

J. R. WILLIAMS.
METAL SHEET PILING.
APPLICATION FILED MAY 6, 1905.

2 SHEETS—SHEET 1.

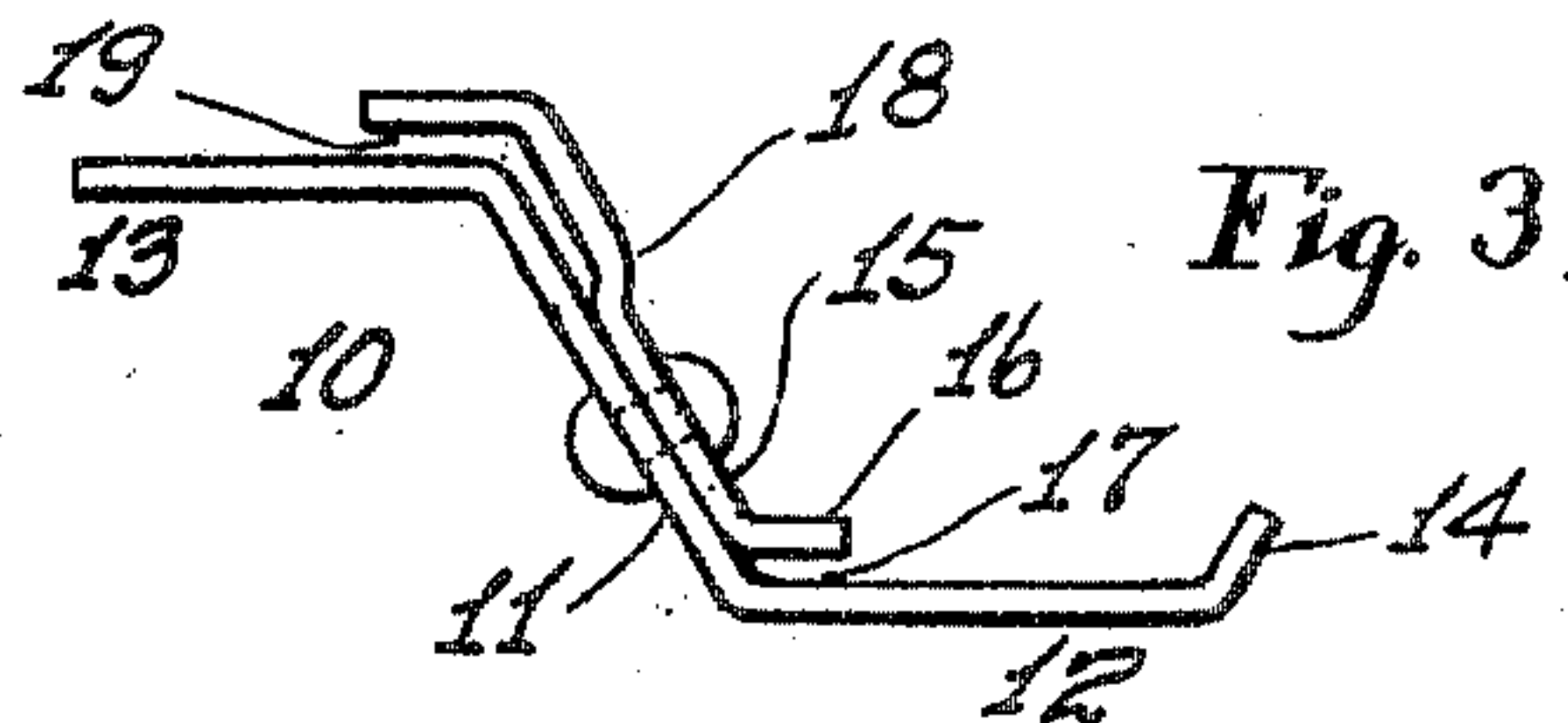


Fig. 3.

