CLAIMS

1. A steel sheet pile producing method wherein rough rolling, intermediate rolling, and finish rolling are applied to a heated material in this order by using a plurality of calibers to produce a steel sheet pile having a flange portion of a predetermined shape, the steel sheet pile producing method comprising:

in the intermediate rolling, performing rolling by the caliber having smaller height than a product height so that a shape of the flange portion after the intermediate rolling takes a first shape curved or bent outward; and

in the finish rolling following the intermediate rolling, performing bending forming so that the flange portion of the first shape takes a rectilinear shape or a second shape curved or bent inward and having a height dimension being the product height.

2. The steel sheet pile producing method according to claim 1, wherein a rolling pass configured to perform the bending forming in the finish rolling is a rolling pass configured to use a web guide on a rolling entry side.

3. The steel sheet pile producing method according to claim 2, wherein, in a cross section perpendicular to a rolling direction, the web guide has a width of a web guide upper surface equal to or narrower than a lower surface width of a material web after a final rolling pass of the intermediate rolling and has an

angle formed by a web guide upper surface and a web guide side surface, the angle being equal to an angle formed by a joining portion between the material web and a material flange after the final rolling pass of the intermediate rolling.

4. The steel sheet pile producing method according to any one of claims 1 to 3, wherein, in the finish rolling, claw bending forming is performed in a rolling pass following a rolling pass configured to perform the bending forming.

5. The steel sheet pile producing method according to claim 4, wherein claw bending preforming is performed on an exit side of the rolling pass configured to perform the bending forming in the finish rolling, and the claw bending forming is performed after the claw bending preforming.

6. A rolling equipment line for producing a steel sheet pile, the rolling equipment line including a heating device, a roughing rolling mill, an intermediate rolling mill, and a finishing rolling mill disposed in this order, wherein:

the roughing rolling mill, the intermediate rolling mill, and the finishing rolling mill are rolling mills each including upper and lower rolls engraved with a caliber;

at least the caliber of a part of the intermediate rolling mill has smaller height than a product height and is a caliber engraved so that a flange portion takes a first shape curved or bent outward; and

the caliber of a part of the finishing rolling mill is a caliber engraved so that the flange portion of the first shape is bent and formed into a rectilinear shape or a second shape curved or bent inward and having a height dimension being the product height.