

G. W. CRAWSHAW.
 HELMET FOR USE IN THE DRIVING OF REINFORCED CONCRETE PILES.
 APPLICATION FILED JULY 6, 1912.

1,060,668.

Patented May 6, 1913.

5 SHEETS—SHEET 1.

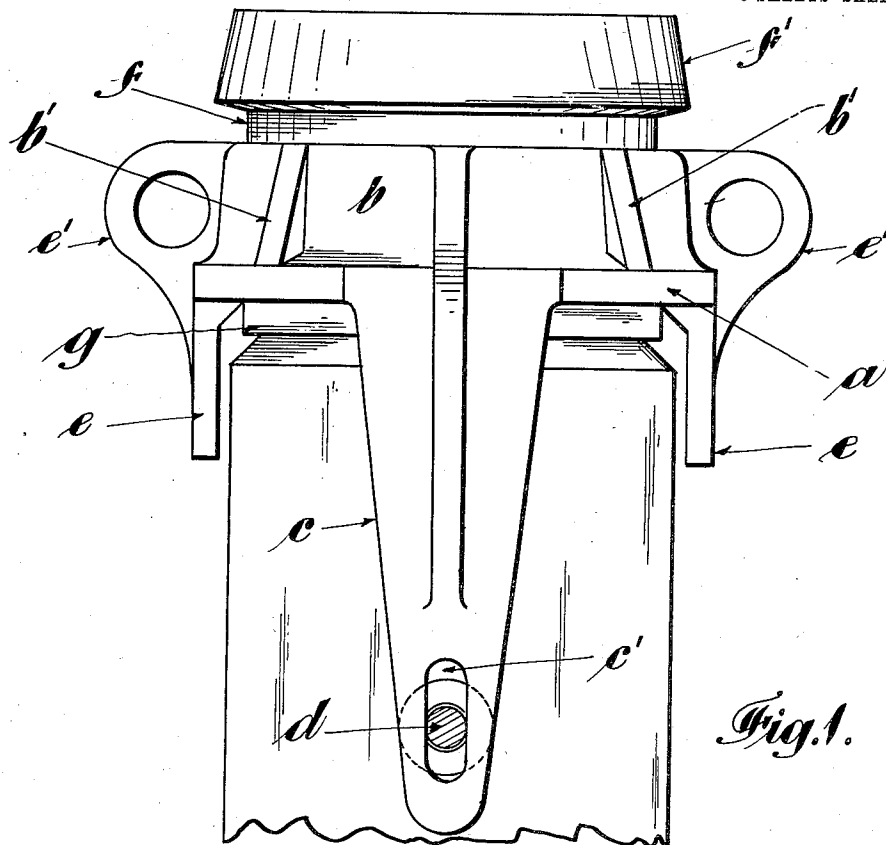


Fig. 1.

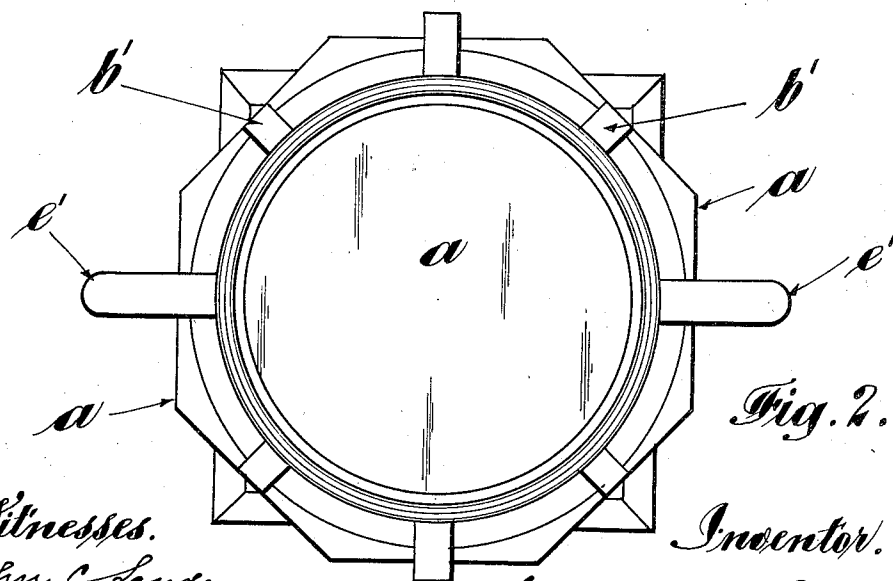


Fig. 2.

