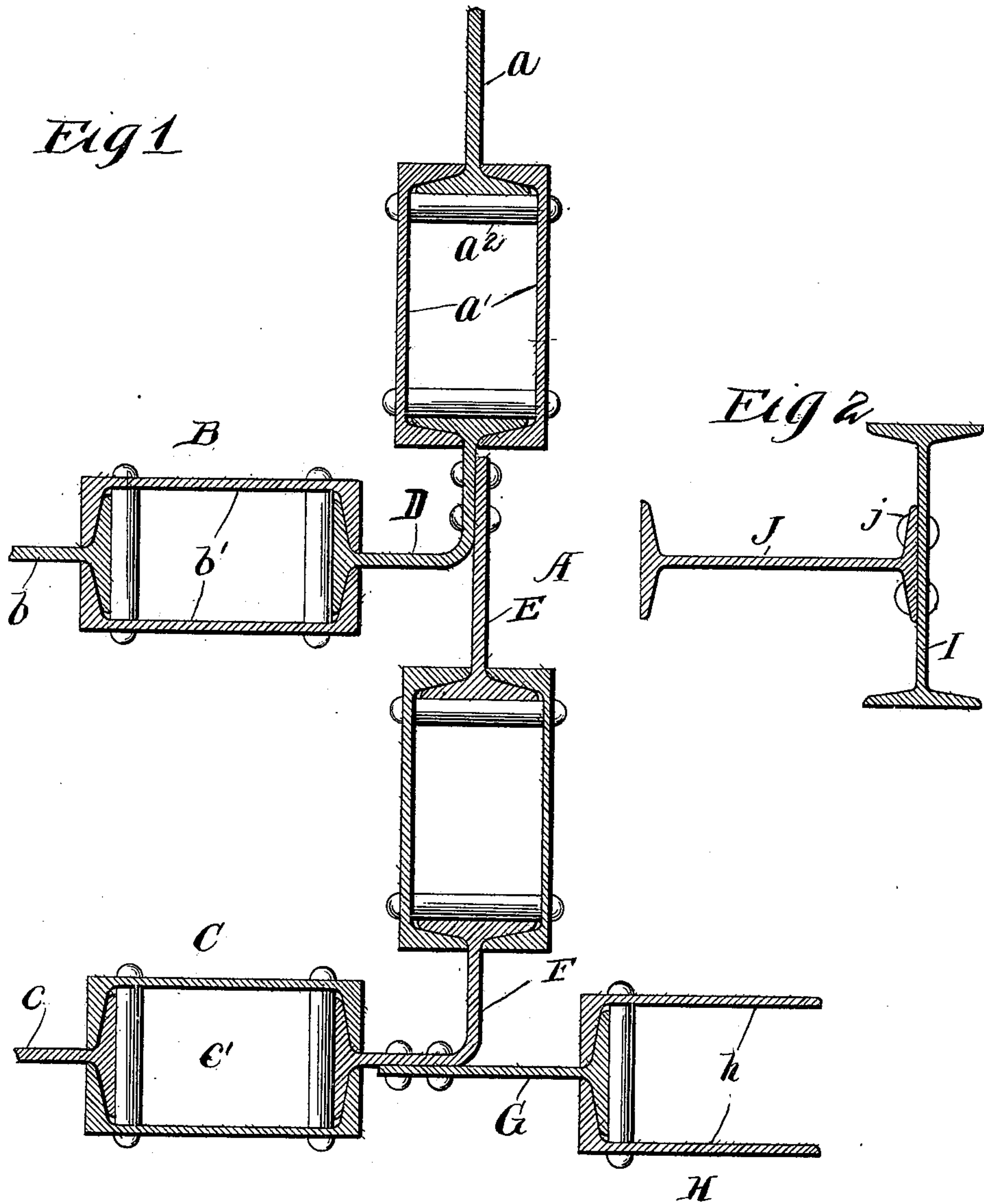


No. 675,736.

Patented June 4, 1901.

G. W. JACKSON.  
METAL SHEET PILING.  
(Application filed Nov. 28, 1900.)

(No Model.)



Witnesses:

Coal H. Crawford  
William L. Hall

Inventor:

George W. Jackson

by Poole & Brown

his Attorneys



# UNITED STATES PATENT OFFICE.

GEORGE W. JACKSON, OF CHICAGO, ILLINOIS.

## METAL SHEET-PILING.

SPECIFICATION forming part of Letters Patent No. 675,736, dated June 4, 1901.

Application filed November 28, 1900. Serial No. 37,998. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. JACKSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metal Sheet-Piling; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in sheet-metal pile constructions of the character shown and described in my prior application for United States Letters Patent, Serial No. 35,037, filed November 3, 1900, wherein the structure comprises a plurality of beams or sections which are joined at their edges by interlocking connections of a character to permit connection and separation by relative endwise movement of said sections or beams.

The present invention relates more specifically to improvements designed to facilitate the joining of intersecting retaining-walls of coffer-dams and retaining-walls for earth excavations or like structures of the character shown and described in said prior application. Said invention embraces, in general terms, a built-up or compound section or junction member made from a plurality of simple beams or sections which are disposed at angles to each other corresponding with the meeting angles of the intersecting walls and which are provided with flanged margins adapted for interlocking connection with adjacent sections or beams of the pile structure, said angle junction member being so formed as to join three or more intersecting retaining-walls.

