

No. 842,120.

PATENTED JAN. 22, 1907.

F. W. SKINNER.

PILING.

APPLICATION FILED NOV. 25, 1905.

Figure 1

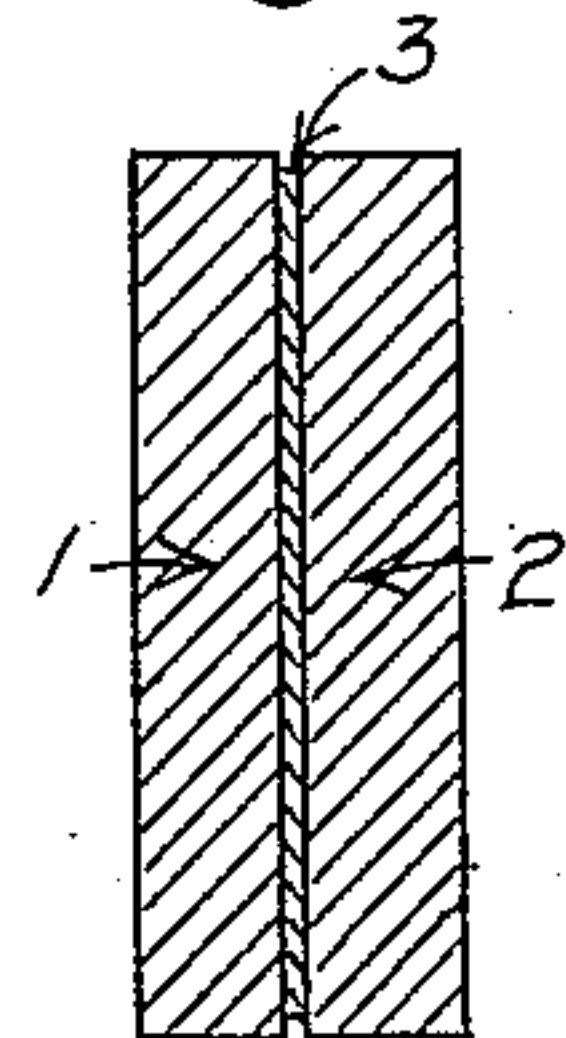
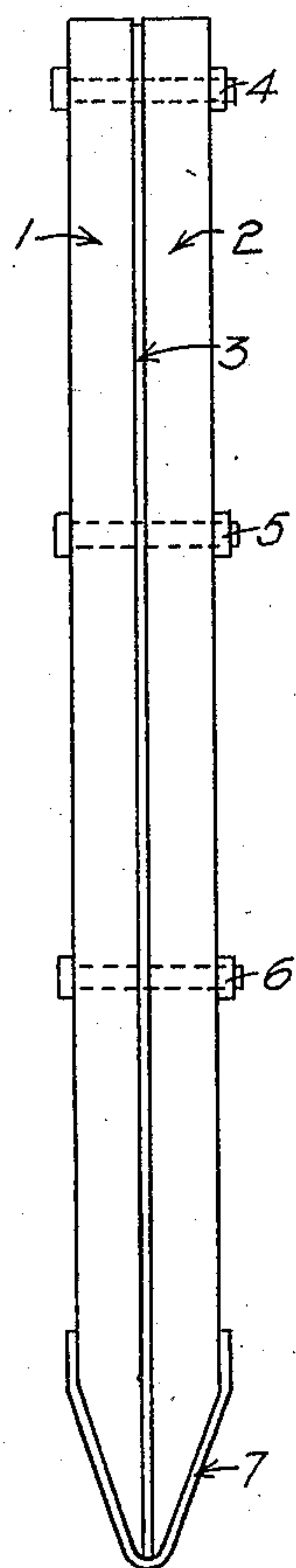


