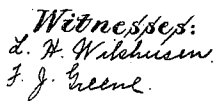


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Fig. 2.



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UNITED STATES PATENT OFFICE.

MAX SCHALSCHA, OF SUMMIT, NEW JERSEY.

PILE-HAMMER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MAX SCHALSCHA, a citizen of the United States, residing at Summit, county of Union, and State of New Jersey, have invented a certain new and useful Improvement in Pile-Hammers, of which the following is a specification.

The invention relates to power hammers operated by steam or compressed air in pile driving and analogous work, and the object of the invention is to provide means for receiving the end of the pile and maintaining the hammer in position thereon while driving and for protecting the end of the pile from damage by the blows of the ram.

Another important object is to provide cushioning means upon which the impact of the ram is received when the blow is not delivered upon the pile.

The invention consists in certain novel features and details of construction and arrangement by which the above objects are attained, to be hereinafter described and pointed out in the claims.

The accompanying drawings form a part of this specification and show an approved form of the invention.

Figure 1 is a front elevation of the lower portion of a hammer equipped with the improved pile-receiving attachment. Fig. 2 is a corresponding vertical section partly in elevation. Fig. 3 is a plan view of the attachment, with the adjacent portions of the hammer shown in horizontal section on a plane indicated by the line 3—3 in Fig. 2. Fig. 4 is a horizontal section on the line 4—4 in Fig. 2. Fig. 5 is a vertical section through the attachment alone, at a right angle to Fig. 2, certain portions being in elevation. Fig. 6 is a plan view of the under face of the attachment. Fig. 7 is an elevation of the attachment alone as seen at a right angle to Fig. 1.

Similar letters of reference indicate the same parts in all the figures.

A is the hammer body, shown as rectangular in plan, and B is the ram inclosed and guided therein and reciprocated by steam or compressed air through means not represented but which may be understood to be of the usual or any approved type. The ram is rectangular and has a cylindrical extension or head B¹ on its lower end by which the blow is delivered.

The improved attachment for receiving the end of the pile comprises a shell or

hollow casting C matching the interior of the hammer-body and secured thereto by bolts C¹ extending transversely through the latter. On opposite faces of the shell are swells or projections C² received in the usual notches *a* in the body and containing a loose anvil-plate D of rectangular shape and of greater length than width adapted to rest upon the end of the pile and receive and transmit the blows of the ram.

The opening *c* in the lower end of the shell C is circular and smaller than the interior of the shell at the swells C² to provide pockets having shoulders or offsets C³ supporting the plate D at its ends, and the opening is surrounded by a flared skirt or conical flange C⁴ adapted to receive the correspondingly shaped end of the pile, not shown. On the cheeks of the shell are upwardly extending lugs C⁵ C⁵ each provided with a cushion E of rubber in dovetail form fastened in correspondingly shaped notches and projecting above the surface of the shell to receive the overhanging portions of the ram at each side of the head B¹. The parts are so proportioned that the ram will thus come to rest before the head B¹ strikes the plate D unless the latter be elevated by resting upon a pile-end as in the operation of driving. A deck C⁶ forms the top of the shell and has an opening *c*¹ for the ram-head B¹. One of the extensions C² has a transverse opening *c*² through which the plate D is introduced, closed by a slide F extending from one side of the extension C² to the other through slots C³, with its inner face flush with the adjacent inner face of the shell, and is held by a head F¹ at one end and a cotter pin F² at the other, thus providing an eminently simple but secure fastening not likely to become loose from shocks and vibrations. The plate F is thus loosely held with liberty to rest upon the pile-end and follow the latter as it is driven but so proportioned relatively to the interior of the shell and the openings *c* and *c*¹ therein as to prevent its removal except through the opening *c*².

C⁷ C⁷ are lugs on the flange C⁴ having bolt holes receiving bolts G¹ by which removable guide-bars G of angle-iron form are fastened to the under face of the shell with their depending flanges G² at a right angle thereto and parallel with each other, to serve in maintaining the hammer in position laterally in driving sheet-piling.

The guide-bars may be provided with slots *g* as shown to permit a limited range of adjustment as to width of space between their inner faces.

5 The hammer is suspended as usual with provisions for following the pile as it is driven and the plate D receives the force of the blows and delivers it to the end of the pile upon which it rests, thus protecting
10 such end and preventing brooming or splitting. When the plate becomes distorted or broken under the strain of the blows it may be easily and quickly removed and a new one substituted through the opening *c*² by
15 simply withdrawing the slide F. Danger of fracturing the shell C or bolts C¹ is reduced by the employment of the cushions E designed to soften the effect of occasional
20 accidental blows delivered by the ram when the plate D is not supported by a pile-end, and it will be observed that the plate when unsupported lies beyond the travel of the
25 ram-head and therefore out of the range of such blows. The shell C and its connections may be removed when desired and the hammer employed in the usual manner.

In driving round piles the guide-bars G are removed. It will be understood that
30 such guide-bars may be set longitudinally of the plate F if preferred instead of transversely thereto as shown.

I claim:—

1. In a pile hammer, a body-portion having oppositely located notches in its lower
35 end, a hollow shell received within said body, bolts extending through said shell and body, swells on said shell engaged in said notches, a plate inclosed in said shell, the
40 latter having an opening in the lower end to receive a pile-end, and an opening in the

upper end to receive the ram-head of said hammer, and an opening in one of said swells for the insertion and removal of said plate, and a slide for closing the last-named opening.

2. In a pile hammer, a body-portion having oppositely located notches in its lower end, a hollow shell received within said
45 body, bolts extending through said shell and body, swells on said shell engaged in said notches, a plate loosely inclosed in said
50 shell, the latter having an opening in the lower end to receive a pile-end, and an opening in the upper end to admit the ram-head of said hammer, upwardly extending
55 lugs on said shell within said body, cushions carried by said lugs, adapted to receive the ram of said hammer and prevent said ram-head striking said plate when unsupported by a pile-end.

3. In a pile hammer, a body-portion having oppositely located notches in its lower end, a hollow shell received within said
60 body, bolts extending through said shell and body, swells on said shell engaged in said notches, a plate loosely inclosed in said
65 shell, the latter having an opening in the lower end to receive a pile-end, and an opening in the upper end to admit the ram-head of said hammer, a conical flange surrounding said lower opening, and guide-
70 bars removably attached to the lower face of said flange.

In testimony that I claim the invention above set forth I affix my signature, in presence of two witnesses.

MAX SCHALSCHA.

Witnesses:

CHARLES R. SEARLE,
L. H. WILSHUSEN.