Witnesses.

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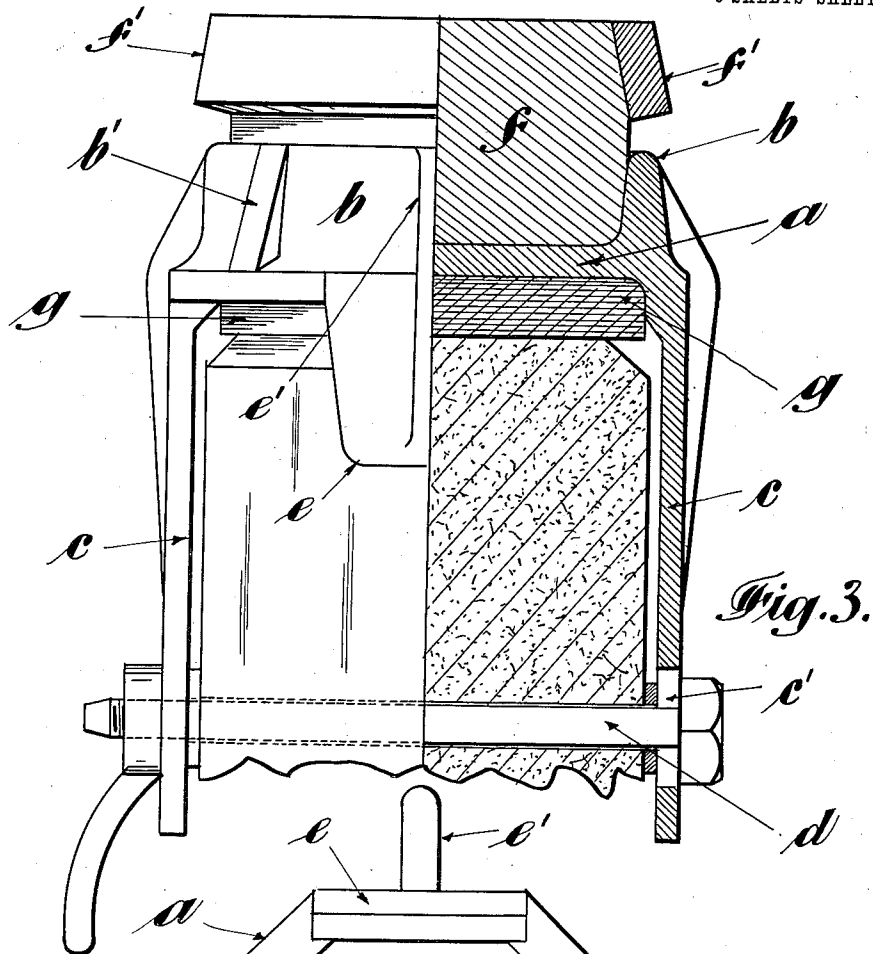


Fig. 3.

