

No. 751,469.

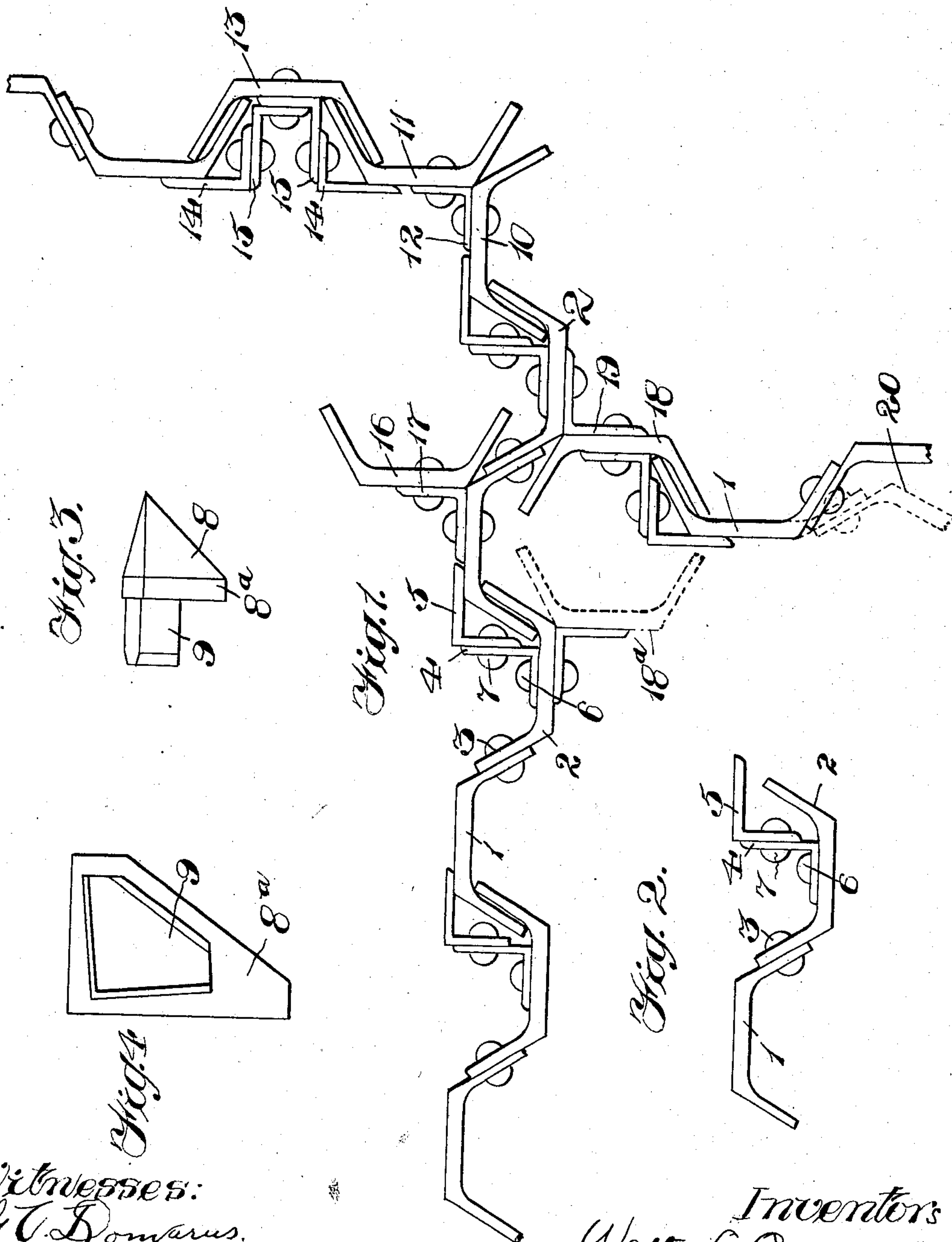
PATENTED FEB. 9, 1904.

W. L. COWLES & J. N. HATCH.

METALLIC PILING.