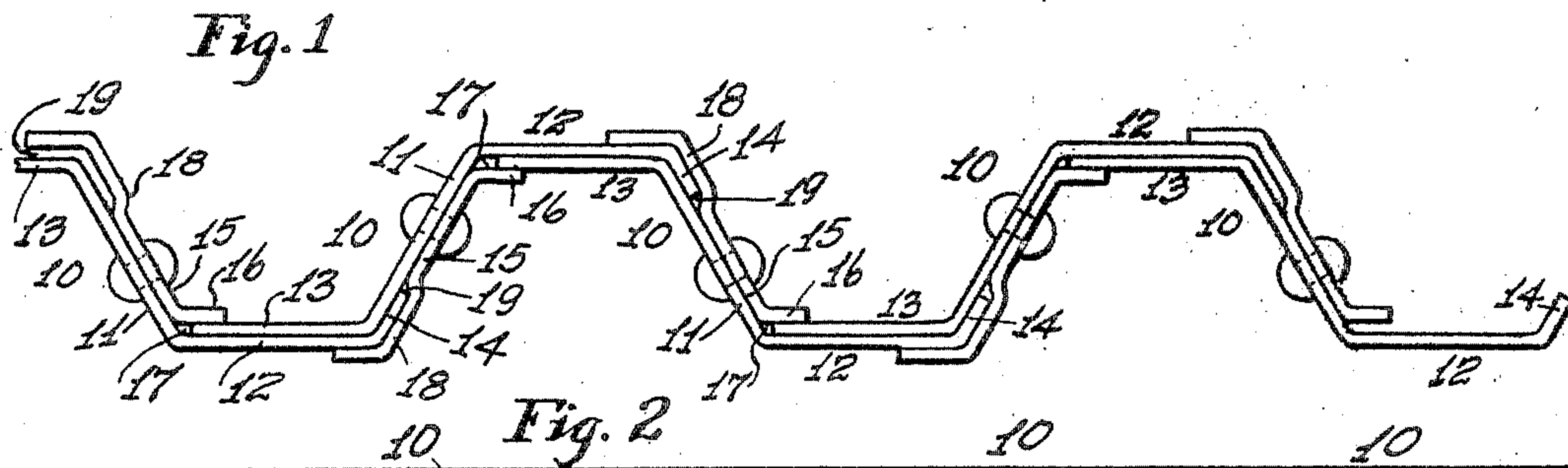
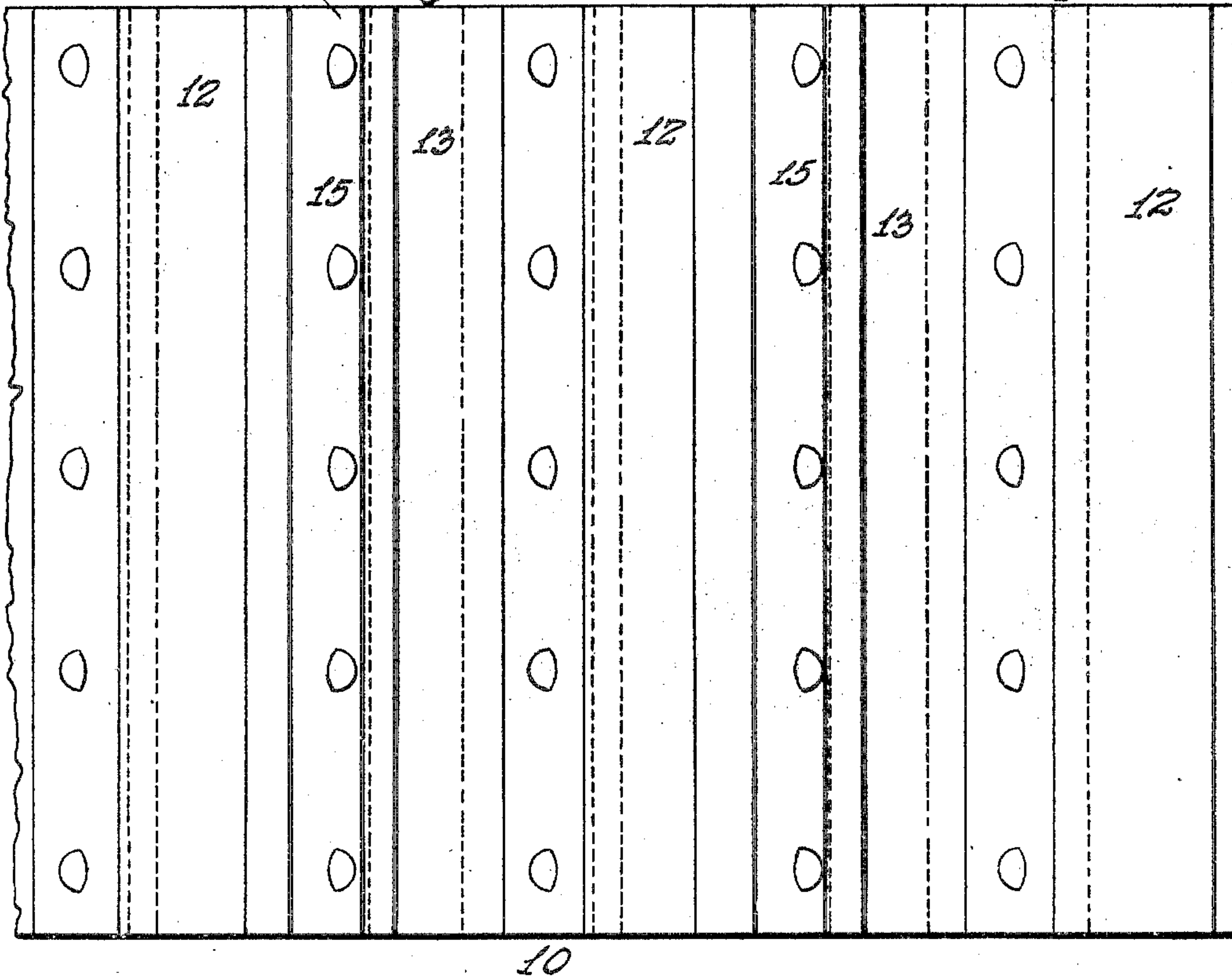