Figure 2

Figure 3

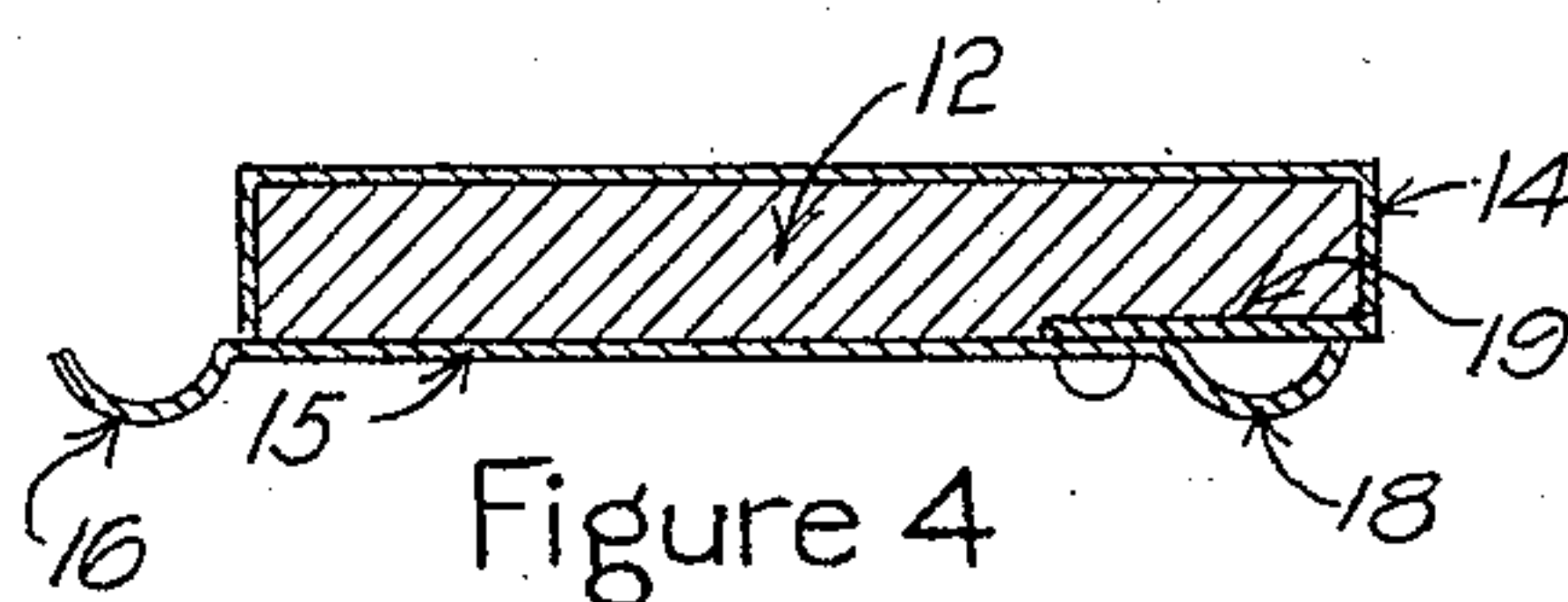
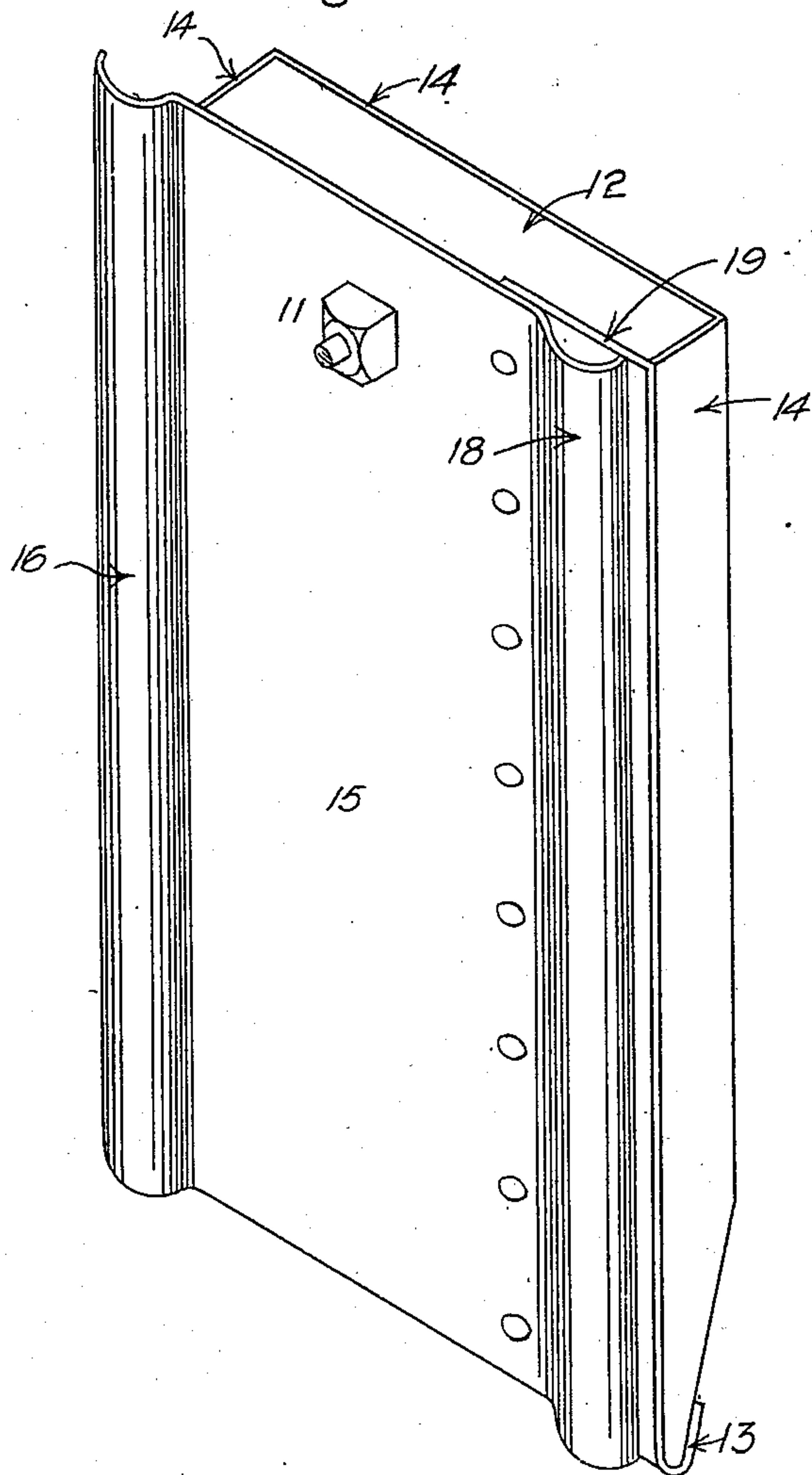