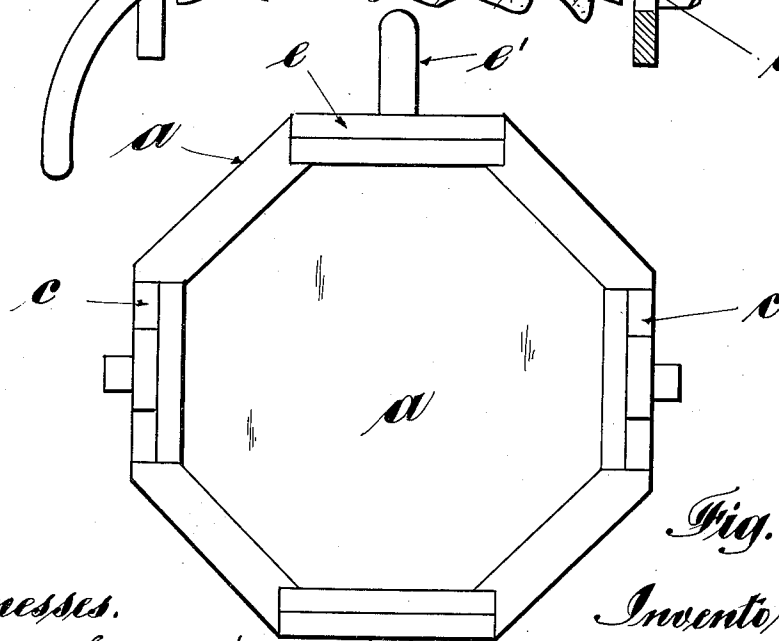


Fig. 4.

Witnesses.

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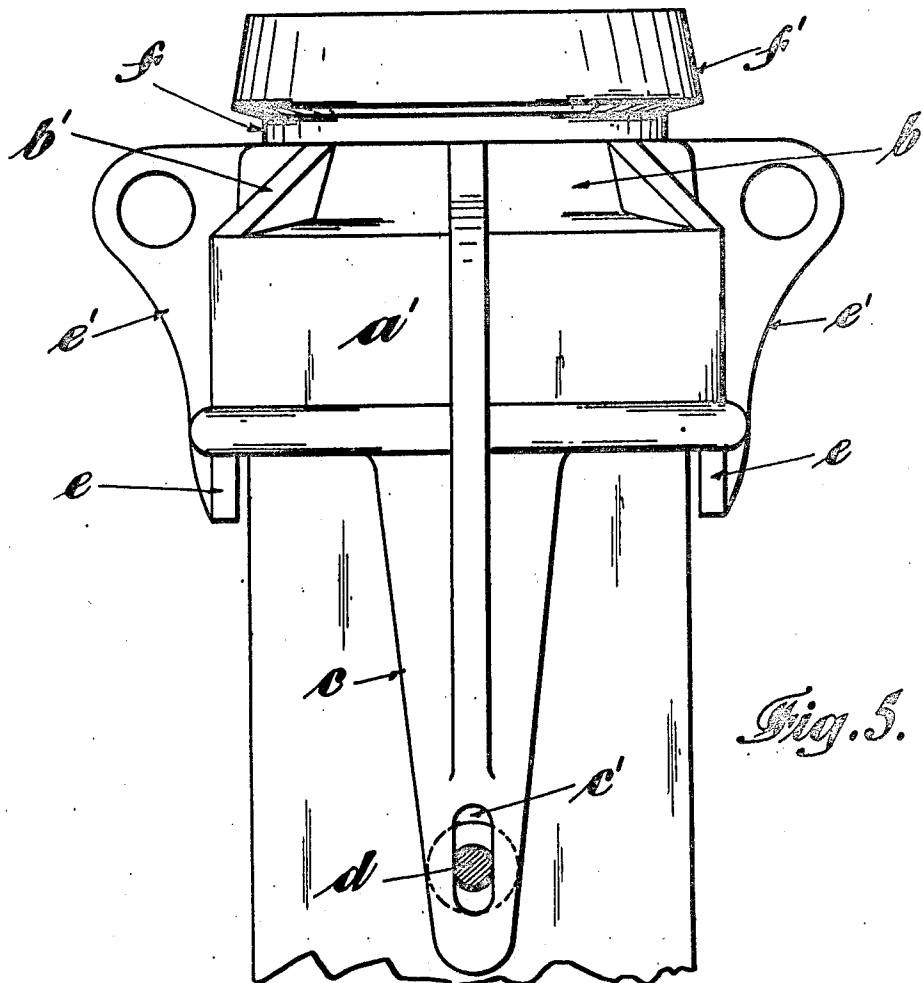


Fig. 5.