Fig. 1

Fig. 2



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2 SHEETS—SHEET 2.

Fig. 4

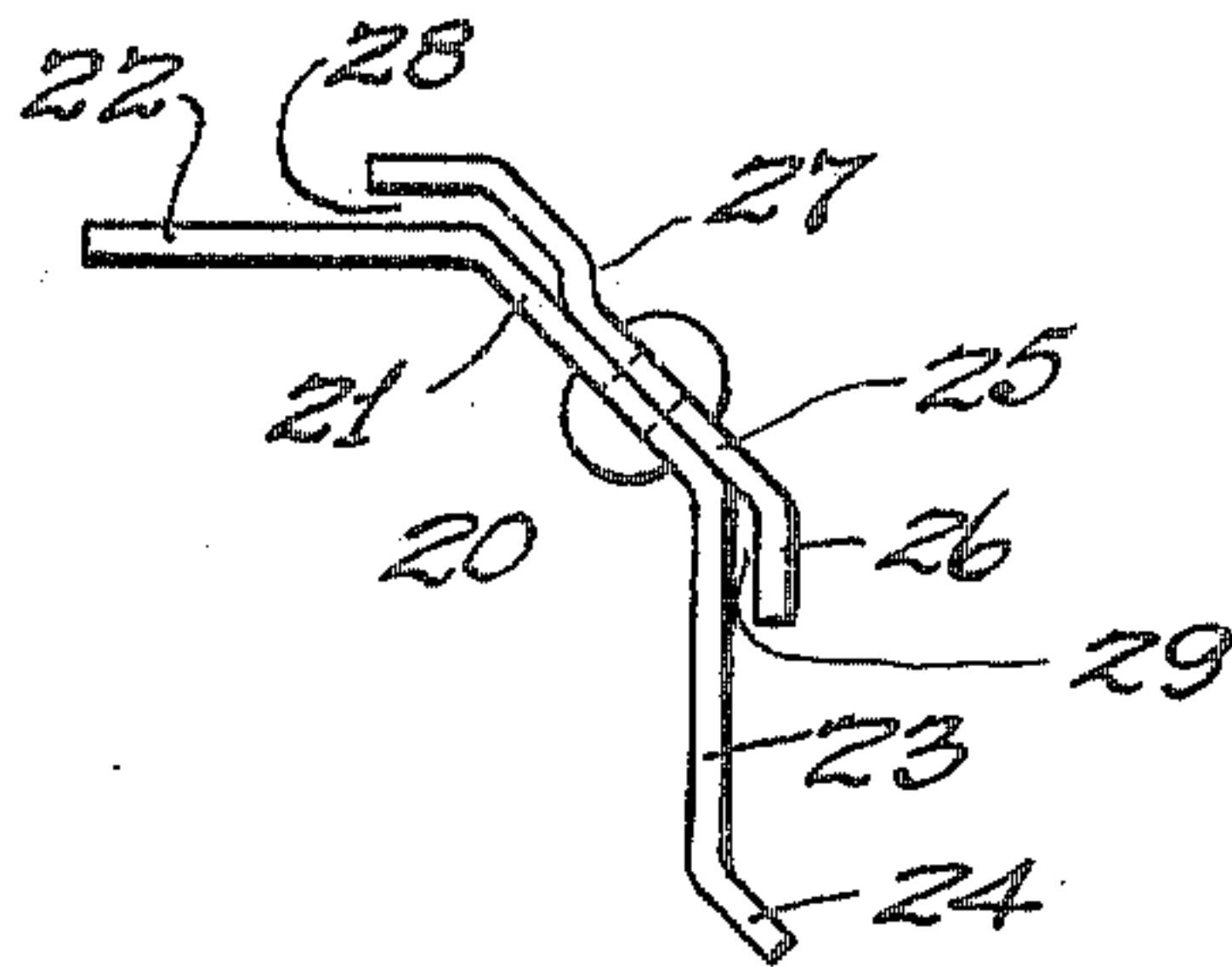
