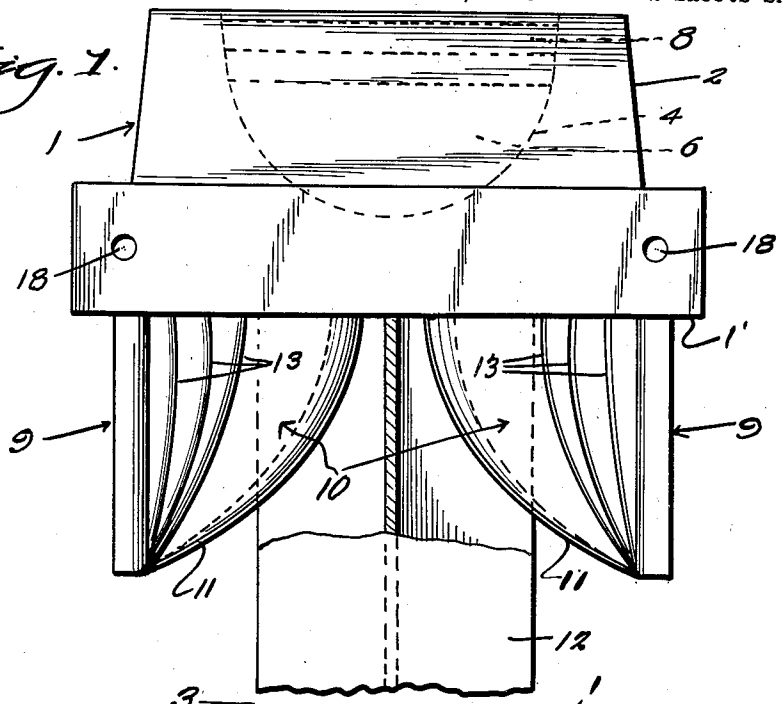
Sept. 10, 1940. C. P. DE BIASI 2,214,295

PILE DRIVING HELMET

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Fig. 1.



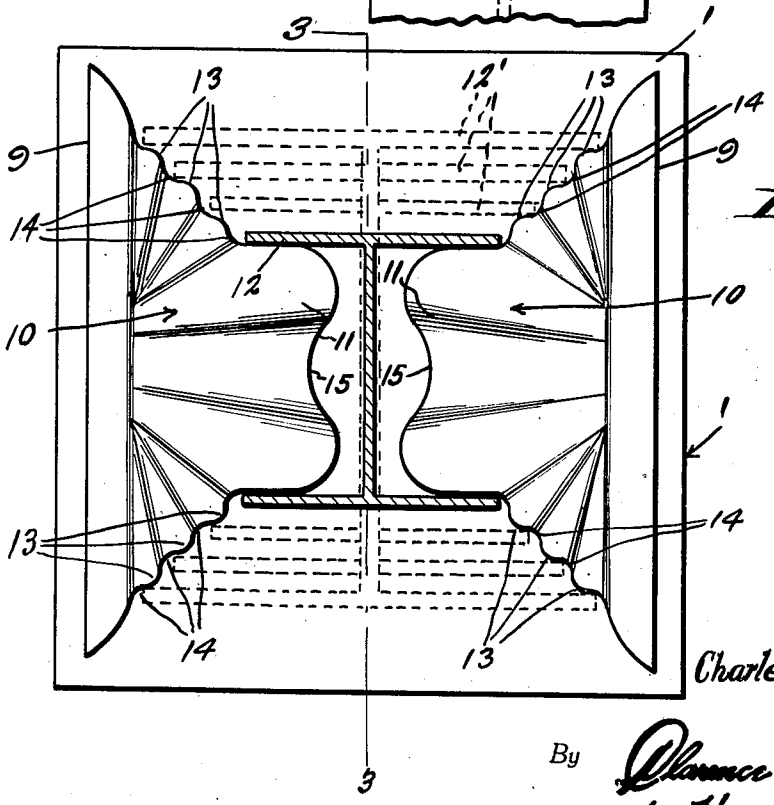


Fig. 2.

