

No. 739,072.

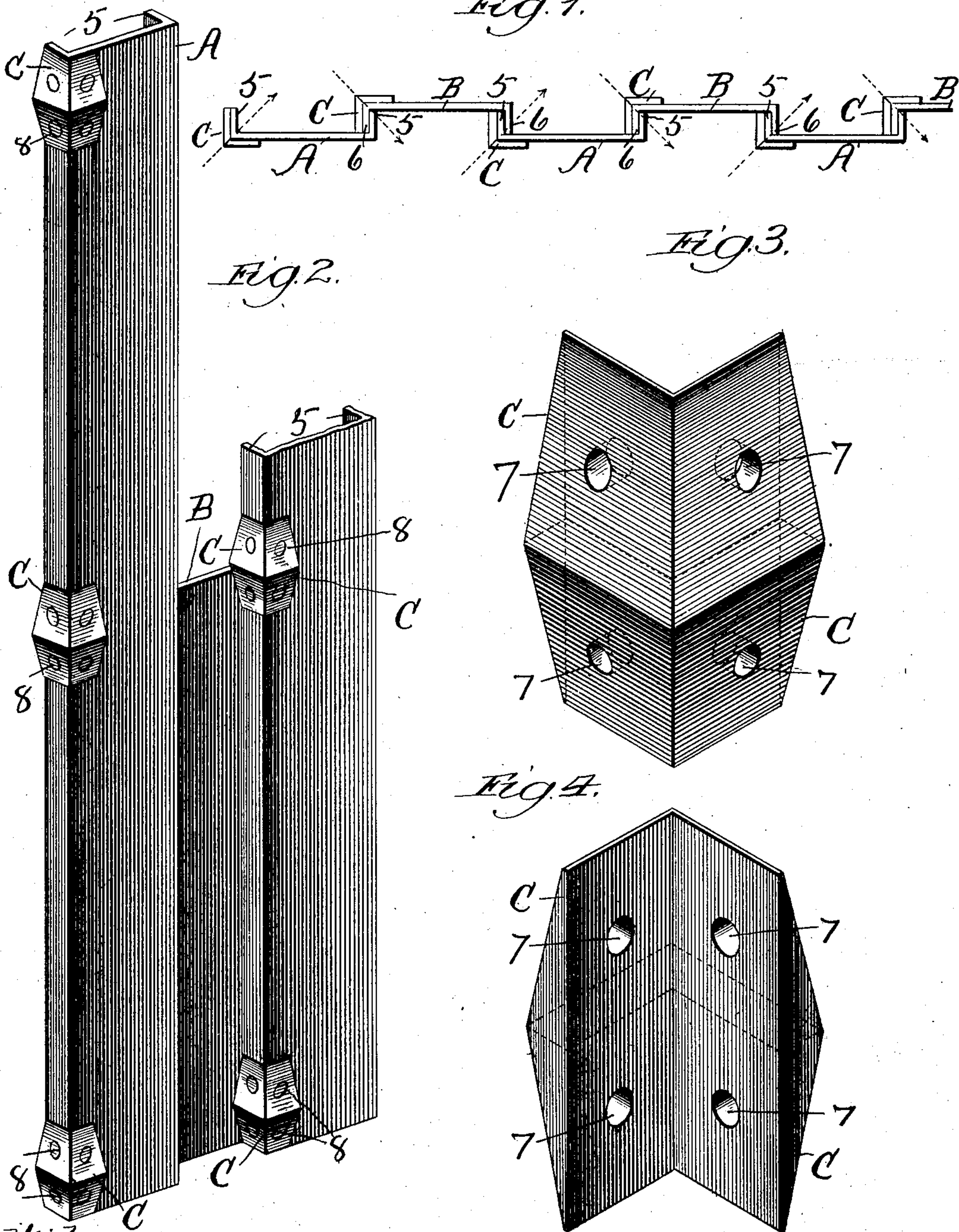
PATENTED SEPT. 15, 1903.

L. P. FRIESTEDT.

SHEET PILING.

APPLICATION FILED MAY 21, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

LUTHER P. FRIESTEDT, OF CHICAGO, ILLINOIS.

SHEET-PILING.

SPECIFICATION forming part of Letters Patent No. 739,072, dated September 15, 1903.

Application filed May 21, 1903. Serial No. 158,109. (No model.)

To all whom it may concern:

Be it known that I, LUTHER P. FRIESTEDT, 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 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 improvements in metal sheet-piling, and has for its object to provide means whereby the beam-sections composing the structure may be retained in their assembled position against lateral displacement by the pressure of the earth walls through which the beams are driven.

In the drawings, Figure 1 is a plan of a metal wall structure embodying the improved features. Fig. 2 is an elevation in perspective of a section of the wall structure. Fig. 3 is an elevation in perspective of a corner wedge-piece looking at the outer side thereof, and Fig. 4 is a similar view looking at the inner side of the wedge-piece.

The wall structure is composed of metal beam-sections assembled edgewise as they are driven into place. Any form of beam may be used that can be retained in place by the use of the improved arrangement hereinafter set forth.