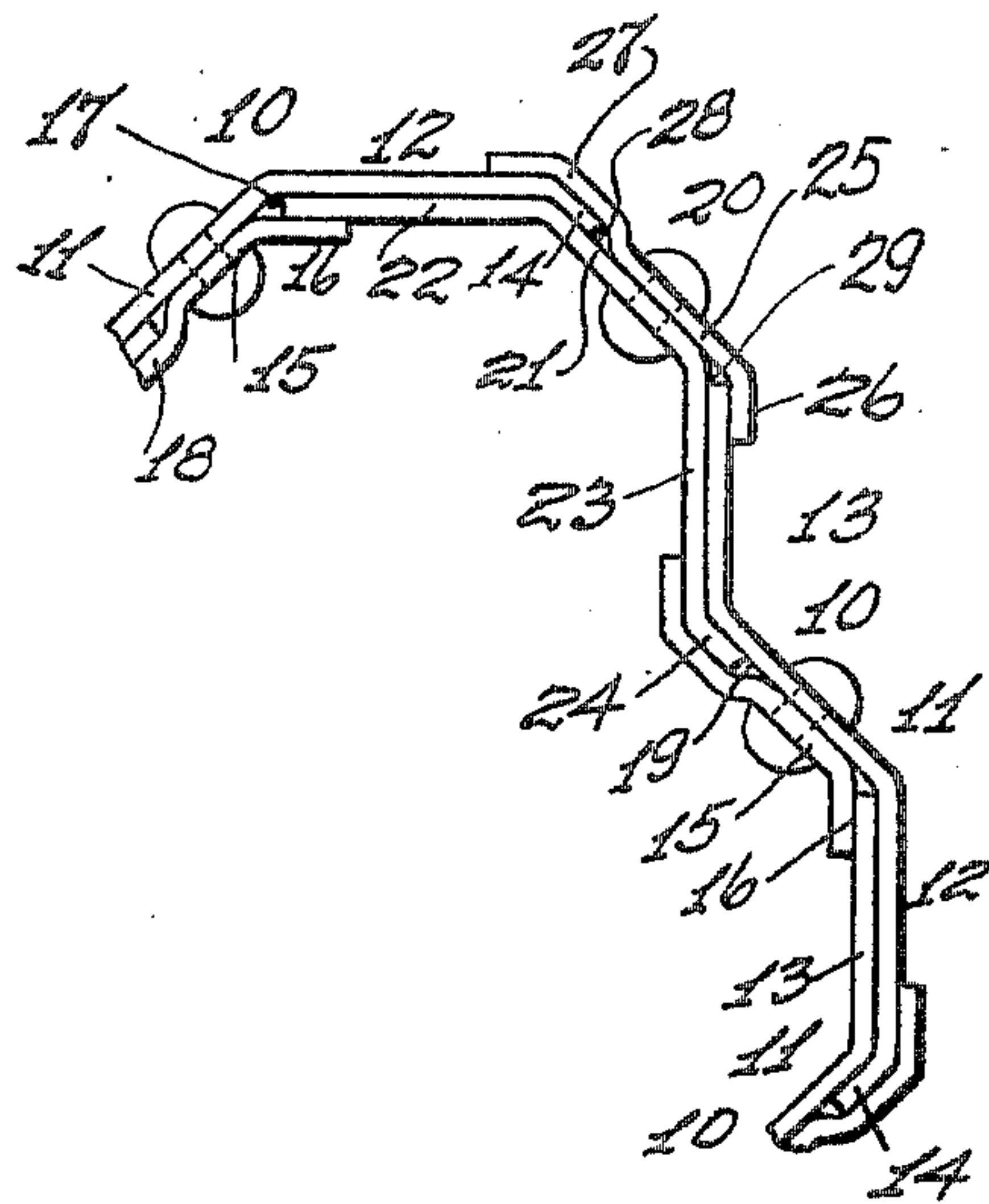
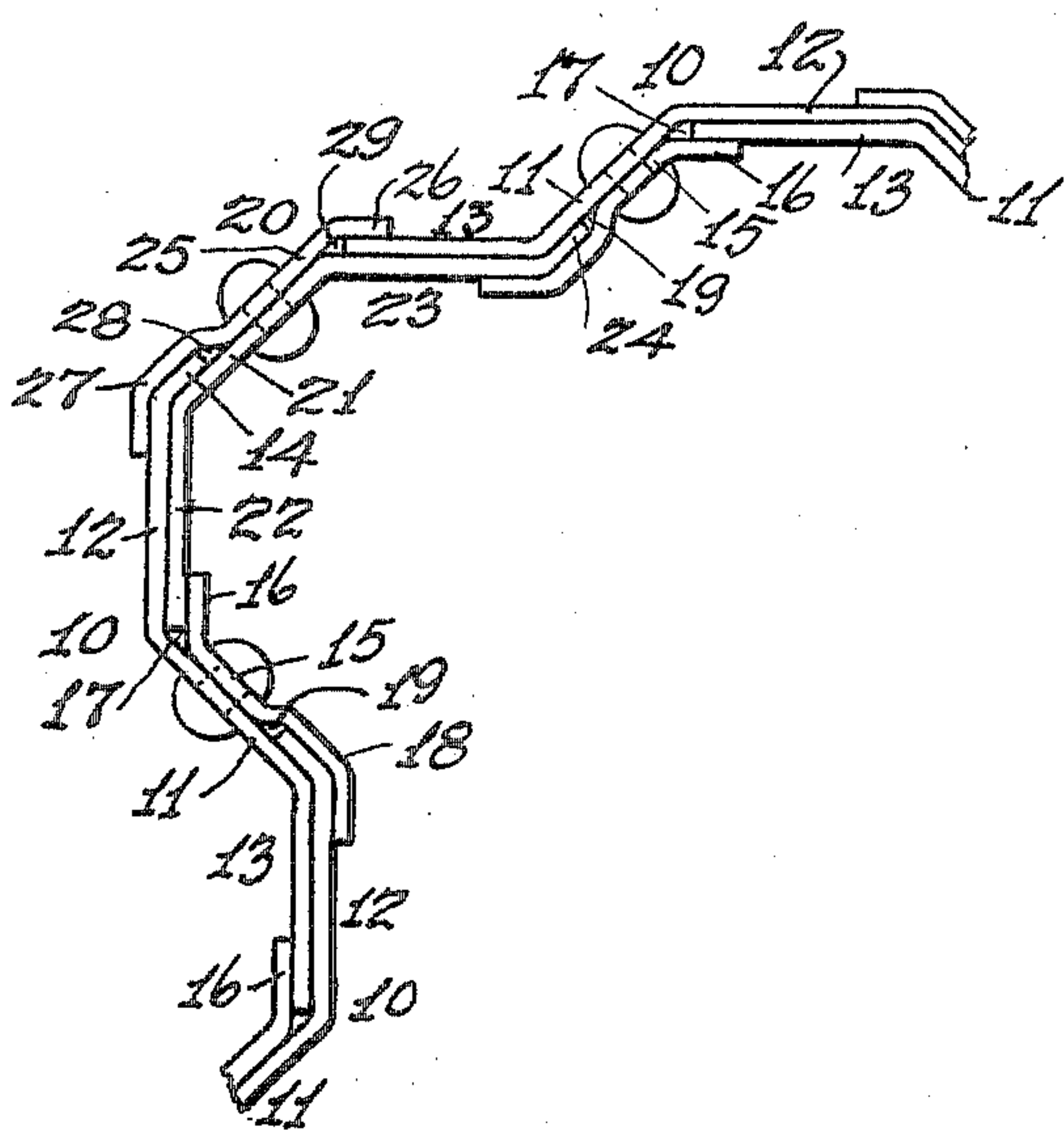


Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN R. WILLIAMS, OF EAST ORANGE, NEW JERSEY.

METAL SHEET-PILING.

No. 797,786.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed May 6, 1905. Serial No. 259,088.

To all whom it may concern:

Be it known that I, JOHN R. WILLIAMS, a citizen of the United States, and a resident of East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Metal Sheet-Piling, of which the following is a specification.

The invention relates to improvements in metal sheet-piling; and it consists in the novel features hereinafter described and claimed.

The object of the invention is to produce a metal sheet-piling of superior character and comprised of sections of novel form and construction adapting them for all the uses to which metal sheet-piling may be put.

Among the specific objects attained by my invention it may be mentioned generally that the sections of my piling may be very easily rolled, that they are strong, that each section is locked at advantageous points to each adjoining section, that each section is locked at both its outer and inner sides to each adjoining section, that the sections are all alike in construction except where corners are to be formed, that the sections are each novel in form and construction, and that the wall formed of these novel sections will have two thicknesses of metal.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a top edge view of a metal sheet-piling comprising sections embodying my invention. Fig. 2 is a face view, partly broken away, of same. Fig. 3 is a detached top edge view of one of the sections of the piling. Fig. 4 is a top edge view of one of the special corner-sections of the piling; and Fig. 5 is a top edge view of the piling, partly broken away, with the corner-sections shown in position.

The metal sheet-piling is formed of corresponding sections 10 of the form and construction shown in Fig. 3, in which it will be seen that the section is formed from sheet metal rolled into the novel form presented and comprising a transverse diagonally-disposed member 11, parallel longitudinally-disposed members 12 13, extending in opposite directions from the respective edges of said member 11, a flange or locking-tongue 14 along the outer edge of the member 12, and a locking member 15, riveted to the face of the diagonal member 11 and having at one edge a flange 16, which is parallel with the member 12 and

separated therefrom by a receiving-space 17, while at its other portion the said locking member 15 is offset, as at 18, and bent to extend around the edge of the member 11 and along the member 13, said offset portion being separated from the said members 11 13 by an angular locking receiving-space 19.

The piling shown in Figs. 1 and 2 is formed from a series of the sections 10, each being of the identical form and construction illustrated in Fig. 3.

In the assembling of the sections 10 by driving them, as usual, the alternate sections will be oppositely disposed, as shown in Fig. 1—that is to say, the members 12 13 of one section will face in a direction oppositely to the direction in which the like members of the next adjacent sections will face, as shown in Fig. 1.

