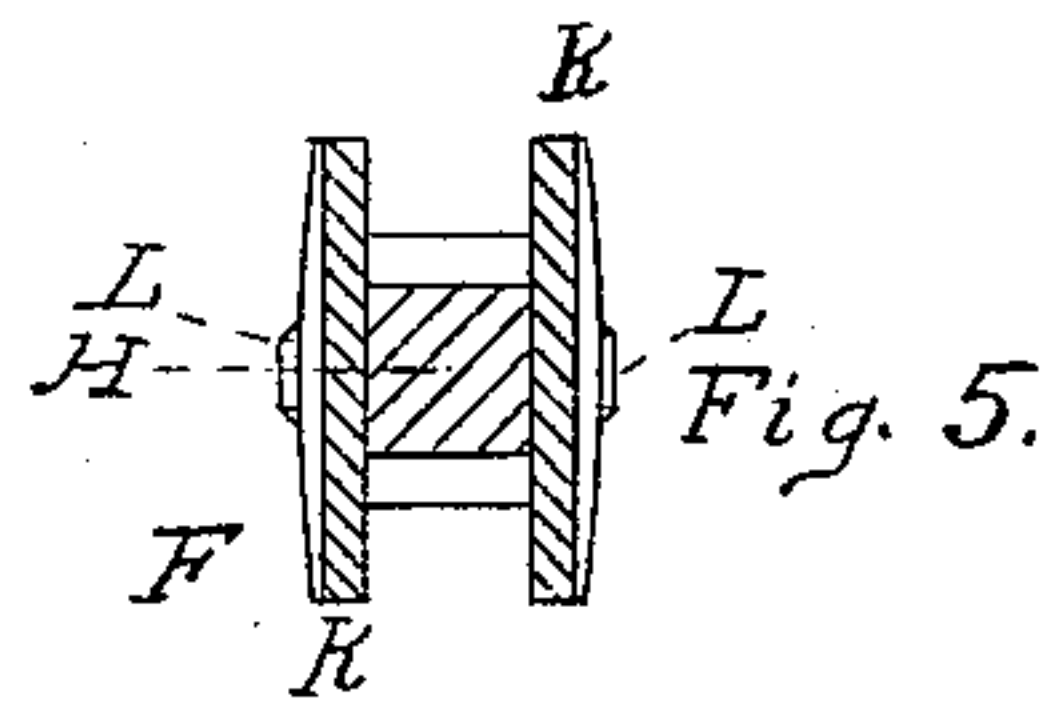
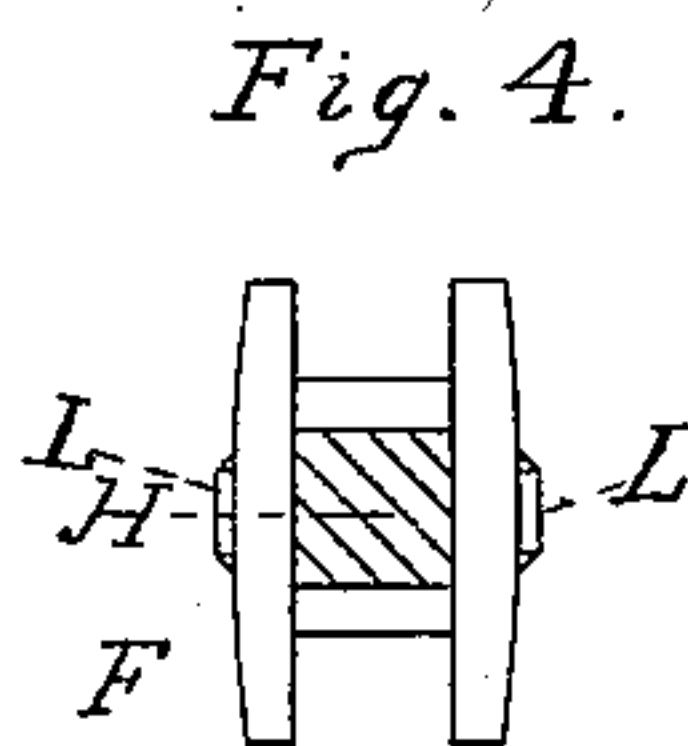