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Fig. 3.

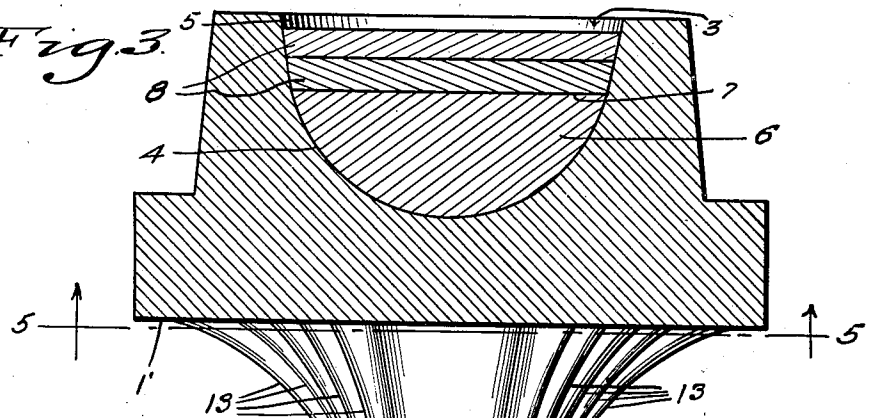
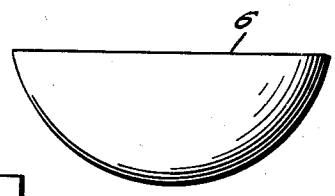


Fig. 4.



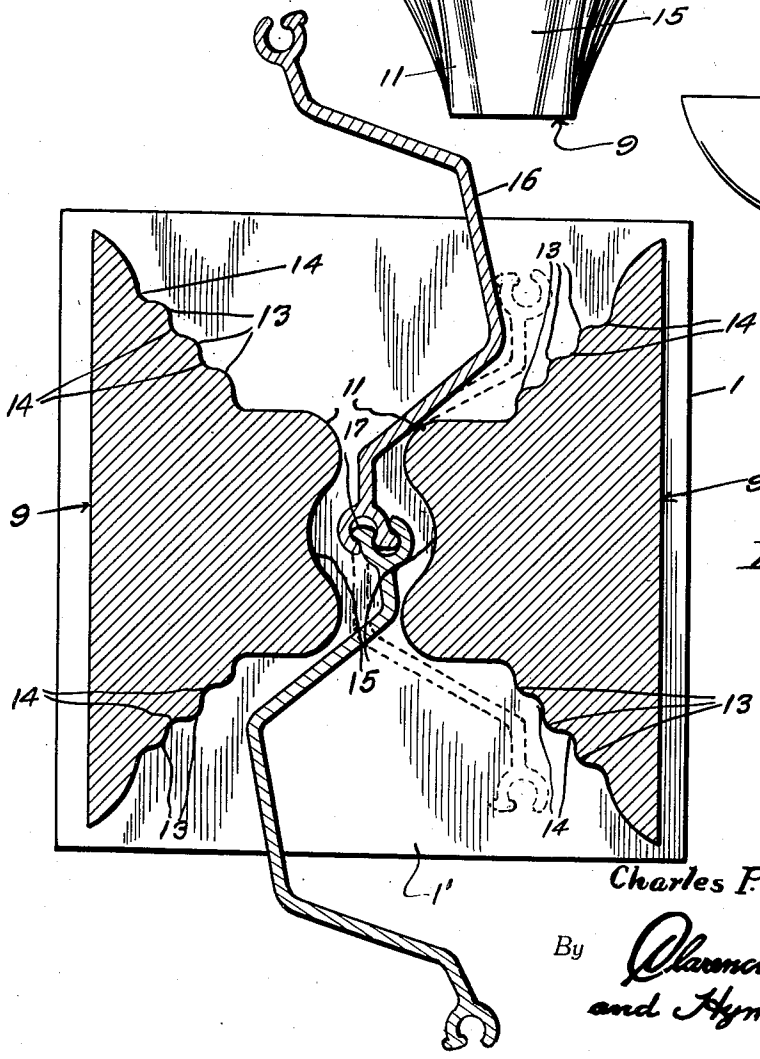


Fig. 5.

