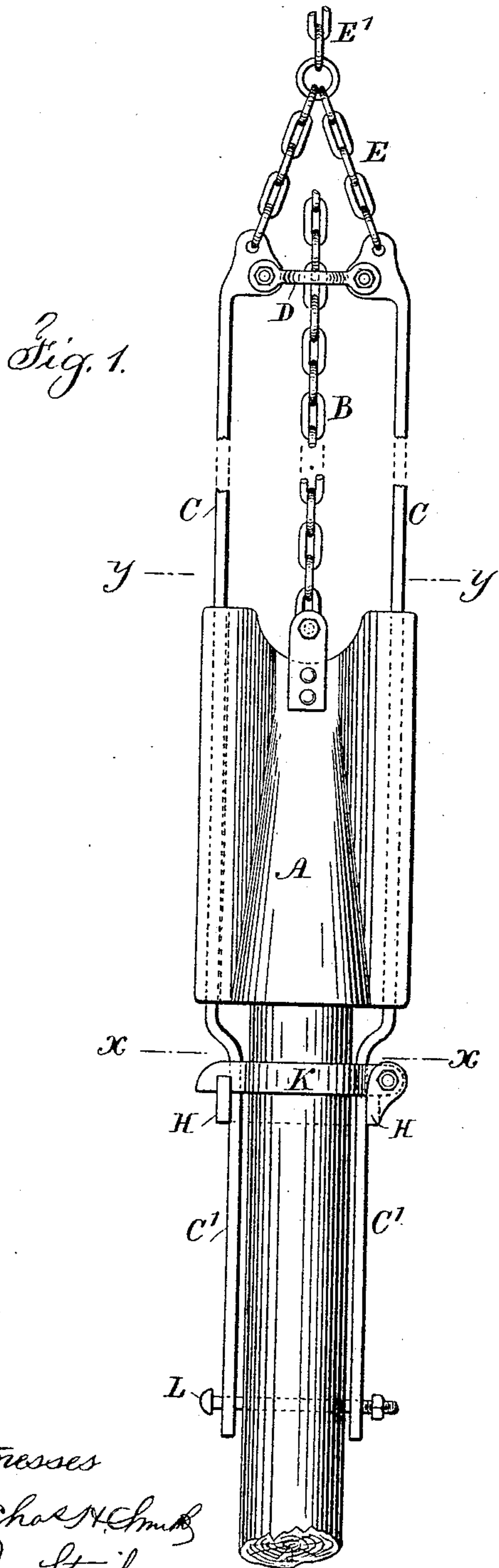


(No Model.)

C. McDERMOTT.  
PILE DRIVING APPARATUS.

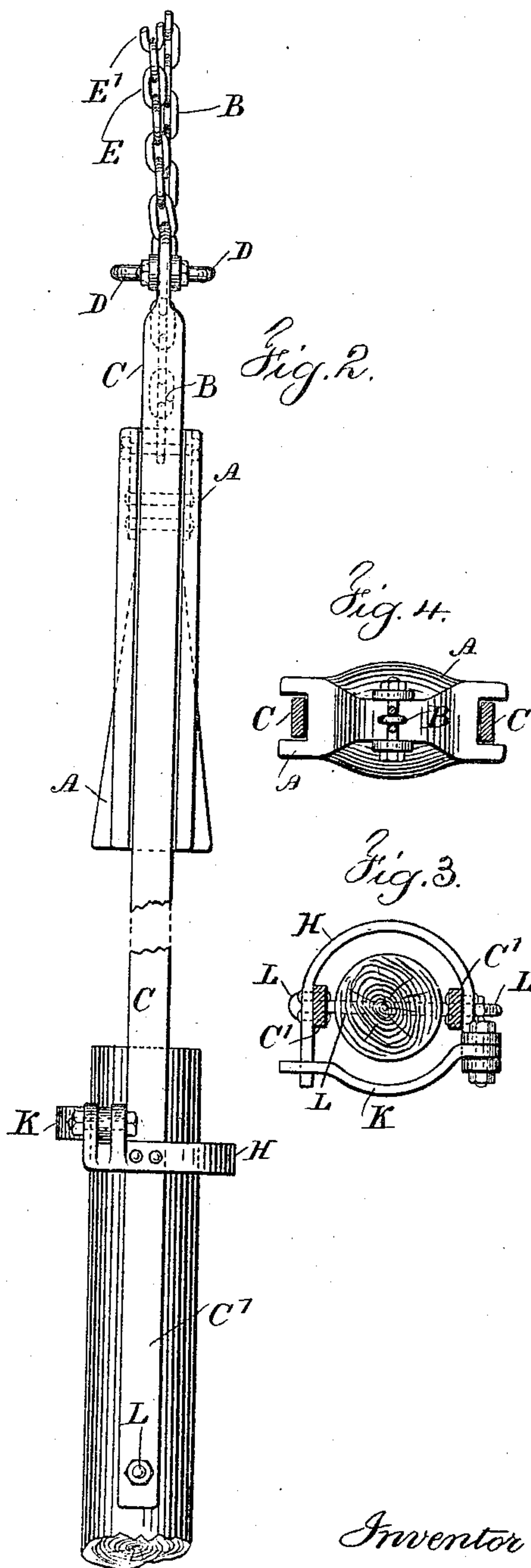
No. 529,293.

