

No. 744,361.

PATENTED NOV. 17, 1903.

F. N. KNEAS.
METAL SHEET PILING.
APPLICATION FILED SEPT. 14, 1903.

NO MODEL.

Fig. 1.

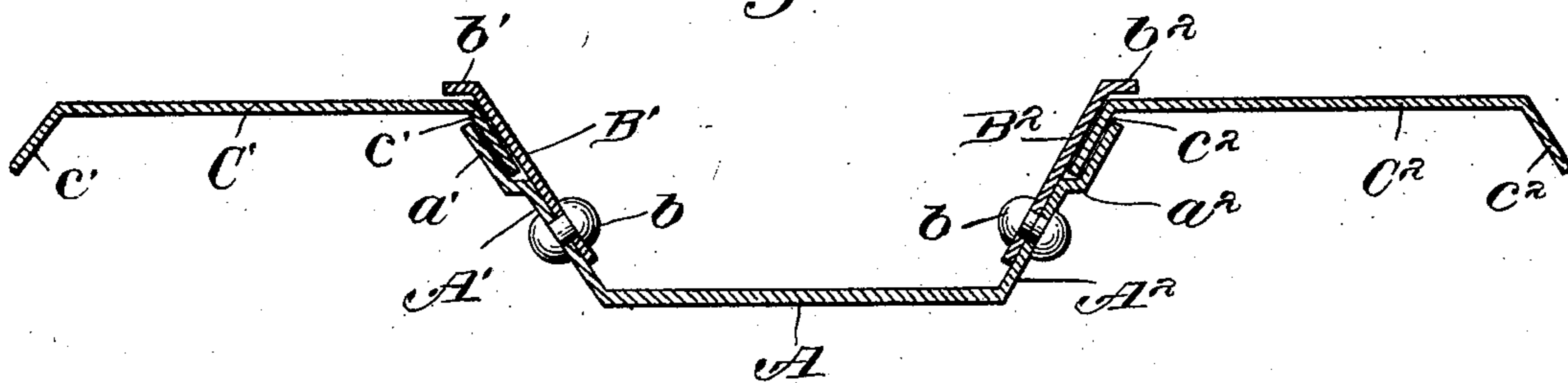
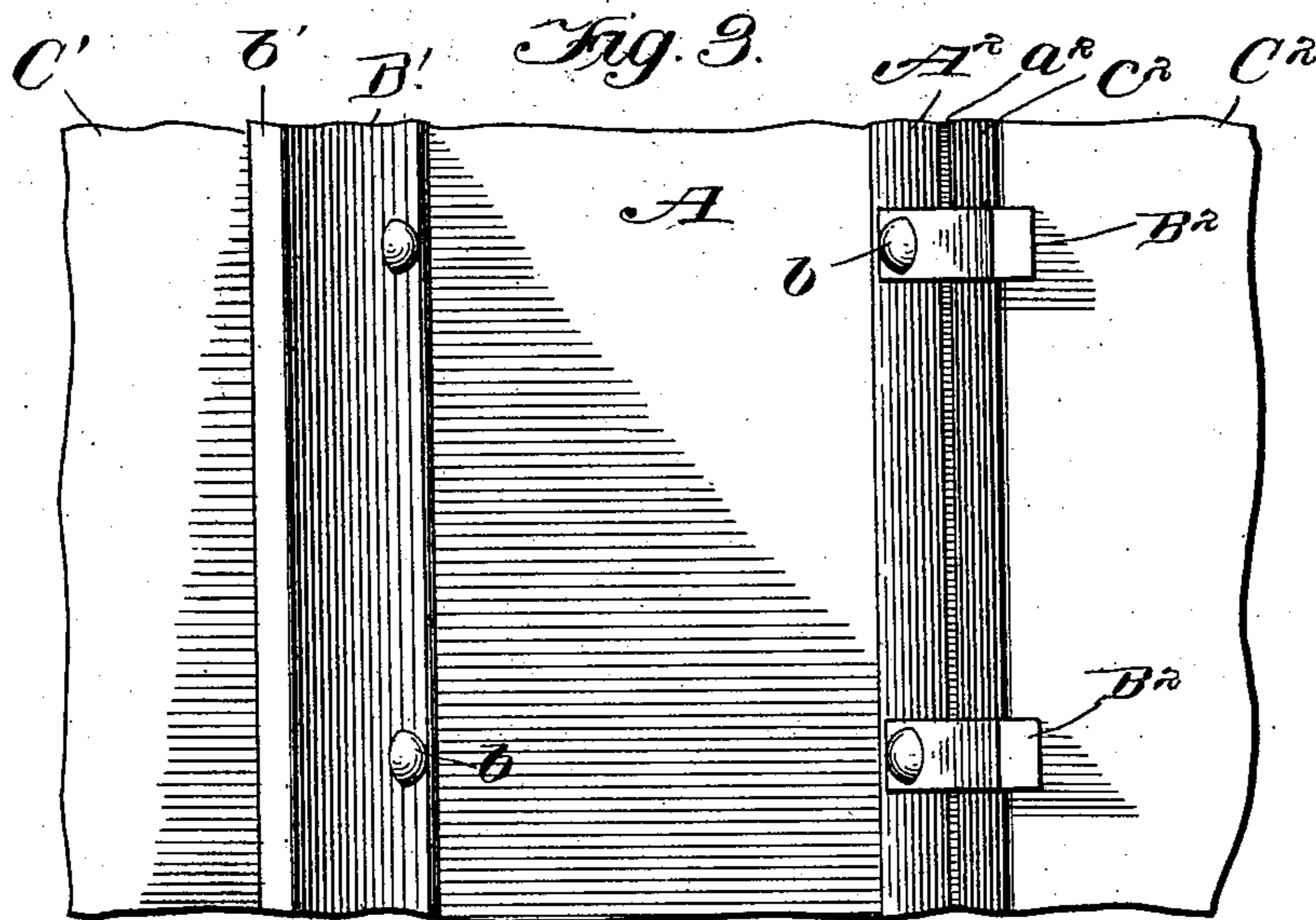
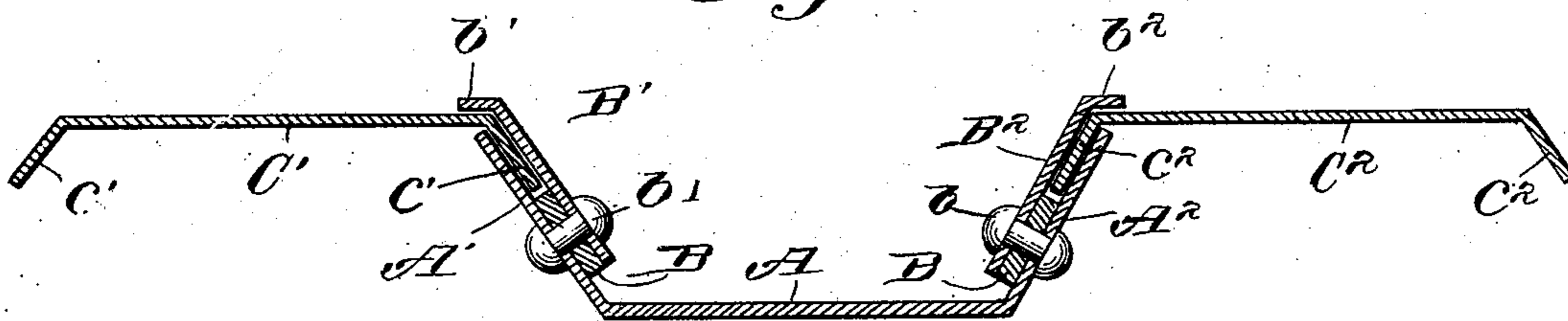