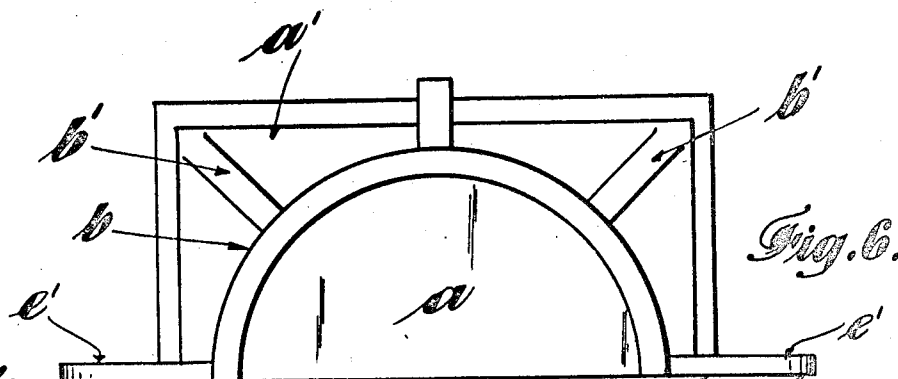


Fig. 6.

Witnesses.

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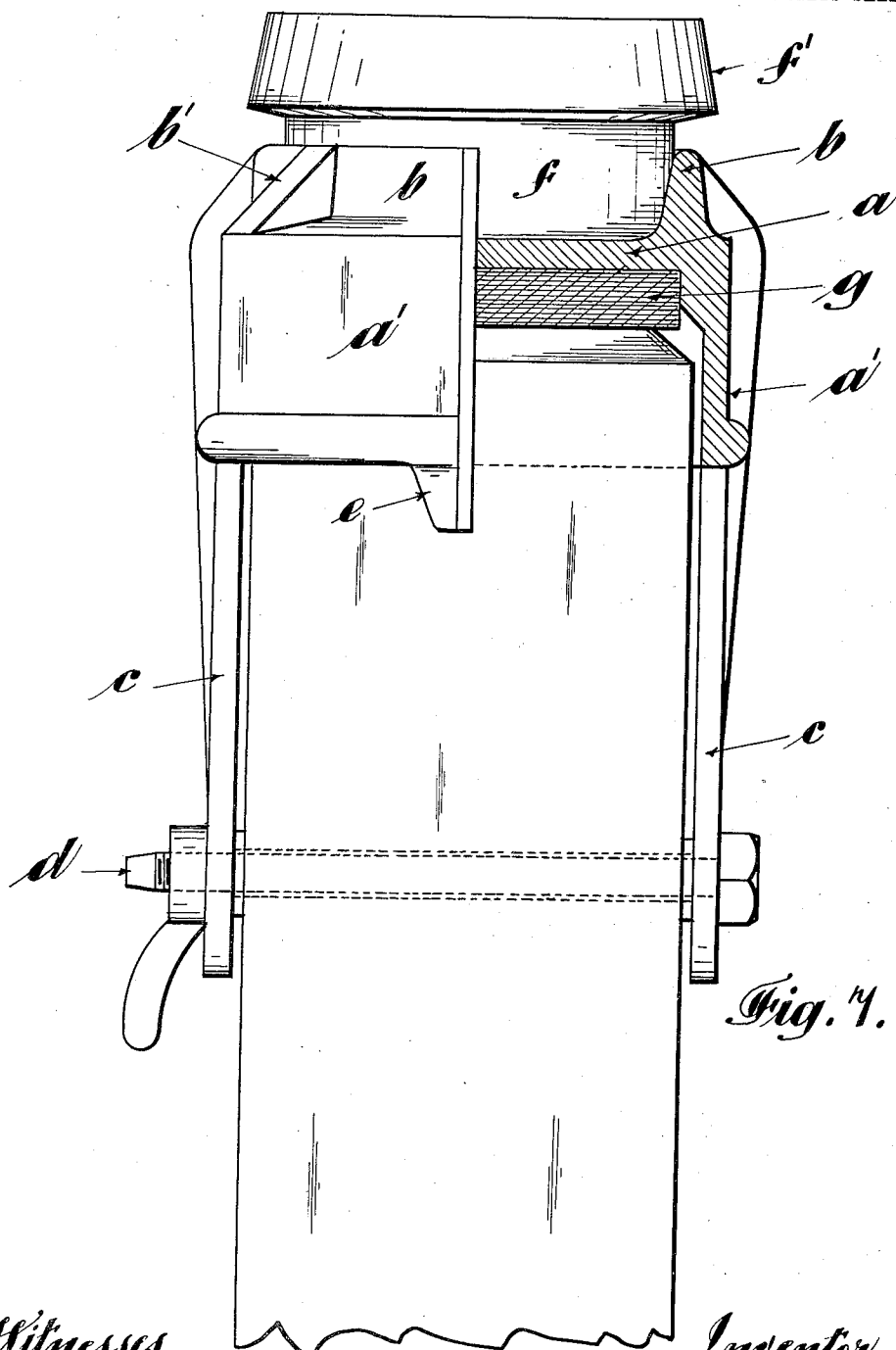