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UNITED STATES PATENT OFFICE

2,214,295

PILE DRIVING HELMET

Charles P. De Biasi, Noank, Conn.

Application February 13, 1940, Serial No. 318,755

5 Claims. (Cl. 61—77)

My invention relates to improvements in helmets for driving steel piles under the blows of a power hammer.

The invention is designed with the particular object in view of providing a device of the character indicated which will fit over the driven end of piles of the H-beam type and substantially any size and which is also adapted to fit over the edge of sheet piling.

Another object is to provide a helmet for the purposes above set forth which is adapted to transmit a blow of the hammer delivered eccentrically of the axis of the pile without creating high concentrated stresses in either the hammer or the pile at the time of impingement of the blow.

Still another object is to provide a helmet which will center itself on the pile and lead the hammer onto the pile quickly and easily and which will obviate the use of the ordinary wooden block which is subject to wear, splitting and must be frequently replaced.

To the accomplishment of the foregoing and subordinate objects presently appearing, a preferred embodiment of my invention has been illustrated in the accompanying drawings, set forth in detail in the succeeding description, and defined in the claims appended hereto.

In said drawings—

Figure 1 is a view in side elevation of the preferred form of my improved helmet surmounting an H-beam type pile of small size,

Figure 2 is a view in bottom plan with the beam shown in section,

Figure 3 is a view in transverse section taken on the line 3—3 of Figure 2,

Figure 4 is a view in side elevation of the driving plug, and

Figure 5 is a view in horizontal section taken on the line 5—5 of Figure 2.

Referring to the drawings by numerals, the helmet of my invention comprises a head 1 of suitable metal and substantially rectangular edge contour having a reduced upwardly tapering crown 2 provided with a central concave socket 3 in the top thereof, the bottom 4 of the socket being formed in the arc of a circle and merging into an outwardly flaring mouth 5. The socket 3 is designed to seat in the bottom 4 thereof a driving plug 6, also of suitable metal, fitting into said bottom and having a flat top 7. Surmounting the plug 6 is a pair of disk-like steel cushion plates 8 superposed and fitting into the mouth of said socket flat against each other with the lower one fitting flush on the top 7 of plug 6. Both the plug 6 and cushion plates 8 are freely movable in the socket 3.

The bottom 1' of the head 1 is flat and has depending therefrom a pair of opposed prongs 9 spaced apart upon opposite sides of one transverse center of said head 1.

The prongs 9 have opposed faces 10 flaring outwardly and downwardly for a purpose presently seen. The faces 10 are stepped to provide a pair of opposed central ribs 11 thereon adapted to fit within opposite sides of a small size H-beam type pile 12 as shown in full lines in Figures 1 and 2, and a series of longitudinally extending shoulder-like ribs 13 upon each side of the ribs 11 forming grooves 14 therebetween, the ribs 13 on the faces 9 being opposed in complemental arrangement to fit into H-beam type piles 12' of larger sizes than pile 12, the grooves 14 of said faces being similarly arranged to fit at their upper ends against the edges of the different sizes of piles as shown in dotted lines in Figure 2. As will be understood, the ribs 11, 12 and the grooves 13 on the faces 9 flare downwardly and outwardly and are curved longitudinally so that the helmet may be placed over the upper end of the pile to gravitate onto said with a camming action centering the same on said end.

The ribs 11 are centrally grooved, as at 15, longitudinally, so that said ribs may be fitted over the upper edge of the usual sheet piling 16 and accommodate therebetween with a clearance the usual hinge joint 17 between sheets of such piling. Apertures 18 are provided in the base of the head 1 adjacent the corners thereof for securing cables, not shown, to said head to assist in locating the same relative to the pile.

