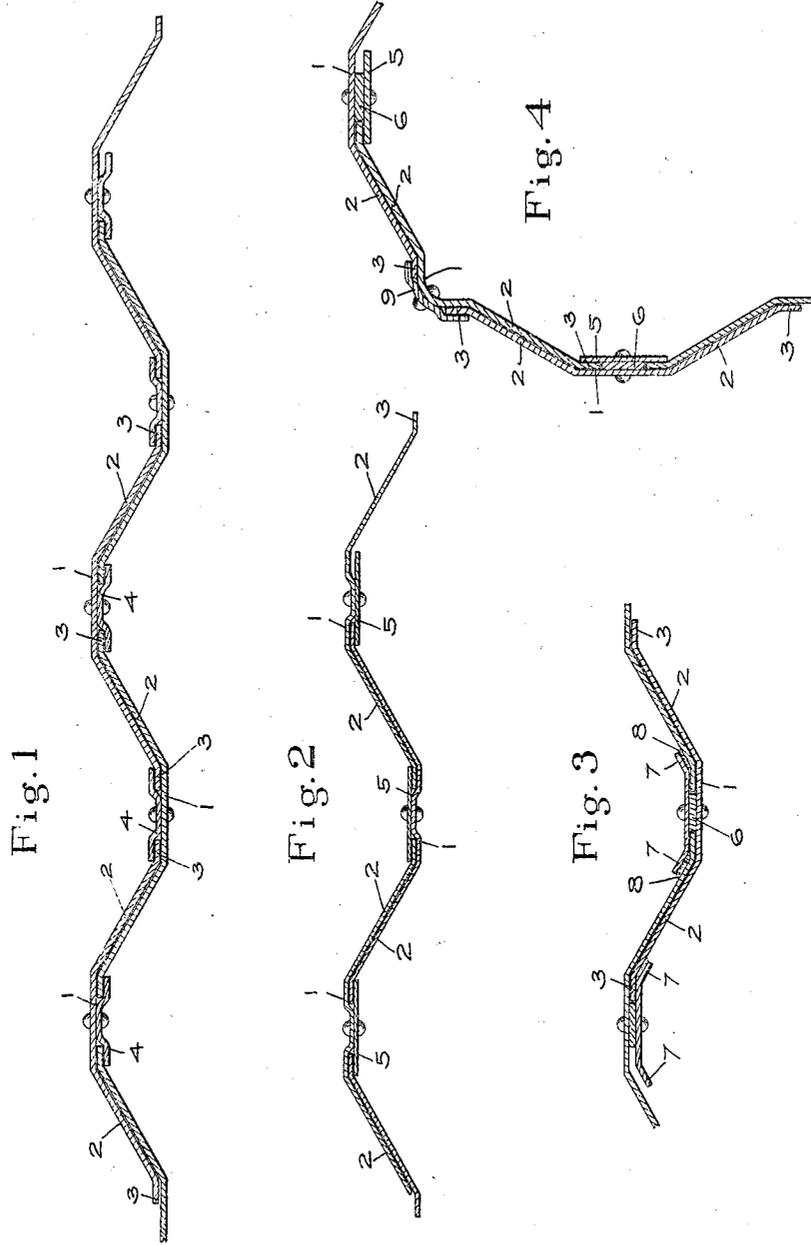


J. R. WEMLINGER.
METAL SHEET PILING.
APPLICATION FILED JAN. 14, 1905.



Witnesses

L. W. Palmer
Geo. Prudergast

Inventor

Julius R. Wemlinger

UNITED STATES PATENT OFFICE.

JULIUS R. WEMLINGER, OF NEW YORK, N. Y.

METAL SHEET-PILING.

No. 801,946.

Specification of Letters Patent.

Patented Oct. 17, 1905.

Application filed January 14, 1905. Serial No. 240,987.

To all whom it may concern:

Be it known that I, JULIUS R. WEMLINGER, a citizen of the United States, residing at New York, county of New York, State of New York, have invented a certain new and useful Improvement in Metal Sheet-Piling; and I 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 metal sheet-piling which may be used for retaining earth, quicksand, water, or other material encountered in constructing caissons and cofferdams, in building foundations, and in protecting earth excavations, or for any other purpose to which sheet-piling is adapted.

The object of my invention is to provide a metal sheet-piling which consists of a series of parallel pieces or members of trough-shaped cross-section so arranged that they may be driven separately and interlocked along their overlapping edges.

Another object of my invention is to provide a metal sheet-piling which is simple in construction, cheap in manufacture, efficient and durable in use, arranged so that all its members are alike and interchangeable, and which provides a very economical distribution of the metal, so that for equal capacity it is much lighter than other sheet-piling now in use.

I will now describe my invention more fully by referring to the drawings herewith, which represent three convenient and practical forms thereof, and in which similar characters of reference designate similar parts.

Figure 1 is a transverse sectional plan of a portion of my improved sheet-piling, and Figs. 2 and 3 are modifications thereof. Fig. 4 is a transverse sectional plan of a corner-piece, showing adjacent pieces interlocked therewith.

Each piece or member of my improved sheet-piling consists of a trough-shaped section having a web 1, diverging sides 2, and flanges 3, the piece or member being of uniform shape throughout its entire length. The bottom of the trough or web 1 is provided with a splice 4, having raised edges, as shown in Fig. 1, and preferably riveted to the said web 1. The edges of the splice 4 in this case are raised slightly more than the thickness of the flanges 3, so as to provide a little clearance for the longitudinal movement of the said flange and prevent binding, as will be readily understood.