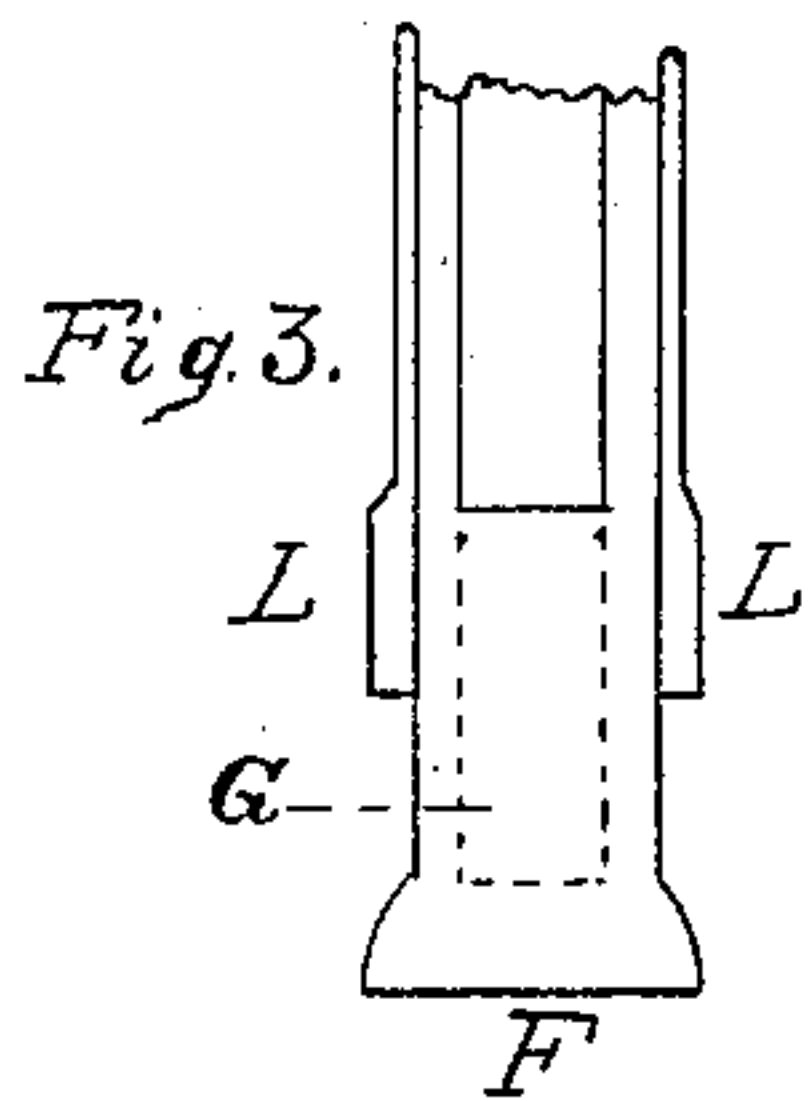