Fig. 2.



Witnesses:

H. S. Gaither

C. C. Cunningham

Inventor:

Frank N. Knass

by Lambdin Wilkerson
Attorneys.

UNITED STATES PATENT OFFICE.

FRANK N. KNEAS, OF CHICAGO, ILLINOIS.

METAL SHEET-PILING.

SPECIFICATION forming part of Letters Patent No. 744,361, dated November 17, 1903.

Application filed September 14, 1903. Serial No. 173,050. (No model.)

To all whom it may concern:

Be it known that I, FRANK N. KNEAS, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Metal Sheet-Piling; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to sheet-piling, and more particularly to metal sheet-piling or sheathing for retaining earth, quicksand, water, or similar substances in constructing caissons and cofferdams and in protecting earth excavations.

My invention has for its primary object the provision of a metal sheet-piling or sheathing consisting in a series of parallel members of trough-shaped cross-section which may be readily driven into position for use with their adjoining flanged edges overlapped and interlocked.

A further object of my invention is to provide a metal sheet-piling or sheathing which will be comparatively simple in construction, inexpensive in manufacture, and efficient and durable in use.

My invention generally described consists in a sheet-piling composed of trough-shaped metal members having their adjacent flanged edges overlapped and means for retaining the adjoining members in engagement with each other, so as to prevent lateral relative movement thereof, but so as to permit longitudinal relative movement in order that the members may be successively driven.

My invention will be more fully described hereinafter, with reference to the accompanying drawings, in which the same is illustrated as embodied in two convenient and practical forms, and in which—

Figure 1 is a transverse sectional view of one embodiment of my invention; Fig. 2, a view similar to Fig. 1 of a modified embodiment of the invention, and Fig. 3 a view looking downwardly with respect to Fig. 1.

Similar reference characters are used to des-

ignate similar parts in the several figures of the drawings.