Figure 4

WITNESSES:

C. L. Davis
H. A. Davis

INVENTOR

Frank W. Skinner

UNITED STATES PATENT OFFICE.

FRANK W. SKINNER, OF NEW YORK, N. Y.

PILING.

No. 842,120.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Original application filed August 3, 1905, Serial No. 272,465. Divided and this application filed November 25, 1905. Serial No. 289,049.

To all whom it may concern:

Be it known that I, FRANK W. SKINNER, a citizen of the United States of America, and a resident of the borough of Richmond, in the city of New York, State of New York, have invented certain new and useful Improvements in Piling, of which the following is a specification.

This invention relates to improvements in piling and methods of driving the same.

Particularly it relates to improvements in sheet-metal piling and to driving backing therefor, whereby the sheet - pile may be strengthened so as to be readily driven, even when the pile is made of quite thin sheet metal, and this application is a division of my applications respectively filed in the United States Patent Office August 3, 1905, and August 12, 1905, Serial Nos. 272,465 and 273,910.

My present invention contemplates the use of driving-bars, and two arrangements thereof are illustrated in the accompanying drawings, though I do not intend to limit myself to the precise forms or arrangements shown, since my invention, broadly considered, consists in the combination, with a sheet-metal pile, of any suitable driving backing to strengthen the pile.