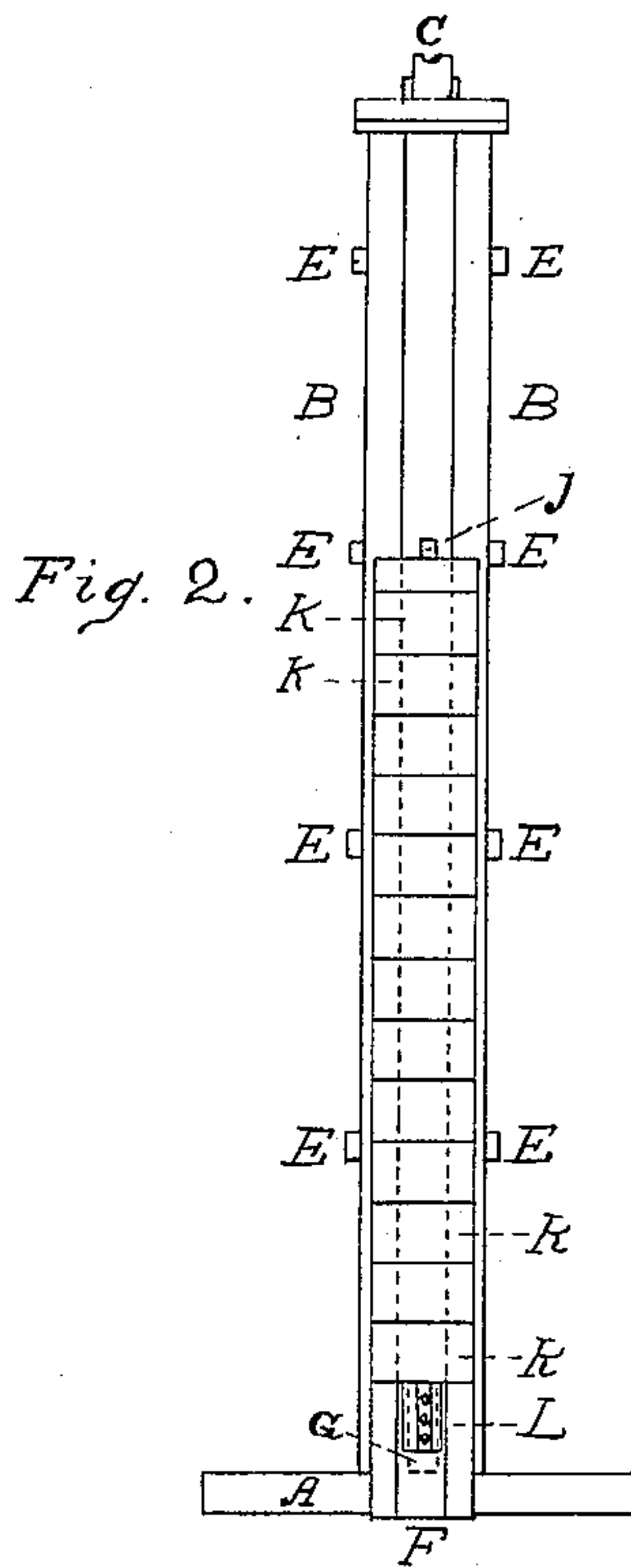
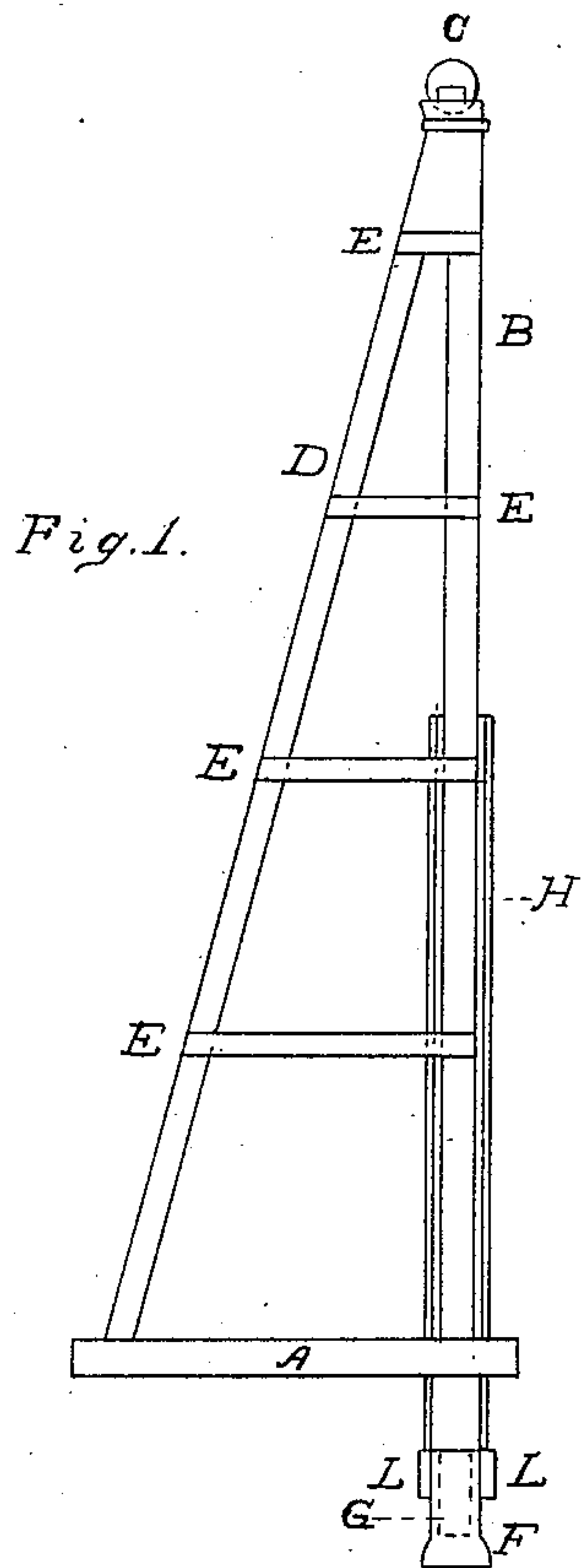