In utilizing the sections 10 they are driven one after another, as usual, and after one section—say the left-hand one in Fig. 1—has been driven, the next section will be applied thereto and driven, the said next or second section having its member 13 applied against the inner face of the member 12 of the first section, with the edge of said member 13 within the receiving-recess 17 of the first section and the tongue or flange 14 of the first section within the angular receiving-recess 19 of the second section, and the second section having thus been interlocked upon the first section said second section will be driven downwardly to position. When the second section has reached its position, it will, by means of the locking member 15 on the second section and the flange 16 of the locking member 15 on the first section, become locked to the latter, and the extended joint formed by the face-to-face contact of the member 12 of the first section with the member 13 and locking member 15 of the second section will resist the passage of water through the same. After the second section has been driven the third section will then be applied to the second section and driven to position, the third section in its application to the second section having the outer face of its member 13 placed against the inner face of the member 12 of the second section, with the edge of said member 13 in the receiving-recess 17 of the second section and the tongue 14 of the second section in the angular receiving-recess 19 of the third section, and the third section when driven home will become effectually locked to the second

section. The remaining sections will be applied one after another in series and driven to position, the relation of the first three sections being simply repeated throughout the extent of the piling. The lock which prevents the separation in a lateral direction of the sections from one another is formed by the walls of the angular recess 19 of one section and the angularly-disposed tongue 14 of the adjacent section, and one advantage of the construction presented is that after the first section has been driven the succeeding sections are driven with the angular receiving-recess 19 upon the tongue 14, the tongue 14 being always upon the section already driven and the angular receiving-recess 19 upon the section to be driven, which is a matter of considerable importance, since if the section carrying the angular recess 19 were first driven and then the section carrying the tongue 14 applied thereto and driven downwardly through the recess 19 it would be found that the said recess was partly filled with earth and that the tongue would have to displace such earth, the result being that considerable pressure would be exerted against the walls of the said recess 19, tending to force the locking member 15 outwardly from the member 11 to which it is secured and also outwardly from the member 13 and the tongue 14 at the time being driven into said recess. In other words, in the employment of the sections of my invention the locking-recess, which is a vertical groove, is always driven upon the locking-tongue of the adjacent section in lieu of being itself driven first and filled with earth and having the locking-tongue of the next section driven into it. The flange 16 forms, in effect, simply a shoulder to engage the outer edge of the member 13 of the section applied to it, and said flange need only be just wide enough to effectually engage such edge.

The sections 10 are, owing to their simple open outline, capable of being very easily rolled from sheet metal, and since the sections when brought together present a piling having a double wall throughout I am enabled to utilize thinner metal than would otherwise be possible in their formation without sacrificing the strength of the piling, this employment of the thinner metal facilitating the formation and handling of the sections.

The sections 10 are each locked to each adjoining section at two points, one being at the tongue 14 and the other at the receiving-recess 17, these two locking-points holding the series of sections stiff and firm against lateral strains and the lock at the tongue 14 effectually preventing the separation of the sections in a longitudinal direction. The walls of the receiving-recess 17 and angular receiving-recess 19 serve also to effectually guide the sections one upon another as they are driven to position.