Instead of the splice shown in Fig. 1 a flat plate 5 may be used, and clearance for the flange 3 may be provided by raising the web 1, as shown in Fig. 2, or a flat plate 5 and a filler 6 can be substituted, as shown in Fig. 4 and in Fig. 3 in a slightly-modified form. The filler 6 may also be replaced by washers of the same thickness, thus reducing the weight in that particular form of the member.

Although the form of sheet-piling illustrated in Figs. 1 and 2 will be water-tight for all ordinary pressures and will not require any calking, there may be some cases where the hydrostatic pressure is abnormal and calking may be found necessary. In such a case the construction shown in Fig. 3 can be adapted with advantage and little additional expense. Here, again, the individual piece or trough-section remains the same as described above, the only change being a slight modification of the splice 4, which is now provided with angular flanges 7, parallel to the flaring portions 2 of the main member, the said flanges being so proportioned that a small space is left where the calking material 8 may be inserted. It will be noted that the weight of the piling will be very slightly increased.

In order to provide for corners or other changes of direction in the line of sheet-piling, it is only necessary to bend one of the ordinary members or pieces along its web, after which a splice 8 or any modification of the other splices shown is secured to the web, as clearly illustrated in Fig. 4. The contiguous pieces or members are then interlocked with these corner-pieces in exactly the same manner as they do in the cases of Figs. 1, 2, and 3.

The sheet-piling is erected in the usual manner by driving the pieces successively in position, so that one of the flanges 3 of each piece extends under the splice 4 or its edges of the contiguous piece, while the flaring portions of the said pieces are parallel and adjacent, as clearly shown in the drawings. Thus while the individual pieces or members have free relative longitudinal movement, so that each can be driven separately, lateral movement between them is impossible, and the said pieces are strongly held in line while being driven and after they are in place.

The material of which the members are made may be steel plate bent to the required cross-section between reciprocating or rolling dies, or the members can be readily and econom-

ically rolled to the finished section, and, in fact, rolled members of the trough shape shown may be obtained as a regular article of manufacture.

5 It will be noted that my improved sheet-piling provides a wall or sheathing of practically uniform thickness, which of course requires a minimum quantity of material for the strength obtained, and the configuration
10 of the piling is such that there are no sharp corners to catch and stop floating debris and the like where the sheet-piling is used for seawalls or other situations where one or both sides thereof are exposed in a similar manner.
15 It will be further observed that by making the members of trough-section, as shown, they interlock across their entire width and cooperate to form a very strong wall well adapted to withstand the pressures or strains to which
20 it may be subjected. At the same time the individual members will penetrate to any working depth and any material short of solid rock. Furthermore, this piling can be pulled and redriven any number of times, and after
25 it can no more be used for its original purpose the material still has a definite value and can be sold for scrap, now so largely used in the manufacture of steel.

30 While I have described my invention in considerable detail, I do not wish to be limited to the exact details illustrated and described, but may reserve the right to use such modifications and substitutions within the scope of this invention and as amplified in the annexed
35 claims.

What I claim, and desire to secure by Letters Patent, is—

1. In metal sheet-piling, the combination of members of trough-shaped section each having
40 a web and sides, and outwardly-extending flanges at the margins of said sides.

2. In metal sheet-piling, members of trough-shaped section each having a web, flaring sides,
45 and outward integral flanges at the margins of said sides.

3. In metal sheet-piling, members of trough-shaped section each having a web, flaring sides, and outward integral flanges at the margins
of said sides parallel to said web.

50 4. In metal sheet-piling, members of trough-shaped section each having a web, flaring sides,

and flanges at the margins thereof, and means for locking the said members.

5. In metal sheet-piling, members of trough-shaped section each having a web, flaring sides,
55 and flanges at the margins thereof, and splices for locking the said members.

6. In metal sheet-piling, members of trough-shaped section each having a web provided with means for receiving portions of the adjoining
60 members, flaring sides, and flanges at the margins of said sides.

7. In metal sheet-piling, members of trough-shaped section each having a web arranged with a rib, flaring sides, and flanges at the
65 margins thereof, means cooperating with said rib for locking the adjoining members together.

8. In metal sheet-piling, members of trough-shaped section each having a web, flaring sides,
70 and flanges at the margins thereof, splices secured to the said web for overlapping and locking the said flanges.

9. In metal sheet-piling, members of trough-shaped section each having a web, flaring sides,
75 and flanges at the margins thereof, splices secured to the said web consisting each of a strip adapted to overlap the flanges of the adjoining members.

10. In metal sheet-piling, trough-shaped
80 sections having a web, flaring sides and flanges, and arranged so that the contiguous halves of said sections overlap.

11. In metal sheet-piling, splices or locking-pieces each formed of a strip having a depression
85 or groove through which said splices or locking-pieces are secured to the members of said sheet-piling.

12. In metal sheet-piling, trough-shaped sections each having a web, flaring sides and
90 flanges, and arranged so that the contiguous halves of said members overlap, splices or locking-pieces each formed of a strip having a depression or groove through which the said splices or locking-pieces are secured to said
95 sections.

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

JULIUS R. WEMLINGER.

Witnesses:

LEIGH B. MORRIS,
GEO. A. PRENDERGAST.