Fig. 7.

Witnesses.

John C. Sanders
 Albert F. Heumann

Inventor.

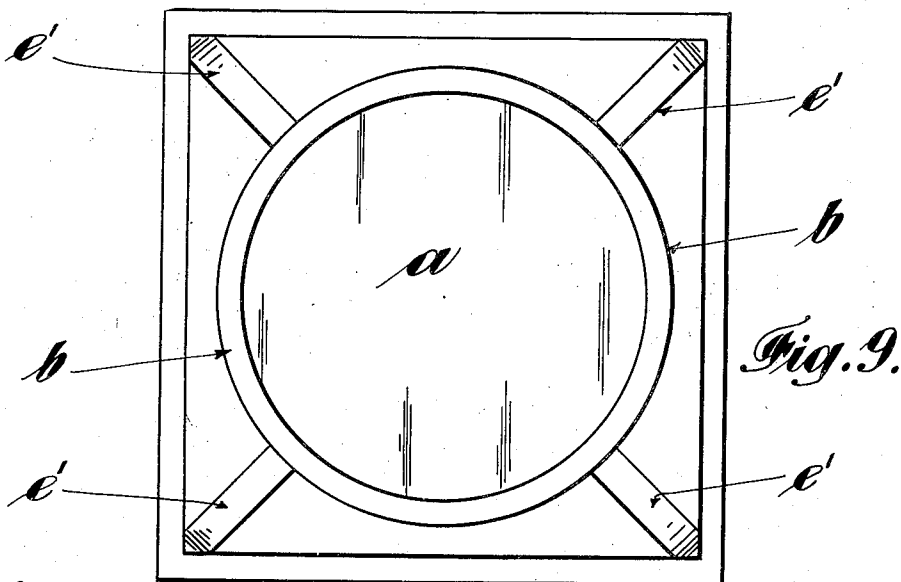
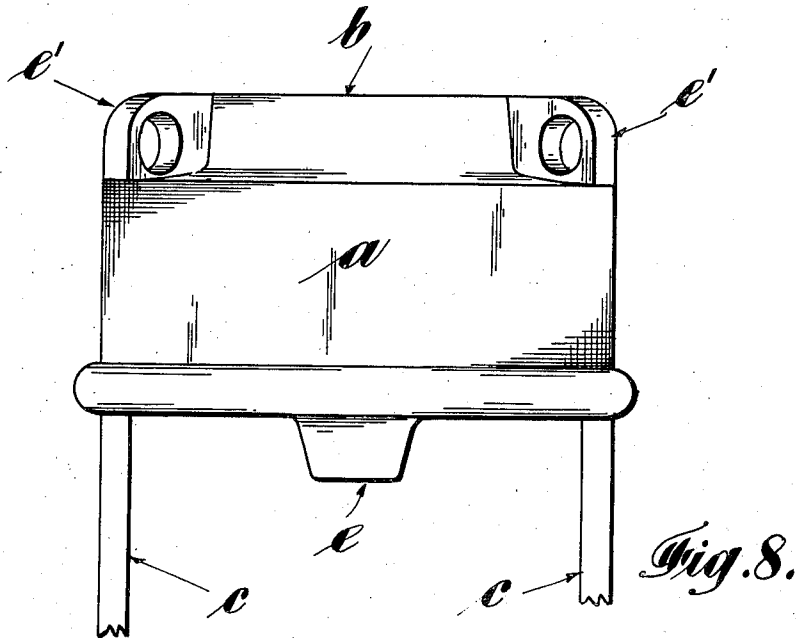
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 By his Attorney, B. M. Dillan (Mk)