A indicates a metal member trough-shaped in cross-section and comprising a central portion, from the side edges of which project outwardly-inclined wings or flanges A' and A^2 . Each of the wings or flanges A' and A^2 is offset, as shown at a' and a^2 , such offset extending the entire length of the member.

Secured to the inner surfaces of the wings A' and A^2 are strips B' and B^2 . Any suitable securing devices may be employed—such, for instance, as rivets b . The ends of the strips B' and B^2 , which project beyond the wings A' and A^2 , are bent outwardly in opposite directions, as shown at b' and b^2 . The strips B' and B^2 form, in connection with the offset portions of the wings A' and A^2 , channels or grooves, which receive the flanges on cooperating members C' and C^2 , which are also formed trough-shaped in cross-section. The flange c' on the member C' is received within the channel formed by the offset portion a' of the wing A' and the angle-strip B' , thereby retaining the members A and C' in interlocked engagement, so that such members are laterally immovable, but may be moved relatively longitudinally, thereby enabling the members to be successively driven and coincidentally interlocked. The member C^2 is in a similar manner engaged with the wing A^2 of the member A by means of its flange c^2 , being received within the channel formed by the offset a^2 of the wing A^2 and the angle-strip B^2 .

In lieu of offsetting the wings A' and A^2 of the member A filler-strips B may be interposed between the outwardly-flaring wings A' and A^2 and the strips B' and B^2 , as clearly shown in Fig. 2. In such construction the rivets b serve to retain the filler-strips between the wings of the member A and the strips B' and B^2 , and at the same time securely fasten the strips B' and B^2 to the wings of the member A . By means of the filler or spacing strips B channels are formed between the wings of the member A and the angle-strips B' and B^2 to receive the flanges c' and c^2 on the side edges of the cooperating members C' and C^2 .

The angle-strips B^1 and B^2 may extend the entire length of the member A, as shown at B^1 in Fig. 3, or such strips may be located at intervals along the wings of the member A, as shown at B^2 in Fig. 3.

The material of which the cooperating members are formed is preferably steel, which may be rolled to assume the desired trough-shaped cross-section.

When it is desired to construct a piling or sheathing of curved contour, it is only necessary to bend the trough-sections to a degree conforming to the piling or sheathing which is to be erected. It is also obvious that in forming corners the trough-shaped members may be bent in the direction of their length, the two bent portions forming an angle of ninety degrees to each other.

The manner of using my invention is as follows: One of the members—for instance, C^1 —is driven at the point where it is desired to erect the piling or sheathing, after which the member A is engaged with the previously-driven member C^1 by the flange c^1 being received within the channel formed between the wing A^1 of the member A and the angle-strip B^1 . After thus engaging the adjacent edges of the members C^1 and A the latter may be driven, after which a second member C^2 is engaged with the channel formed in the wing A^2 of the member A and also driven into position. In a similar manner any desired number of members may be interlocked and driven in succession, so as to form a structure of the desired length.

From the foregoing description it will be observed that I have invented an improved metal sheet-piling or sheathing composed of a series of members of trough-shaped cross-section, the side wings or flanges of adjacent members being overlapped and so interlocked as to prevent lateral movement of the engaged members; but so as to permit the members to be successively driven into operative position.

It will be further observed by forming the members of trough-shaped cross-section they may be readily interlocked and when interlocked form a piling or sheathing which is strong in construction and at the same time requires a minimum amount of metal in its construction.

While I have described more or less precisely the details of construction, I do not wish

to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit of my invention.

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

1. In a metal sheet-piling, the combination with a member comprising a central section and flaring wings at the side edges thereof, strips secured to said wings, and means for spacing said strips from the surfaces of said wings thereby forming channels to interlock with cooperating members.

2. In a metal sheet-piling, the combination with a member comprising a central section and flaring wings at the side edges thereof, of angle-strips secured to said wings and extending around the side edges thereof, and means for spacing said strips from the edges of the wings thereby forming channels to interlock with cooperating members.

3. In a metal sheet-piling, the combination with a member comprising a central section and flaring wings at the side edges thereof, said wings being offset laterally their entire length, and strips secured to and forming with said offset portions of said wings channels to interlock with cooperating members.

4. In a metal sheet-piling, the combination with a member comprising a central section and flaring wings at the sides thereof, said wings being offset laterally their entire length, and angle-strips secured to said wings and extending around the side edges thereof thereby forming channels between said strips and said offset portions of the wings to interlock with cooperating members.

5. A metal sheet-piling comprising a series of trough-shaped members having their adjacent wings overlapped, strips secured to the inner surfaces of the wings of alternate members, means for spacing said strips from the wings to which they are secured thereby forming channels to receive the wings on the adjoining members.

In testimony whereof I sign this specification in the presence of two witnesses.

FRANK N. KNEAS.

Witnesses:

GEO. L. WILKINSON,
C. C. CUNNINGHAM.