Patented Nov. 13, 1894.

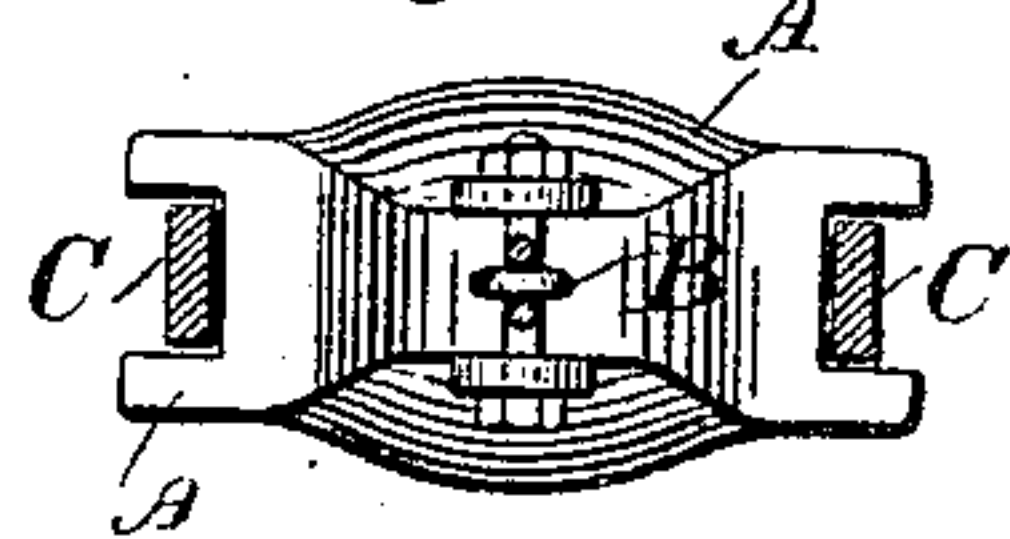


Witnesses

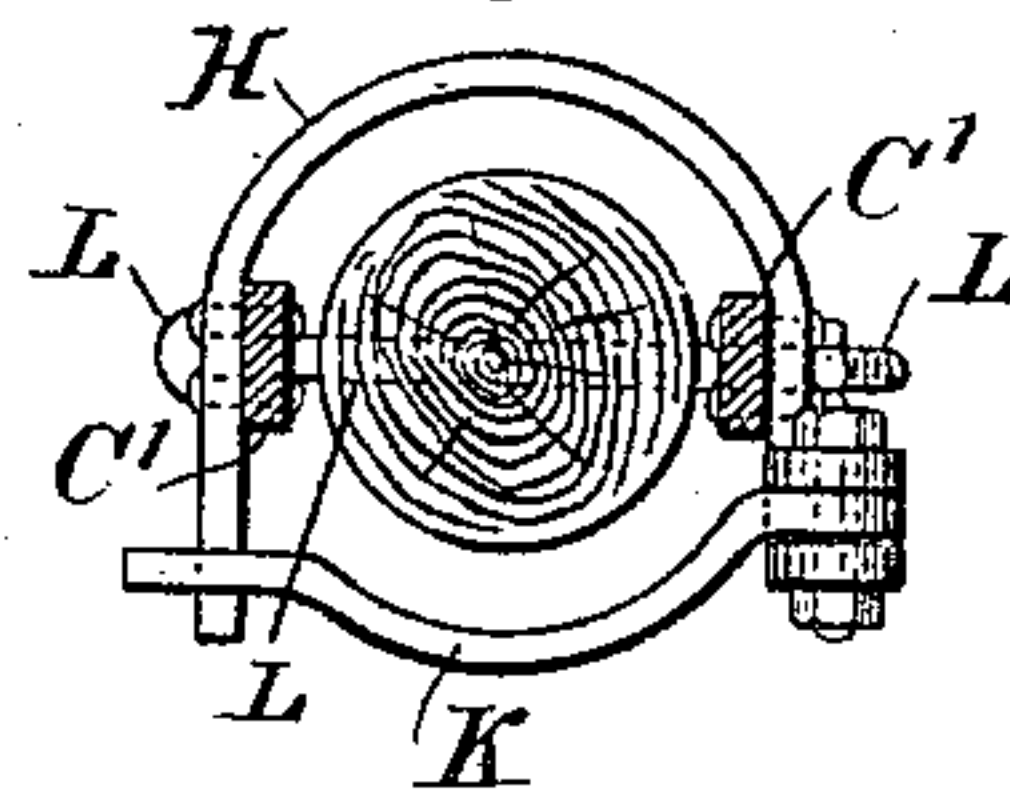
Chas. H. Smith  
J. Staib



*Fig. 4.*



*Fig. 3.*



Inventor

Charles McDermott  
per Lemuel W. Perrell  
Atty.



# UNITED STATES PATENT OFFICE.

CHARLES McDERMOTT, OF NEW YORK, N. Y., ASSIGNOR TO STEWARD & McDERMOTT, OF SAME PLACE.

## PILE-DRIVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 529,293, dated November 13, 1894.

Application filed July 5, 1894. Serial No. 516,552. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES McDERMOTT, a citizen of the United States, residing in the city, county, and State of New York, have invented an Improvement in Pile-Driving Apparatus, of which the following is a specification.

In driving piles, especially sheet piling for coffer-dams and similar structures, difficulty has been experienced in the use of the ordinary pile driver because of the difficulty of moving such pile driver into exactly the position required for driving the pile, but in excavations and masonry it is common to make use of a swinging boom connected to a vertical mast with means for moving the hoisting sheave upon the boom either outwardly or inwardly so as to bring such hoisting sheave at any desired place within the circle described by the outer end of the boom.

My present invention relates to a pile driver that is adapted to be connected to a pile, so that the pile driver and pile can be raised by the hoisting apparatus connected with any ordinary boom or similar device and brought to the position where the pile is to be inserted. The pile driver and pile are then lowered to position and may be steadied by guy-ropes while the pile is being driven, and the mechanism connected with the boom for drawing up the pile and pile driver into position is also employed for operating the hammer of the pile driver.

In carrying out this improvement it is only necessary to employ an ordinary pile driver hammer to which a chain or rope is connected and slideways for the hammer which are connected together at the upper end with an opening through which the chain or rope for the hammer passes, and to which slides a sling connected to the second hoisting rope or chain. The lower ends of the slides are extended downwardly as straps perforated near the lower ends for the passage of a bolt which is loosely introduced through a hole in the pile, and there is a band that can be opened or closed for holding the upper end of the pile between the straps, so that the hammer and its slides can be moved by the derrick or boom to the place where the pile may be lying, there being a hole through the pile near

its upper end, and the bolt is introduced through the lower ends of the strap and through the hole in the pile, and the apparatus is drawn up, carrying the pile driver and pile so that they are transferred to the place where the pile is to be driven and lowered into position. The rope or chain leading to the hammer is manipulated by the hoisting apparatus to raise the hammer, and the slides of the pile driver go down along with the pile as the pile is driven until it has reached the required depth, after which the apparatus is disconnected and another pile is operated upon.

