CLAIMS

[Claim 1] A pile press-in machine that receives reaction force from an existing pile to press in a new pile, the pile press-in machine comprising:

a reaction force block that grips the existing pile by a clamp to receive the reaction force;

a platform that is horizontally movable relative to the reaction force block; and

a press-in block that is coupled to the platform, supported to be freely lifted up and down with respect to the platform at a front of the clamp, and grips and presses in the new pile,

wherein a plurality of kinds of the reaction force blocks each according to a kind and size of the existing pile are freely attachable to and detachable from one platform.

[Claim 2] The pile press-in machine according to claim 1,

wherein a plurality of kinds of the press-in blocks according to kinds and sizes of the new pile are freely attachable to and detachable from one platform.

[Claim 3] The pile press-in machine according to claim 1 or 2,

wherein the reaction force block includes a plurality of clamps and a saddle mounted with the clamps, and the motions of the plurality of clamps are controlled by hydraulic cylinders, and a hydraulic hose that is connected to the hydraulic cylinders and a hydraulic hose that feeds a hydraulic pressure are connected by a coupler.

[Claim 4] The pile press-in machine according to claim 3,

wherein the hydraulic hose that feeds the hydraulic pressure is connected to a control manifold, and the hydraulic hose that is connected to the hydraulic cylinders is connected to a dividing manifold,

a coupler that is provided on the dividing manifold and a coupler that is attached to a tip of the hydraulic hose that is connected to control manifold are coupled to each other.

[Claim 5] The pile press-in machine according to claim 4,

wherein the platform includes a leader mast, and the couplers are arranged at a rear portion of the saddle located on the rear of the leader mast that is the backward of a direction in which press-in construction is advanced.

[Claim 6] The pile press-in machine according to any one of claims 1 to 5,

wherein the reaction force block and the platform are attached to each other,

by attaching to a slide guide provided in the reaction force block a slide frame of the platform horizontally slidable along the slide guide,

and by fixing another end of a hydraulic cylinder having one end fixed to one of the slide frame or the reaction force block and a fixed portion provided at another of the slide frame or the reaction force block.

[Claim 7] The pile press-in machine according to claim 6,

wherein the reaction force block includes a plurality of clamps and a saddle mounted with the clamps,

the fixed portion is located on the rear of the saddle.

[Claim 8] The pile press-in machine according to any one of claims 1 to 5,

wherein the reaction force block and the platform are attached to each other,

by attaching to a slide guide provided in the reaction force block a slide frame of the platform horizontally slidable along the slide guide,

and by fixing both ends of a hydraulic cylinder to fixed portions provided at the slide frame and the reaction force block, respectively.

[Claim 9] The pile press-in machine according to any one of claims 6 to 8,

wherein the sizes of the slide guides that are coupling portions between the reaction force block and the platform is unified with the sizes of the slide frame of the platform as for the reaction force block according to the existing pile various in kind and size.

[Claim 10] The pile press-in machine according to any one of claims 1 to 9,

wherein the press-in block and the platform are attached to each other,

by attaching to a slide guide provided in the platform a sliding portion of the press-in block slidable in a lifting direction along the slide guide,

and by fixing another end of a hydraulic cylinder having one end fixed to the press-in block and a fixed portion provided at the platform.

[Claim 11] The pile press-in machine according to claim 10,

wherein the sizes of the slide guides that are coupling portions between the press-in block and the platform is unified with the sizes of the slide frame of the platform as for the new piles various in kind and size.

[Claim 12] The pile press-in machine according to any one of claims 6 to 11,

wherein the fixed portion of the reaction force block and the platform, and the size of the press-in block and the platform, is unified respectively, as for a plurality of kinds of the reaction force blocks each according to a kind and size of the existing pile, and as for a plurality of kinds of the press-in blocks according to kinds and sizes of the new piles.

[Claim 13] The pile press-in machine according to any one of claims 1 to 12,

wherein the plurality of kinds of the reaction force blocks are two or more kinds of: the reaction force blocks of the case that the existing pile is a steel sheet pile, the reaction force blocks of the case that the existing pile is a steel pipe pile, and the reaction force blocks of the case that the existing pile is a concrete pile.

[Claim 14] The pile press-in machine according to any one of claims 1 to 12,

wherein the plurality of kinds of the reaction force blocks are the plurality of kinds of the reaction force blocks according to the two or more kinds of the existing piles of the same kinds but different size.

[Claim 15] A pile press-in method using a pile press-in machine,

the pile press-in machine comprising:

a reaction force block that grips an existing pile by a clamp to receive reaction force;

a platform that is horizontally movable relative to the reaction force block; and

a press-in block that is coupled to the platform, supported to be freely lifted up and down with respect to the platform at a front of the clamp, and grips and presses in the new pile,

wherein a reaction force block according to a kind and size of the existing pile is selected from a plurality of kinds of the reaction force blocks freely attachable to and detachable from one platform, and is attached to the platform.

[Claim 16] The pile press-in method according to claim 15,

wherein a press-in block according to a kind and size of the existing pile is selected from a plurality of kinds of the press-in blocks freely attachable to and detachable from one platform, and the press-in block is attached to the platform.