APPLICATION FILED AUG. 19, 1903.

NO MODEL.



Witnesses:
B. T. Downes.

Robert H. Wei

Inventors
Walter L. Cowles
James N. Hatch
by Elliott & Hopson's Attys

UNITED STATES PATENT OFFICE.

WALTER L. COWLES AND JAMES N. HATCH, OF CHICAGO, ILLINOIS.

METALLIC PILING.

SPECIFICATION forming part of Letters Patent No. 751,469, dated February 9, 1904.

Application filed August 19, 1903. Serial No. 169,974. (No model.)

To all whom it may concern:

Be it known that we, WALTER L. COWLES and JAMES N. HATCH, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metallic Piling, of which the following is a full, clear, and exact specification.

This invention relates to sheet-metal piling for the construction of caissons, coffer-dams, docks, and other purposes; and it has for its primary object to provide a pile of improved and efficient construction which may be readily driven and interlocked with contiguous piles and which shall possess a greater degree of strength per unit of weight than ordinary piling of this character generally described, while, if desired, being composed of bars and other elements of commercial form.

With these ends in view our invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is an end view of the improved sheet-metal piling embodying this invention, showing the piles or elements combined for producing the various cross-partitions, corners, junctions, bends, &c., that might be required in its use. Fig. 2 is an end view of one of the units or piles. Fig. 3 is a side elevation of the driving-point, and Fig. 4 is an end or top view thereof.

Each unit or pile is composed of two trough-sections 1 2, having flaring or oblique sides or legs, as usual, turned in opposite directions, with their contiguous legs riveted together, as shown at 3, or otherwise secured, and in addition to these two L-shaped angle irons or bars 4 5, which are also turned in opposite directions in such relative position as to constitute a Z-bar, one flange of which is riveted to the inner or hollow side of the trough 2, as shown at 6, while the other flange projects across the edge of the outer leg of the same trough and at a slight distance therefrom, the angles 4 5 being riveted or otherwise secured

together at 7. These elements, all of which are of commercial form, constitute one unit or pile. With the elements thus formed and arranged it will be seen that the outer flange of the angle 5 and the outer leg of the trough 2 constitute a triangular guide-passage into which may be inserted longitudinally one of the outer legs of one of the trough-sections belonging to the next pile, such section being the one of course which is free from the angle-irons 4 5. This guide space or passage formed by the angle-irons 4 5 and the outer leg of the trough-section 2 is of such proportions as to cause the outer leg of section 2 and the overlapping flange of angle 5 to grip the adjacent trough-section with considerable pressure at or about the point of conjunction between the bottom of such section and the leg which is inserted in said guide-passage and also at the edge of said leg where it bears against the rounding inner corner or point of junction of the bottom of section 2 and its outer leg, so that after the sections are driven together in this manner the joint will be practically tight.

In driving piles of this construction a driving-point, such as is illustrated in Figs. 3 and 4, is first secured in the lower end of the guide-passage constituted by the angle-irons 4 5 and trough-section 2. This driving-point comprises any suitable pointed head 8 and a stem 9, which latter is of substantially the same form in cross-section as the guide-space inclosed by the angle-irons 4 5 and which is inserted therein, the angle-irons 4 5 and the outer leg of trough-section 2 being shouldered on the upper squared end 8^a of the head 8. In order, however, that the angle-irons 4 5 and the outer leg of section 2 may retain sufficient grip on the stem 9 while being driven, the stem is somewhat distorted from the cross-section of the guide-passage, as shown in Fig. 4 on a somewhat exaggerated scale. This distortion consists in making the angle on the right slightly acute instead of right, so that when entering the guide-passage it will have a tendency to spread the outer flange of angle 5. When the next pile is driven, its free edge, or the end on which no point can be provided, is shielded, strengthened, and guided by the angles 4 5 and the outer leg of section

2, and by the time it sinks to its proper position it will have forced the stem 9 of the driving head or point out of the guide-passage.