For general purposes the ordinary commercial channel-beam is, however, preferred, and these are positioned alternately with reference to each other—that is, the beam-sections A are set with the flanges 5 turned in one direction and the joining beam-sections B with the flanges 6 pointing in the opposite direction and interlocking in forming the wall structure, as fully set forth in my Patent No. 707,837, dated August 26, 1902.

In this application no Z or angle irons are used, as in the patent referred to and shown in other pending applications.

The means employed for retaining the beam-sections in their engaged position during the operation of driving or setting the same in a structure is of a more simple character and is more especially intended to meet conditional requirements in accordance with the nature of the work. Each of the beam-sections is provided with a number of corner or

angle wedge-pieces C, which are disposed at intervals, as shown in Fig. 2. Ordinarily two of these wedge-pieces will be sufficient for the purpose intended and located at each end of the beam. A greater number may be used when necessary. These double wedge-pieces are located on the outside opposite alternate corners of each beam-section, one angle side or half of the wedge overlapping the web part of the beam and the other half overlapping the flange edge thereof and being rigidly secured in place.

As one means for securing the wedges in their mounted position they are provided with rivet-holes 7 for the insertion of rivets 8.

It will be noted that the wedge-pieces are used upon but one edge of each beam-section. Beginning with the beam A and starting at the left of Fig. 1 the wedge-piece C is mounted on the free edge, there being none on the other edge, interlocking with the next succeeding beam B, the joining edge of which carries the next wedge or wedges, and so on alternately throughout the series of beam-sections in the operation of assembling the same. The wedges C will ordinarily be of the double form shown—that is, thickest at their middle part, flat on their inner or face side, and gradually sloping on their outer side from the center in the direction of the respective ends, so as to offer less resistance when driven into or being withdrawn from the earth. The double wedge shown is more especially intended for use in temporary structures, as caissons, coffer-dams, and the like, so that less power is required in pulling out the beam-sections when the work is completed. When the work is of a permanent character, the wedge-pieces will be of the ordinary wedge form, with a vanishing point and an enlarged head end. The object of the wedge-pieces is to hold the beam-sections in their interlocked engagement by reason of the thrust or wedging pressure from the earth walls through which the beams are being driven. As the wedge-surfaces enter the earth the pressure comes from each side against the sections and constantly forces the locking edges together. The wedges being angular to fit a corner present a large wedging-surface and bring the pressure on a line diagonal to a right line, the direction of

the greatest pressure being on lines bisecting each other, as indicated by the arrows. The wedges presenting angle sides a proportion of the pressure comes laterally from each side toward a common center and also in line with the wall structure, so that a converging pressure is had toward a common point and insures a positive retention of the beam-sections in close relation at all times. The length and thickness of the wedges are a matter of degree and may be varied in accordance with the requirements of practical working. It is also obvious that the wedging-surfaces may form an integral part of the beam-sections instead of being a separate part and riveted in place. The wedge-pieces may when necessary be used on both edges of each beam instead of on but one edge, as shown.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A metal sheet-piling, comprising beam-sections joined edgewise and carrying means for transmitting a retaining pressure from the earth walls as the sections are forced into place, substantially as set forth.

2. A metal sheet-piling, comprising beam-sections assembled edgewise in an engaged position and carrying means whereby a wedging-together pressure is imparted to the beam-sections as they are driven into the earth, substantially as set forth.

3. A metal sheet-piling, comprising beam-sections having interlocking edges in forming a continuous wall, and means mounted on each section for imparting a wedging pressure on both sides of the wall structure and retaining the beam-sections in their locked engagement as they are driven into place, substantially as set forth.

4. A metal sheet-piling, comprising a series of beam-sections having interlocking flanged corners when joined edgewise, and means

mounted on the alternate corner of each beam-section and having a converging pressure from each side and corners thereof in holding the same in locked engagement when driven into the earth, substantially as set forth.

5. A metal sheet-piling, comprising a series of channel-beams assembled edgewise in a wall structure and positioned alternately with reference to each other so that the flanged edges interlock, and wedge-pieces carried by said beams to receive an excess pressure from the earth walls and retain the same in their engaged position when driven into the earth, substantially as set forth.

6. A metal sheet-piling, comprising a series of channel-beams having the flanged edges interlocked, and angle wedge-pieces mounted on the alternate corners of each section on each side of the wall structure, so that a constant wedging retaining pressure is maintained toward a common center in the operation of driving, substantially as set forth.

7. A metal sheet-piling, comprising a series of channel-beam sections positioned alternately so that the flanges of one beam will be turned in the opposite direction from that of the flanges on the next succeeding beam and forming an edgewise interlock, and angle corner wedge-pieces mounted on the opposite side and alternate corners of each beam-section in the wall structure and maintaining a wedging action from the pressure of the earth walls thereon and preventing a lateral displacement of the beams during the operation of driving, substantially as set forth.

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

LUTHER P. FRIESTEDT.

Witnesses:

J. B. DONALSON,
L. B. COUPLAND.