In Figs. 1 and 3 I illustrate the sections 10 arranged in straight series; but where it is necessary to turn a corner in the assembling of the sections I must provide a special corner-section, numbered 20 and illustrated in Figs. 4 and 5, the former showing the corner-section in a detached view, and Fig. 5 showing such corner-section in operative relation with the adjoining sections 10. In Fig. 5 I illustrate the sections 10 on a different scale from that on which said sections are shown in Fig. 1, the difference being merely in the depth of the transverse member 11 of said sections. Referring specifically to the corner-sections 20, the said sections each comprise a member 21, having at its respective edges the members 22 23, the former being plain and the latter having a locking-tongue 24 extending at an angle from the outer edge of same. Upon the outer face of the member 21 is riveted a locking member or strip 25, having at one edge portion a flange 26 and at its other portion an offset section 27, between which and the adjacent surface of the members 21 22 is formed an angular receiving-recess 28. Between the flange 26 and the adjacent surface of the member 23 is formed a receiving-recess 29. The section 20, as shown in Fig. 4, is illustrated in corresponding position at the upper right-hand corner of Fig. 5, wherein it will be seen that the adjoining sections 10 may be without change in them successfully interlocked with said section 20, the tongue 14 of the upper adjacent section 10 being within the angular recess 28 of the said corner-section 20 and the tongue 24 of said section 20 being within the angular receiving-recess 19 of the lower right-hand section 10, while the edge of the member 13 of said last-mentioned section 10 is within the receiving-recess 29 of said corner-section 20, and the left-hand edge of the member 22 of said corner-section 20 is within the receiving-recess 17 of the upper adjacent section 10, whereby the three sections shown at the right-hand side of Fig. 5 become effectually locked together. At the left-hand side of Fig. 5 I also illustrate a corner-section 20, interlocked with adjacent sections 10, and it will be unnecessary to specifically describe said sections in view of their correspondence with the sections shown at the right-hand side of Fig. 5.

I do not limit my invention to all of the specific details of form and construction shown, because I am aware that the specific form and construction shown may be modified to some extent at a sacrifice of some of the advantages due to the special outline and construction illustrated—as, for example, the transverse member 11 need not stand at the exact angle illustrated with respect to the members 12 13, whereby obtuse angles are formed, but may stand more nearly at a right angle to said members 12 13. Such departure from the exact outline illustrated

would entail additional labor in rolling sections and would increase the weight of metal in a given extent of the piling.

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

1. A metal sheet-piling composed of sections each having in one integral piece a transverse member and members extending laterally in opposite directions from the edges thereof and being about equal in extent, one of said lateral members having a locking-tongue, and a locking member secured to said transverse member and affording, with the adjacent walls of the section, at one end a receiving-recess and at the other end a locking receiving-recess; substantially as set forth.

2. A metal sheet-piling composed of sections each having a transverse member and parallel members extending laterally in opposite directions from the edges thereof and at an angle thereto and being about equal in extent, one of said lateral members having a locking-tongue, and a locking member secured to said transverse member and affording, with the adjacent walls of the section, at one end a receiving-recess and at the other end an angular locking receiving-recess; substantially as set forth.

3. A metal sheet-piling composed of sections each having in one integral piece a transverse diagonally-disposed member and members extending laterally in opposite directions from the edges thereof and being about equal in extent, one of said lateral members having a locking-tongue, and a locking member secured to said transverse member and affording, with the adjacent walls of the section, at one end a receiving-recess and at the other end a locking receiving-recess; substantially as set forth.

4. A metal sheet-piling composed of sections each having a diagonally-disposed transverse member and parallel members extending laterally in opposite directions from the edges thereof and at an angle thereto and being about equal in extent, one of said lateral

members having a locking-tongue, and a locking member secured to said transverse member, and affording, with the adjacent walls of the section, at one end a receiving-recess and at the other end an angular locking receiving-recess; substantially as set forth.

5. A metal sheet-piling composed of sections each having in one integral piece a transverse member 11 and oppositely-extending lateral members 12, 13, the former having a tongue 14, and a locking member 15 secured to said transverse member and having at one end a flange 16 and at its other end being extended to and along said member 13 so as to form a locking-recess; substantially as set forth.

6. A metal sheet-piling composed of sections each having in one integral piece a transverse member and parallel members extending laterally in opposite directions from the edges thereof and being about equal in extent, said sections being alternately faced in opposite directions with the adjacent lateral members thereof in face-to-face contact, combined with means carried by said sections for locking them together in series; substantially as set forth.

7. A metal sheet-piling composed of sections each having in one integral piece a transverse diagonally-disposed member and parallel members extending laterally in opposite directions from the edges thereof and at an angle thereto and being about equal in extent, said sections being alternately faced in opposite directions with the adjacent lateral members thereof in face-to-face contact, combined with means carried by said sections for locking them together in series; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 5th day of May, A. D. 1905.

JOHN R. WILLIAMS.

Witnesses:

CHAS. C. GILL,

ARTHUR MARION.