

No. 855,030.

PATENTED MAY 28, 1907.

J. R. WEMLINGER.  
METAL SHEET PILING.  
APPLICATION FILED NOV. 25, 1905.

Fig. 1

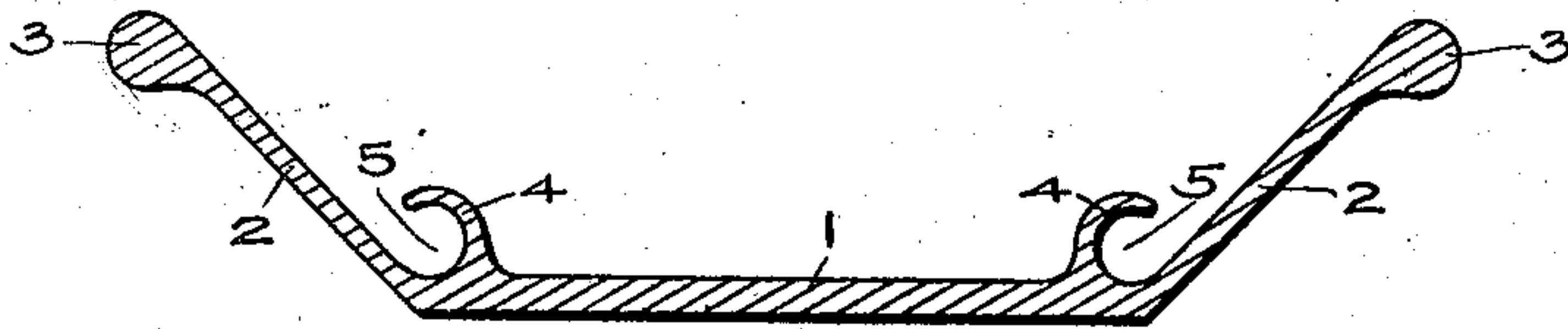


Fig. 2

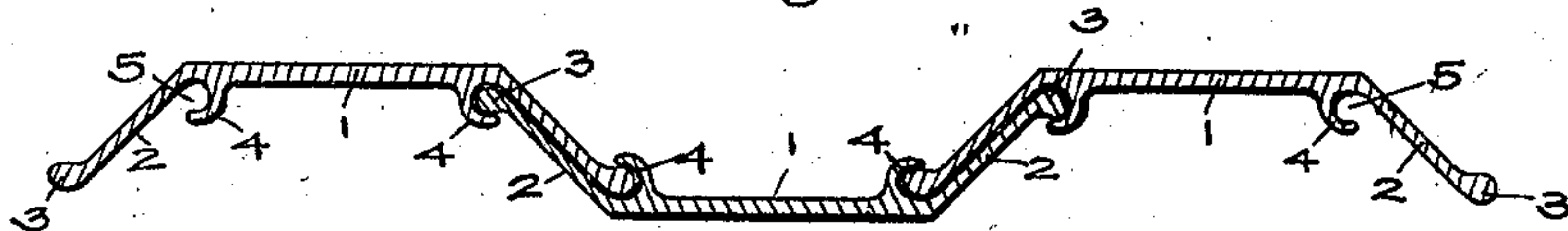
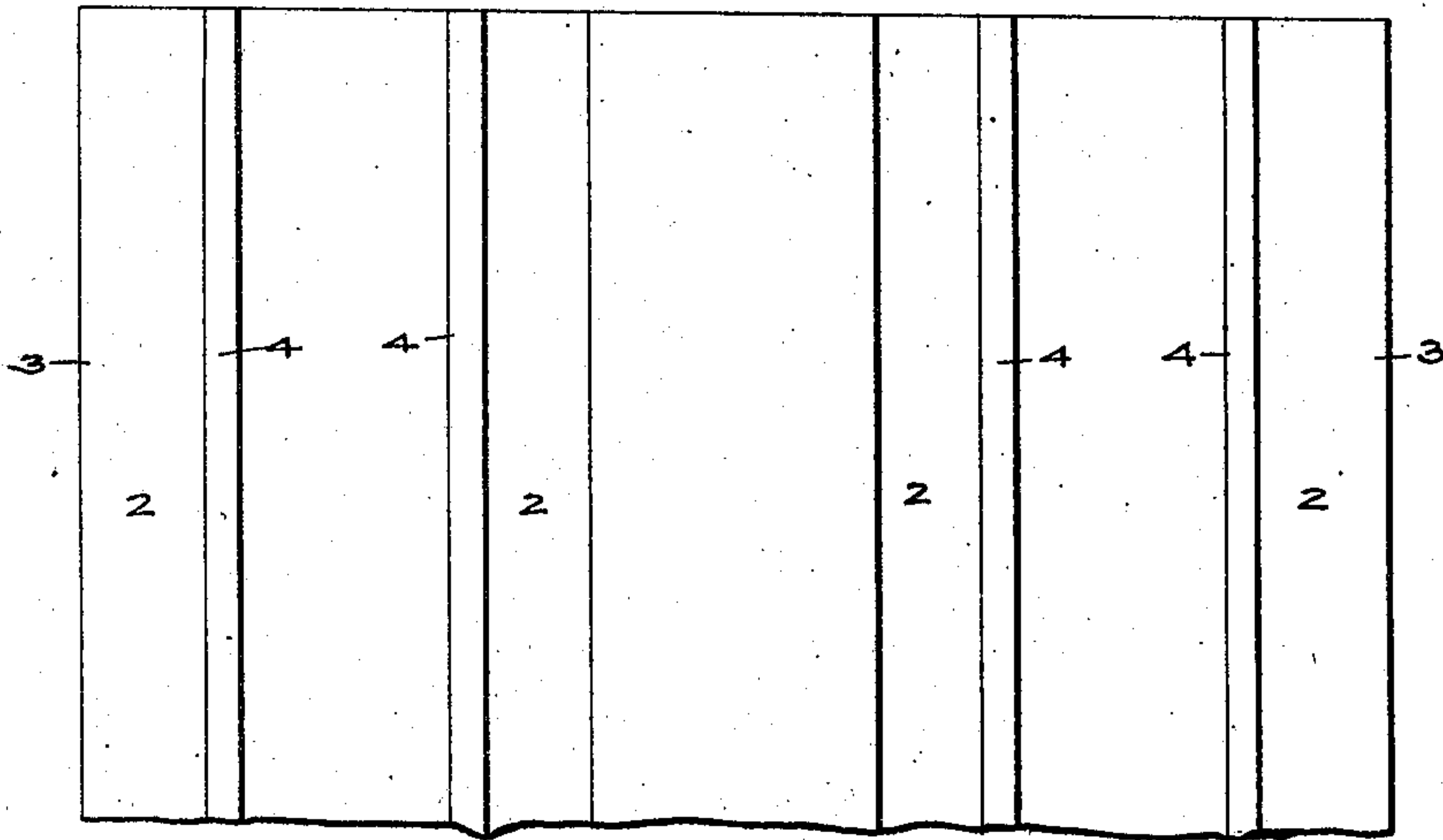


Fig. 3



Witnesses

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# UNITED STATES PATENT OFFICE.

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## METAL SHEET-PILING.

No. 855,030.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed November 25, 1905. Serial No. 289,035.

*To all whom it may concern:*

Be it known that I, JULIUS R. WEMLINGER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Metal Sheet-Piling, of which the following is a specification.

In the manufacture of metal sheet piling one has long sought to design a section or unit, which could be rolled or pressed into its final shape as an integrity, in order to avoid the riveting which is required where the units are made of a number of parts manufactured separately, and which, outside of other disadvantages and drawbacks, is a considerable item of expense, so that its elimination means economy to the manufacturer as well as to the consumer.

The sections designed heretofore to be rolled, are extremely difficult, or even impossible, to be rolled commercially, and it is the object of this invention to provide a unit which may be rolled easily and economically, and will not require riveting of any kind whatever.

One important object of my invention is, also, to provide units in which the interlocking means are so situated that they are well protected from damage in transit or in the handling of the units.

A further object is to provide units which have a greater stiffness than structural shapes of similar section and which, when in interlocking position, form a solid wall of practically uniform thickness and strength throughout.

Referring now to the drawing, in which like reference numerals refer to like parts in the various figures, Figure 1 is a transverse section of the new unit, Fig. 2 a transverse section of several units locked together and shown on a somewhat smaller scale than that of Fig. 1, and Fig. 3 an elevation of a portion of the units shown in Fig. 2.

Each of the units of my improved sheet piling comprises a web 1, sides 2 having reinforced edges 3, and locking flanges 4 projecting from the web 1, the whole unit being one integral piece. The sides 2 are preferably inclined with respect to the web 1, as shown, and they are preferably provided with reinforced edges of bulb-shape, although these particulars may be modified, as circumstances require. The locking flanges 4 of each unit are so arranged as to provide

spaces 5 for the reception and retention of the bulb-shaped edges 3 of the contiguous units, whereby the units, after they have been driven in the usual way, are securely held together.