My invention also contemplates the employment, when necessary, of cover-plates on the driving bar or bars to facilitate withdrawal and the employment of suitable locking devices to connect one section of piling with the adjacent sections.

Referring to the drawings which accompany the specification to aid the description, Figure 1 is an elevation of a sheet-pile strengthened by a driving-bar on each side, and Fig. 2 is a cross-section of the same. Fig. 3 is a perspective view of a pile and single driving-bar provided with cover-plates, and Fig. 4 is a cross-section of the same.

Referring to Figs. 1 and 2, which illustrate a construction that may be preferable with very thin metal sheets and in particular cases, the sheet-pile 3 is of any suitable metal, preferably steel, and of any desired shape and dimensions. To each side is bolted a rigid driving - bar, 1 and 2, respectively. Said driving-bars 1 and 2 are preferably removable, and the bolts, as 4 5 6, will be arranged to be easily successively withdrawn as the pile is driven, the uppermost bolt being removed when the pile is down to place, the driving-

bars being then withdrawn and the holes thus left filled with cement, grout, earth, or any suitable material. To facilitate driving and removing the bars, I prefer to bluntly point the lower ends of said driving-bars and protect them by a flaring cap 7 fitted on. When the driving-bars are withdrawn, said cap will remain in the earth.

Manifestly by employing a plurality of driving-bars, as above described, the sheet-pile and the driving-bars may be severally thinner and lighter than if only one bar were used; but in some cases it will be preferable to employ a relatively thicker sheet-pile and single driving-bar, as illustrated in Figs. 3 and 4, wherein 15 is the sheet-metal pile, and 12 the driving-bar, the lower edge 13 of the sheet-metal pile being bent up around the beveled lower end of the said driving-bar, as shown. To facilitate withdrawal, said driving-bar may be covered by a sheet-metal plate or plates 14 14, held in position on said driving-bar in any suitable manner, as by the bolt 11. To facilitate withdrawing the driving-bar, the contacting surfaces of the cover-plates and the bar may be greased, and of course the outer surfaces of said cover-plates and of the driving-bars of Fig. 1 or 3, if cover-plates are not used, may be greased to facilitate driving the pile. When the pile is driven and the bolt removed, the driving-bar 12 will be withdrawn, the cover-plates 14 being left in the ground or withdrawn simultaneously with the driving-bars or afterward and the holes left by withdrawing said driving-bars being filled with earth, concrete, grout or other material, and of course cover-plates may be used with the construction of Figs. 1 and 2 as well as with that of Figs. 3 and 4.

The sheet-piles, whether used with one or with more driving-bars, will be usually provided with one of the forms of locks described and claimed in my said application Serial No. 272,465, one form of which is shown in Figs. 3 and 4 of the accompanying drawings, 16 being the male member on one vertical edge, and 18 19 being the female members of the lock on the other vertical edge of the pile. After one section of piling is driven its locking member will be engaged with the locking member of the adjacent edge of the next section of piling, and that section driven, and so on, as set forth in my said application Serial No. 272,465, until all the sections of piling are driven.

Now, having described my improvements,
I claim as my invention—

5 1. The combination of a section of sheet-
piling, and a removable external reinforcing-
backing adapted to penetrate the earth and
to be applied to the pile before driving and
removed therefrom after driving, substan-
tially as described.

10 2. The combination of a sheet-metal pile
provided at opposite edges with members of
a lock adapted to engage corresponding lock
members of adjacent piles, and removable
backing for said sheet-metal pile, substan-
tially as described.

15 3. The combination of a sheet-metal pile

provided with lock members adapted to in-
terlock with corresponding lock members of
adjacent piles, removable backing therefor,
and a cap for the lower end of said pile adapt-
ed to permit of the withdrawal of the driving- 20
bar, substantially as described.

4. The combination of a sheet-metal pile, a
driving-bar therefor, and a cover-plate for
said driving-bar, substantially as described.

Signed at New York city this 14th day of 25
November, 1905.

FRANK W. SKINNER.

Witnesses:

HENRY V. BROWN,

HENRY H. DE VOS.