In the drawings, Figure 1 is an elevation of the pile driving apparatus connected with the top end of the pile. Fig. 2 is an elevation at right angles to Fig. 1. Fig. 3 is a sectional plan at the line  $x x$ . Fig. 4 is a sectional plan at the line  $y y$ .

The hammer A is to be of any suitable size and character, and to its upper end the hoisting chain or rope B is connected. The edges of the hammer A are grooved for the reception of the slides C C which are parallel and are connected at their upper ends by the links D between which the rope or chain B passes. The sling E is connected at its lower ends to the eyes at the upper ends of the slides C, and a rope or chain passes from the sling E to the hoisting apparatus, and the movements of the pile driving device are regulated by the said hoisting rope or chain B and the rope or chain E' to the sling E.

The lower ends of the slides C are formed as straps C' at a distance apart adapted to receive between them the round or square pile or a thick board adapted to sheet piling. The straps C' are connected by the band H which is open at one side and provided with a swinging latch or retaining bar K which can be turned back to allow the upper end of the pile to be received into place, or such latch or retaining bar may be turned down for holding the pile in place. Near the lower ends of the straps C' are holes for the passage of the bolt or rod L; and it is now to be understood that a hole is to be bored through the pile at the proper distance from the upper end, and the boom, derrick or other hoisting apparatus is swung around with the pile



driver and its appliances to the proper position so that the pile driver is lowered and the bolt L passed through the straps and through the upper end of the pile, and as the pile and driving apparatus are raised by drawing upon the ropes or chains B and E', the pile assumes a vertical position and its upper end passes in below the hammer A, such hammer at that time being elevated as shown in Fig. 2, in consequence of lifting upon the chain B. Then the latch or retaining bar K is turned down to position and the pile is moved by the boom or derrick to the place where it is to be driven, and then the chains B and E' are slackened to lower the pile and pile driver so that the pile is pressed down to the extent that results from the weight of the hammer A. Then the hammer A is to be raised between the slides C and dropped so that it strikes upon the top end of the pile and drives the same, and at this time the chain E' is to be sufficiently slack to allow for the pile and the slides going down together as the pile is struck by the hammer. The hammer is to be alternately raised and dropped until the pile has been driven to the proper depth, after which the bolt L is withdrawn and the apparatus again employed as before for raising and transferring the pile to the proper position and driving the same.

In driving sheet piling it is usually advantageous to have the straps C and C' sufficiently near together to adapt them to the thickness of the heavy plank forming the sheet pile, so that the hole for the bolt L may pass through the sheet pile in the narrowest direction, and the straps C and C' will not intervene between one pile and the next, as in

driving sheet piles it is usually necessary to bring the heavy planks closely edge to edge. 40

I claim as my invention—

1. The combination with the hammer in a pile driving apparatus and its hoisting rope, or chain, of slides for the hammer, having downward extensions and means for connecting the pile and slides for movement thereof together both horizontally and laterally, substantially as set forth. 45

2. The combination with a hammer and its actuating chain or rope, of slides for guiding the hammer, straps extending downwardly from the slides and perforated and a bolt passing through the perforations and through the pile to be driven for connecting the pile driving apparatus to the pile previous to transferring the pile to the place where it is to be driven, and a sling and its chain or rope extending upwardly from the top ends of the slides, substantially as set forth. 50

3. In a pile driving apparatus, a hammer grooved on its edges, slides in the grooves of the hammer united at their upper ends and a sling and chain, an actuating chain or rope for the hammer, downwardly extending straps from the lower ends of the slides, a bolt or pin passing through the straps and through the pile to be driven, a band connecting the slides near the upper end of the pile, and a movable latch or retaining bar for closing around the pile at the band, substantially as set forth. 55

Signed by me this 29th day of June, 1894. 60

CHAS. McDERMOTT.

Witnesses:

GEORGE W. OAKLEY,  
GEO. M. CUSHING.