(No Model.)

H. SIAS.
PILE DRIVER HAMMER GUIDE.

No. 438,899.

Patented Oct. 21, 1890.



WITNESSES:

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HORACE SIAS, OF BOSTON, MASSACHUSETTS.

PILE-DRIVER-HAMMER GUIDE.

SPECIFICATION forming part of Letters Patent No. 438,899, dated October 21, 1890.

Application filed May 5, 1890. Serial No. 350,685. (No model.)

To all whom it may concern:

Be it known that I, HORACE SIAS, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Pile-Driver-Hammer Guide, of which the following is a specification.

The nature of my invention is that of attaching to the upper end of the hammer of an ordinary pile-driver a staff or handle or guide of wood or metal, extending a greater or less distance upward between the "ginns," or pair of upright hammer-guides, and bearing a staple or shackle or other means for attaching the hammer-lifting rope or chain thereto; and the object is to enable the hammer when it has reached the "bed-piece," or bottom of the ginns, to pass below and beyond this point and still continue to strike the top of the pile in process of being driven, although the top of the said pile may be ten or fifteen (more or less) feet below the bed-piece of the pile-driver, thus avoiding the alternative of using an unnecessary length of timber, now necessarily cut off after the piles are driven, and thus wasted.

In the drawings, Figure 1 is a side view of my pile-driver with the hammer in the state of having passed below the bed-piece a portion of the distance down which it is possible for it to pass. Fig. 2 is a front view of the same with the hammer lowered as far as it has generally hitherto been customary to lower it. Figs. 3, 4, and 5 are on a scale of twice the size of the scales in Figs. 1 and 2. Fig. 3 is an enlarged side view of the hammer as shown in Fig. 1. Fig. 4 is a horizontal cross-sectional view of the hammer at a line which may be supposed to be drawn from center to center of the letters L L in Fig. 1. Fig. 5 is a similar cross-section above the hammer, whose grained side portions show the hammer-holder guides K K, as hereinafter more particularly explained.

In the drawings, A, Fig. 1, is the bed-piece or bottom of the pile-driver, made in the usual manner and consisting of a rectangularly-disposed frame of two side beams and two cross ones, with the addition of a rod of iron crossing the frame.