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5 SHEETS—SHEET 5.



Witnesses

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Indenter.

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UNITED STATES PATENT OFFICE.

GERVASE WATSON CRAWSHAW, OF LEEDS, ENGLAND.

HELMET FOR USE IN THE DRIVING OF REINFORCED-CONCRETE PILES.

1,060,668.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed July 6, 1912. Serial No. 707,988.

To all whom it may concern:

Be it known that I, GERVASE WATSON CRAWSHAW, a subject of the King of Great Britain and Ireland, and resident of Leeds, England, have invented certain new and useful Improvements in Helmets for Use in the Driving of Reinforced-Concrete Piles, of which the following is a specification.

This invention refers to and consists of an improved construction of helmet for use in the driving of reinforced concrete piles.

Heretofore, helmets for this purpose have comprised a cast-iron box adapted, at one end, to fit over and inclose the top end of the pile, for about a foot, and at the other end adapted to stand above the end of the pile for another foot or so, the helmet, or box, being divided interiorly by a transverse partition which bears against the end of the pile or against a filling of saw-dust, or the like, inserted between it and the end of the pile.

Into the upper projecting end of the helmet, or box, fits the lower end of a wooden "dolly", that is, a length of hard wood about three feet long or more and of a scantling similar to that of the pile. Upon the upper end of the "dolly" is fitted an iron, or steel, hoop for preventing any bursting of the wood under the impact of the "monkey", or hammer, by which the driving of the pile is effected. With such construction of helmet or box the overall length is about five feet, and in order to keep the helmet or box in line with the pile and guide the pile, it is usual to provide a gage bolt and "leaders"—these latter being formed in the framework of the pile driving machine and the bolt being secured to the "dolly" at or near its center and passing through the leaders.

This invention has for its object to provide a construction of helmet and "dolly" which will be much shorter in length than the said ordinary helmet and "dolly" and therefore more readily handled (applied and removed) than the ordinary helmet and "dolly" and which will increase the working room for the monkey to a maximum.

According to the invention, the helmet comprises a plate or cap designed to fit over the head or crown of the pile, such cap being formed with a recess or socket to receive the "dolly" and having depending lugs or arms for holding or securing the cap in position, while, on opposite sides of said

cap, ears or loops are provided to receive the lifting means when placing the cap into position on or removing it from the pile.

Other details will be hereinafter explained by reference to the accompanying drawings whereon—

Figure 1 illustrates, in elevation, the upper part of a pile showing the improved helmet in position thereon, Fig. 2 illustrates a plan of Fig. 1 with the "dolly" removed. Fig. 3 illustrates a half exterior and half sectional elevation as seen at right angles to Fig. 1. Fig. 4 illustrates an inverted plan of the helmet with the pile removed. Figs. 5, 6 and 7 are similar views to Figs. 1, 2 and 3 respectively, illustrating a modified construction of helmet. Figs. 8 and 9 illustrate a part side elevation and plan respectively of a further modification.