I have herein illustrated the invention as embodied in but one form of the construction illustrated in my said prior application, which form is made of alternate I-beams and compound beams, the latter consisting of connected channel-bars, the flanges of which are directed inwardly to embrace the flanges of the I-beams; but it will be readily understood from the following description and the drawings that the invention may be readily applied to the other forms of construction illustrated in my said prior application.

In the drawings, Figure 1 illustrates a hori-

zontal transverse section of a pile construction embracing a plurality of intersecting walls and the manner of making and applying the angle junction members of the structure. Fig. 2 shows a modified form of the junction member.

As shown in said drawings, A designates as a whole a fragment of a retaining-wall, and B C designate parts of two parallel retaining-walls which intersect the wall A at right angles thereto. The wall A is composed of alternate simple and compound sections, the former consisting of I-beams *a* and the latter of channel-bars *a'*, which are connected by stud-bolts *a<sup>2</sup>* and with their flanges directed toward each other, as illustrated in my aforesaid prior application. The walls B C are similarly composed of alternate members *b c* and *b' c'*, respectively, and joined as in the construction of the wall A.

The wall B is joined to the wall A by means of an angle junction member consisting in this instance of an I-beam D, which is transversely bent or folded along its longitudinal center, and a T-beam E, the plain margin of which is permanently attached to one side of the I-beam D. One flanged margin of the beam D engages the adjacent compound beam of the wall B, while the other flanged margin thereof engages the similar adjacent compound beam of the wall A. The flanged margin of the T-beam engages the compound section of the wall A on the side of the wall B remote from the compound beam with which the beam D is connected. Similarly the wall C is connected with the wall A through the medium of an angle I-beam F, like the beam D, one flanged margin of which is interlocked with the adjacent compound beam of the wall C and the other flanged margin of which is interlocked with the adjacent compound beam of the wall A. Attached to one side of the angle I-beam F is a T-beam G, which forms part of a wall H, which extends in line with the wall C and at right angles to the wall A. Said T-beam G has its flanged margin interlocked with a compound beam of the wall H, composed of connected channel-bars *h h*, as in the construction previously described.

The angle junction members, consisting of



the beams D E in the one instance and the beams F G in the other instance, may be variously employed for connecting intersecting walls, one of which joins at an angle another wall intermediate the ends of the latter wall. For instance, in constructing the retaining-walls of a coffer-dam it may be desirable to make each of the side and end walls of the inner and outer parts separated by spaces and to fill the space between the same with tamping material, such as clay. The drawing shown in Fig. 1 may be assumed to be a fragment of such a wall, the walls B and C constituting, with an interposed body of tamping material, one side wall of the coffer-dam, while the wall A may be considered to be the inner part of the adjacent side wall of the coffer-dam. The outer part of said wall is not herein shown, but in the completed structure may be arranged parallel with the part A and joined with the compound beam H through the medium of an angle-beam like the beams D or F shown. Again, it may be desirable in constructing a coffer-dam in a stream where the same extends entirely across the same to make the water-retaining walls double and fill the space between the same with a tamping material, as described, while the walls adjacent to the bank, and which need be only of such strength as to prevent the earth from falling into the inclosed space, may be of a single thickness. In such instance it may be assumed that the parts G and H may be omitted and that the wall A be a part of the earth-retaining wall, while the walls B and C, together with an interposed body of tamping material, may be a portion of the water-retaining wall. Again, it may be desirable to provide a large coffer-dam with a partition to divide the same into two compartments. In such event a wall like the wall B may be extended across such coffer-dam and joined at its ends to the side retaining-walls by means of the angle I-beam D and the T-beam E, as shown in the drawings. Various other uses of the angle junction members will suggest themselves to persons familiar with this art. It will furthermore be manifest that the arrangement of the I-beams D and E or F and G may be reversed—that is to say, the beams E and G may have the form of I-beams and the beams D and F have the form of T-beams, the plain margins of which may be attached to the I-beams. Moreover, it may be found desirable in some instances to provide an angle junction member adjoining four intersecting

walls, in which event a second T-angle may be joined to the said angle-sections.

The angle junction member shown in Fig. 2 consists of two I-beams I and J, and one of the flanged margins *j* of the beam J is attached by rivets or like fastening means to the web of the beam I, the rivets passing through the contacting flanges and each of said beams. The outer flanged margins of said beams are adapted for interlocking engagement with the compound members of the intersecting walls in the manner of the connecting-sections heretofore described.

It will be understood that the angles between the members of the junction members or sections need not be right angles, as herein shown, but may be varied to be adapted to joining walls which intersect at other than right angles.

The term "simple beam" as applied to the I-beams herein shown, the conventional form of I-beams, includes equivalents of such form—as, for instance, where the flanges thereof may be formed by parts riveted to the webs of the beams.

I claim as my invention—

1. The combination with the intersecting walls of a coffer-dam or like structure, which walls are composed of a plurality of beams which have interlocking engagement at their margins, of a built-up junction member joining the adjacent parts of the intersecting walls consisting of two flanged beams one of which is attached to the web of the other beam and the flanged margins of which extend outwardly from the junction of the beams and are adapted for interlocking connection with said adjacent parts of the intersecting walls.

2. The combination with the intersecting walls of a coffer-dam or like structure, which walls are composed of alternate compound and I beams, of a built-up junction member joining the intersecting walls comprising an angle I-beam and an attached T-beam, the flanged margins of said beams being adapted for interlocking engagement with the adjacent compound beams of the intersecting wall.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 24th day of November, A. D. 1900.

GEORGE W. JACKSON.

Witnesses:

BERTHA A. PRICE,  
C. CLARENCE POOLE.