B B, Fig. 2, is a pair of upright wooden standards, called the "ginns" or "guides," proceed-

ing perpendicularly up from the bed-piece and bearing at their tops a small scaffold or cap, consisting of a piece of plank, on which is placed a sheave-wheel C in appropriate bearings, over which wheel passes the rope or chain (not represented) which raises the hammer. From the top end of these standards B B proceed diagonally downward a pair of pieces of timber or joists D, Fig. 1, called the "ladder." This reaches to the bed-piece A, to which it is firmly attached. The ladder is also held to the standards by braces, or, as commonly called, "guards," E E E E, Fig. 1, fastened, respectively, on each side of the standards B B. (See Fig. 2.) Pieces of sawed board (not represented) are attached to the pieces D, respectively passing horizontally from one to the other of the pair at convenient distances, thus forming a ladder by which the sheave-wheel C may at any time be reached. The part of the combination of devices which is specially of my own invention is now to be described.

F in all the figures is the hammer.

In Figs. 1, 2, and 3 dashed lines show the course of a square hole G, whose axis is coincident with that of the hammer, which hole, open at its top, proceeds downward to the distance of about three-fourths (more or less) the length of the hammer. A solid mass of metal is below it. Into this hole G passes the lower end of a piece of timber (sometimes I make it of metal in one or more pieces) H, called the "hammer-holder," which timber or metal piece or pieces are firmly fastened to the hammer. This proceeds, in Fig. 1, upward between the ginns B B, say, to the height, when the ginns B B are thirty feet in length, of eighteen feet, (I sometimes make the length more and sometimes less,) where it carries a staple or iron loop J, Fig. 2, called the "rope-staple," to which the rope or chain (not represented) which raises the hammer and the hammer-holder H is attached, the rope passing thence over the sheave-wheel C and thence down toward the ground to the crank or the steam-engine drum which actuates it. On the front and rear sides of the hammer-holder H are fastened short pieces of wood or of metal K K, which are called the "hammer-holder guides." Beneath these hammer-holder guides passes a bar of iron L L, Figs. 1 and 3, which

is fastened, as seen in Fig. 3, to one side of the hammer F, passes up one side of the hammer-holder H, over the top, where it forms the rope-staple J, Fig. 2, then down the other side 5 of the hammer-holder to the hammer F, as seen in Fig. 3, where it is again firmly fastened.

Operation: The motive power being duly ready for operation, the hammer-hoisting rope is passed from the rope-coiling device over 10 the sheave-wheel C, down to the rope-staple J, where it is firmly attached, and the raising and alternate fall of the hammer-holder H, with the hammer F at its lower end, is effected in the usual manner. The pile-driver is sup- 15 posed to have been erected over a deep trench, straddled by the temporary supports of the pile-driver. It is desired to have the piles when driven reach only to the surface of the bottom of the trench. By the old mode of 20 driving the piles would be hammered down until their tops were level with the lower surface of the bed-piece or bottom piece of the pile-driver, and the tops of the piles would then be sawed off at the desired level. These 25 sawed-off tops, having parted with their chief value as lengthening the piles, are compara-

tively worthless; but with my hammer-holder, when the top of the pile has got down to the level of the bottom of the pile-driver, I still continue hammering and the pile continues 30 to descend or be driven until when the length of the hammer-holder is, as mentioned above, eighteen feet, my hammer continues to be efficacious when the top of the pile is sixteen feet below the bottom of the pile-driver. 35

I claim—

The combination, with a pile-driver, of a hammer built up and lengthened from its upper end by means of a projection passing and sliding between the guides, to which said 40 projection is held by side pieces or hammer-holder guides, and which enables the hammer to pass below the bed-piece of the pile-driver and to operate, while a portion of the upper part of the projection is retained between the 45 guides, all substantially as described and shown.

HORACE SIAS.

Witnesses:

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