As shown in Figs. 1 and 2, the web 1 is thicker than the sides 2. This difference in thickness should be such that, when the units are in position, as shown in Fig. 2, the combined thickness of the contiguous sides 2 of two units is, approximately, equal to the thickness of the web 1 of each single unit. This is an important feature of my invention, as thereby a sheet piling is obtained, which is of practically uniform thickness and strength, whereby a most economical and effective distribution of material is provided. If the sides 2 and the web 1 were of the same thickness, the weakest portions in the sheet piling would be the webs 1, and as these portions must have a certain sufficient strength, it follows that an excess of material would be present at the joints, as will be readily understood.

The sides 2 are enlarged at the edges, as at 3, not merely for the purpose of providing means cooperating with the locking flanges 4 to secure the units together, but also for the purpose of reinforcing the edges of the units themselves, for in shipping and otherwise handling the units the edges are naturally liable to be injured more than the other portions of the unit by reason of being exposed, and, furthermore, the edges are likewise more liable to injury when the units are driven, because they are the first to suffer when the unit strikes an obstruction. Therefore, the reinforced edges 3 serve a doubly valuable purpose from the consumer's standpoint, while from the manufacturer's standpoint they are advantageous in other respects which will be referred to in a subsequent application covering the process of rolling the units.

It will be noted that the position of the locking flanges 4 is such that they are well out of reach and therefore protected from damage, a feature not inherent in metal piling units now in use, but of immense importance when it is considered how vital the locking arrangement is for the effectiveness of interlocking metal piling. Furthermore it will be noted that each unit being provided with two locking flanges, both edges of each unit are secured to the units contiguous



thereto, thus making a very strong joint and securing more lateral stiffness in the wall of piling, than is possible by any other method.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In metal sheet piling, a unit comprising a web, sides at an angle thereto, the said web being thicker than the said sides, and locking flanges integral with the said web.
2. In metal sheet piling, a unit comprising a web, sides at an angle thereto, the said web being thicker than the said sides, locking flanges integral with said web, and enlargements at the edges of the said sides.
3. In metal sheet piling, the combination of units each having a web, sides at an angle thereto having re-inforced edges, the said web being thicker than the said sides, and means integral with the said web for locking contiguous units together.
4. In metal sheet piling the combination of units each having a web, sides at an angle thereto having reinforced edges, the said web being thicker than the said sides, and locking flanges integral with the said web for securing contiguous units together.
5. In metal sheet piling, the combination of units having heavier and lighter portions, the latter being at an angle to the former, and being provided with enlarged edges, the units being so arranged that the lighter portions of contiguous units overlap each other, and means for locking contiguous units together.
6. In metal sheet piling the combination of units each comprising a heavy portion, lighter portions at the sides thereof and at an angle thereto, and means for securing the said units together at their edges.
7. In metal sheet piling the combination of units each comprising a heavy portion, lighter portions at the sides thereof and at an angle thereto, the said lighter portions being approximately half the thickness of the said heavy portion, and means for securing the said units together at their edges.

8. In metal sheet piling, the combination of units each comprising a heavy portion, lighter portions at the sides thereof, and at an angle thereto having locking edges, and means for securing the said units together.

9. In metal sheet piling the combination of units each comprising a heavy portion, lighter portions at the sides thereof and at an angle thereto having marginal enlargements, and locking flanges integral with the said heavy portion for securing the said units together.

10. In metal sheet piling, the combination of units each comprising a heavy portion, lighter portions at the sides thereof and at an angle thereto, said lighter portions having bulb-shaped edges, and locking means integral with the said heavy portion for securing the said units together.

11. In metal sheet piling, the combination of units each comprising a web and diverging sides, the said web being thicker than the said sides, and locking flanges integral with the said web for securing the said units together.

12. In metal sheet piling, the combination of units each comprising a web and diverging sides, the said sides having enlarged edges, and correspondingly shaped locking flanges integral with the said web for securing the said units together.

13. In metal sheet piling, the combination of units each comprising a web and diverging sides, the said web being approximately double the thickness of the said sides, the said sides having bulb-shaped edges, correspondingly shaped locking flanges integral with the said web for securing the said units together.

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

JULIUS R. WEMLINGEN.

Witnesses:

ALFRED MÜLLER,  
LOUISE H. STAADEN.