5 If the wall or partition is to be straight, the units or piles will be arranged as shown on the left in Fig. 1, the units being turned in the same direction. If a corner is to be turned at right angles, a corner-piece will be constructed of two of the trough-sections 10 11, secured together by an angle-bar 12, riveted or otherwise attached to the bottoms of the trough-sections in such a manner as to hold the latter at substantially right angles to each other, the trough-sections 10 11 being the same as the trough-sections 1 2, but differently arranged, and they are not provided with the angles 4 5; but in order that the trough-section 11 may be attached to the next pile or unit a trough-section 13 is employed and provided with two of the Z-bars, one on each side, each constituted by two angle-irons 14 15, the Z-bar on one side serving to embrace the outer leg of section 11 and that on the other side serving to embrace the outer leg of the next contiguous pile.

Should it be desired to extend a partition or junction at right angles to a straight wall, the bottom of one of the trough-sections on one side of the wall will be provided with an additional trough-section 16, arranged at right angles and secured thereto by means of an angle-iron 17, thus forming a means for the attachment of the member comprising elements 13, 14, and 15, whereby the units, such as shown in Fig. 2, may be inserted in the passage at the outer side of 13. On the opposite side of the wall the other one of the trough-sections belonging to the unit to which the section 16 is secured will be likewise provided with an additional trough-section 18; but this latter will be turned in the opposite direction from section 16 and at right angles to the section 2, to which it is secured by angle-iron 19. If it should be desired to form a bend in the wall as contradistinguished from an angle or corner, one leg or one or more of the trough-sections may be bent or curved the desired degree, as indicated in dotted lines at 20 in Fig. 1. It is also quite obvious that, if desired, the section 18 may be turned in the reverse direction and in that event would be secured to the next one of the sections 2 on the left, as shown in dotted lines at 18^a. In some instances this might be desirable where the cross-partition, as now shown in full lines, would not meet the main wall at the desired point.

With piling thus constructed it will be seen that the part of the pile or unit possessing the least stiffness or rigidity is protected and guided by that part of the previously-driven pile into which it is inserted, and the stiffer portion of the pile while being driven carries the driving-point, and these driving-points are

successively driven out into the earth as the piles sink into place.

Having thus described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs riveted together, and a Z-bar having its inner flange secured to the inner face of one of said sections and its outer flange overlapping the outer leg of that section at a distance therefrom to form a guideway or space for one of the outer legs of the next unit or pile.

2. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs riveted together and two angle-irons turned in opposite directions with their contiguous flanges secured together and the outer flange of one secured to the inner face of one of said sections and the outer flange of the other projecting outwardly across and at a distance from the edge of the outer leg of that section to form therewith a guide passage or space for receiving one of the legs of the next pile or unit.

3. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs riveted together, two L-shaped angle-irons turned in opposite directions with their contiguous flanges secured together and the outer flange of one secured to the inner face of one of said sections and the outer flange of the other projecting outwardly across and at a distance from the edge of the outer leg of that section to form a triangular passage or space for receiving one of the legs of the next unit or pile.

4. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs secured together and a Z-bar having its inner flange secured to the inner face of one of said sections and its outer flange projecting outwardly across and at a distance from the outer leg of that section to form a guide-passage for one of the legs of the next pile or unit, in combination with a third trough-section having its back secured to the back of one of the aforesaid trough-sections and at an angle thereto.

5. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs secured together, a Z-bar having its inner flange secured to the inner face of one of said sections and its outer flange projecting across and at a distance from the outer leg of

that section to form a guideway or space for
one of the legs of the next pile or unit, in com-
bination with a driving-point having a stem
approximating in cross-section the cross-sec-
5 tion of said guide-space, but distorted in some
of its proportions greater than the propor-
tions of said guide-space so as to expand the

elements forming said guide-space when
forced thereinto.

WALTER L. COWLES.
JAMES N. HATCH.

Witnesses:

F. A. HOPKINS,
M. B. ALLSTADT.