Referring now to the drawings, the improved helmet comprises a stout steel cap or plate *a*, circular, hexagon, square or other suitable shape in plan, but for a square pile, preferably hexagon, and of a diameter slightly larger than that of the pile. Rising from such cap or plate is an annular flange *b* preferably circular in plan and about five inches high. The inner face of this flange is slightly inclined and forms a conical recess or socket, see Fig. 3. The flange *b* is also, by preference, slightly inclined on its exterior and the section of the flange is therefore tapered, the narrower part being uppermost.

Extending down from the plate are two arms *c, c* which are arranged at diametrically opposite points and each of which is, by preference, about eighteen inches long and designed to lie parallel with and alongside one face of the pile. At their lower ends these arms are each provided with a slot *c'* which, when the cap is on the pile, comes opposite a hole in the pile and allows of a bolt *d* being passed through the arms and the pile, for the purpose of securely holding the helmet to the pile. Also depending from the plate *a* are two short lugs or flanges *e, e* which occupy positions intermediate of the said arms and lie against or near to the other and right-angled faces of the pile. While the longer arms *c, c* and the bolt *d* serve to hold the helmet down on to the pile, the short lugs help to prevent it twisting or moving sidewise. In one with these short arms or lugs *e, e* (or if desired in one with the long arms) and the

flange *b* are loops or rings *e'*, *e'* by which the helmet may be handled in placing it on, and lifting it off, the pile, and by which also the pile may be lifted in slinging or pitching it into position. Or the loops *e'* *e'* may be arranged at the corners and designed so that they lie within the area of the helmet, see Figs. 8 and 9. With this latter arrangement there is less liability of the loops being fractured or broken off.

Into the conical recess, formed by the flange *b* on the top of the cap, is fitted the lower conical end of a short block of hard wood *f*, preferably about nine inches long, which constitutes the "dolly". At its conical upper end the "dolly" *f* is bound by a metal hoop *f'* in like manner to the ordinary "dolly", the grain of the wood running lengthwise of the "dolly".

Between the steel plate *a* and the top end of the pile is placed a disk or washer of wood, papier mâché or other suitable material *g*, by preference, about two inches thick and approximately the same shape in plan or nearly so as that of the pile. For more effectually retaining the washer *g* in position, the plate or the arms may be recessed or the arms may be joined or connected to each other by depending flanges *a'*, see Figs. 5 and 6.

With a helmet made as aforesaid, and its over-all length from the bottom face of the plate to the top of the "dolly" not exceeding, say, a foot, or not exceeding two feet six inches including the arms, a very compact construction of helmet is obtained. Further, the weight as compared with that of the ordinary helmet is considerably reduced which enables the helmet to be handled manually instead of by machinery, and also to be transported by rail at less cost than the ordinary helmet. The gage bolt

is also rendered unnecessary. And by the use of a wood washer *g* in place of sawdust, the trouble of repeatedly renewing the sawdust is done away with. A further advantage is that by shortening the helmet and "dolly" it enables the ordinary machine for driving piles to be used for driving piles of greater variety in length than heretofore.

The arms *c* will preferably be wider where they join the plate than at the lower ends, and the flange above the plate and the arms will be stiffened by webs or ridges *b'*.

What I claim is:—

1. A helmet for use in driving reinforced concrete piles, comprising a stout steel plate, arms and lugs depending from said plate and designed to lie alongside two diametrically opposite sides of the pile, an annular flange rising from the top face of said plate, and forming a socket, a short wooden "dolly" or block fitting the said socket, the "dolly" and flange being tapered substantially as set forth.

2. A helmet for use in driving reinforced concrete piles, comprising a stout steel plate with two depending arms at points diametrically opposite each other, and each arm slotted near its free end, two shorter arms or lugs depending from said plate and loops or rings for enabling the helmet to be lifted on to and off from the pile, or for lifting, slinging and pitching the pile in position with the helmet in position ready for driving, the plate, arms, flanges and loops being all formed solid with each other, as set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GERVASE WATSON CRAWSHAW.

Witnesses:

P. D. BAILEY,

F. C. PENNINGTON.