As will be understood, the cushion plates 8 receive the blow of the hammer or ram, not shown, and transmit the blow to the plug 6 which in turn transmits the driving force to the head 1 and pile, the bottom 1' of said head fitting flush on the end of the pile and thus stabilizing the helmet. Since the cushion plates 8 and plug 6 are freely movable in the socket 3, the head 1 will always receive a concentric blow from the hammer or ram at the time of impingement and transmit resulting stresses uniformly to the head and pile regardless of whether or not the hammer, helmet and pile are exactly in line with each other. Thus, it will be evident, that all stresses developed in the hammer or ram, helmet and pile will be uniformly distributed throughout the helmet and pile.

The foregoing will, it is believed, suffice to ex-

plain the construction and manifold advantages of my invention without further description.

Manifestly the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the subjoined claims.

What I claim is:

1. A helmet for use in driving H-beam piles under the blows of a hammer comprising a flat-bottomed metallic head for surmounting the upper end of a pile to receive the blows of the hammer, a pair of prongs depending from said bottom in laterally spaced relation to receive said end of the pile therebetween, said prongs having inner opposed faces provided with longitudinal grooves upon each side of the longitudinal centers of the faces, said grooves being arranged in said faces to provide complemental pairs on opposite faces stepped laterally of the prongs to accommodate the side edges of piles of different sizes therein.

2. A helmet for use in driving H-beam piles under the blows of a hammer comprising a flat-bottomed metallic head for surmounting the upper end of a pile to receive the blows of the hammer, a pair of prongs depending from said bottom in laterally spaced relation to receive said end of the pile therebetween, said prongs having inner opposed faces provided with longitudinal grooves upon each side of the longitudinal centers of the faces, said grooves being arranged in said faces to provide complemental pairs on opposite faces stepped laterally of the prongs to accommodate the side edges of piles of different sizes therein, and a pair of opposed center ribs on said faces, respectively, longitudinally extending and for projecting into the channel sides of the piles.

3. A helmet for use in driving H-beam piles under the blows of a hammer comprising a flat-bottomed metallic head for surmounting the upper end of a pile to receive the blows of the hammer, a pair of prongs depending from said bottom in laterally spaced relation to receive said end of the pile therebetween, said prongs having inner opposed faces provided with longitudinal grooves upon each side of the longitudinal centers of the faces, said grooves being arranged in said faces to provide complemental pairs on opposite faces stepped laterally of the prongs to accommodate the side edges of piles of different sizes therein, said faces of said prongs flaring outwardly and downwardly to facilitate receiving the piles therebetween.

4. A helmet for use in driving H-beam piles under the blows of a hammer comprising a flat-bottomed metallic head for surmounting the upper end of a pile to receive the blows of the hammer, a pair of prongs depending from said bottom in laterally spaced relation to receive said end of the pile therebetween, said prongs having inner opposed faces provided with longitudinal grooves upon each side of the longitudinal centers of the faces, said grooves being arranged in said faces to provide complemental pairs on opposite faces stepped laterally of the prongs to accommodate the side edges of piles of different sizes therein, said head having a concave center socket in the top thereof, and a convex flat top plug in said socket fitting flush therein to be interposed between the hammer and head and movable in the socket under the impact of the hammer to distribute the driving forces uniformly throughout said head.

5. A helmet for use in driving H-beam piles under the blows of a hammer comprising a flat-bottomed metallic head for surmounting the upper end of a pile to receive the blows of the hammer, a pair of prongs depending from said bottom in laterally spaced relation to receive said end of the pile therebetween, said prongs having inner opposed faces provided with longitudinal grooves upon each side of the longitudinal centers of the faces, said grooves being arranged in said faces to provide complemental pairs on opposite faces stepped laterally of the prongs to accommodate the side edges of piles of different sizes therein, said head having a concave center socket in the top thereof, a convex flat top plug in said socket fitting flush therein to be interposed between the hammer and head and movable in the socket under the impact of the hammer to distribute the driving forces uniformly throughout said head, and a resilient disk fitting in said socket on top of said plug and movable with the latter for cushioning the impact of the hammer.

CHARLES P. DE BIASI.