

No. 736,452.

PATENTED AUG. 18, 1903.

N. SIMONSON.
PILE DRIVER.

APPLICATION FILED APR. 22, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

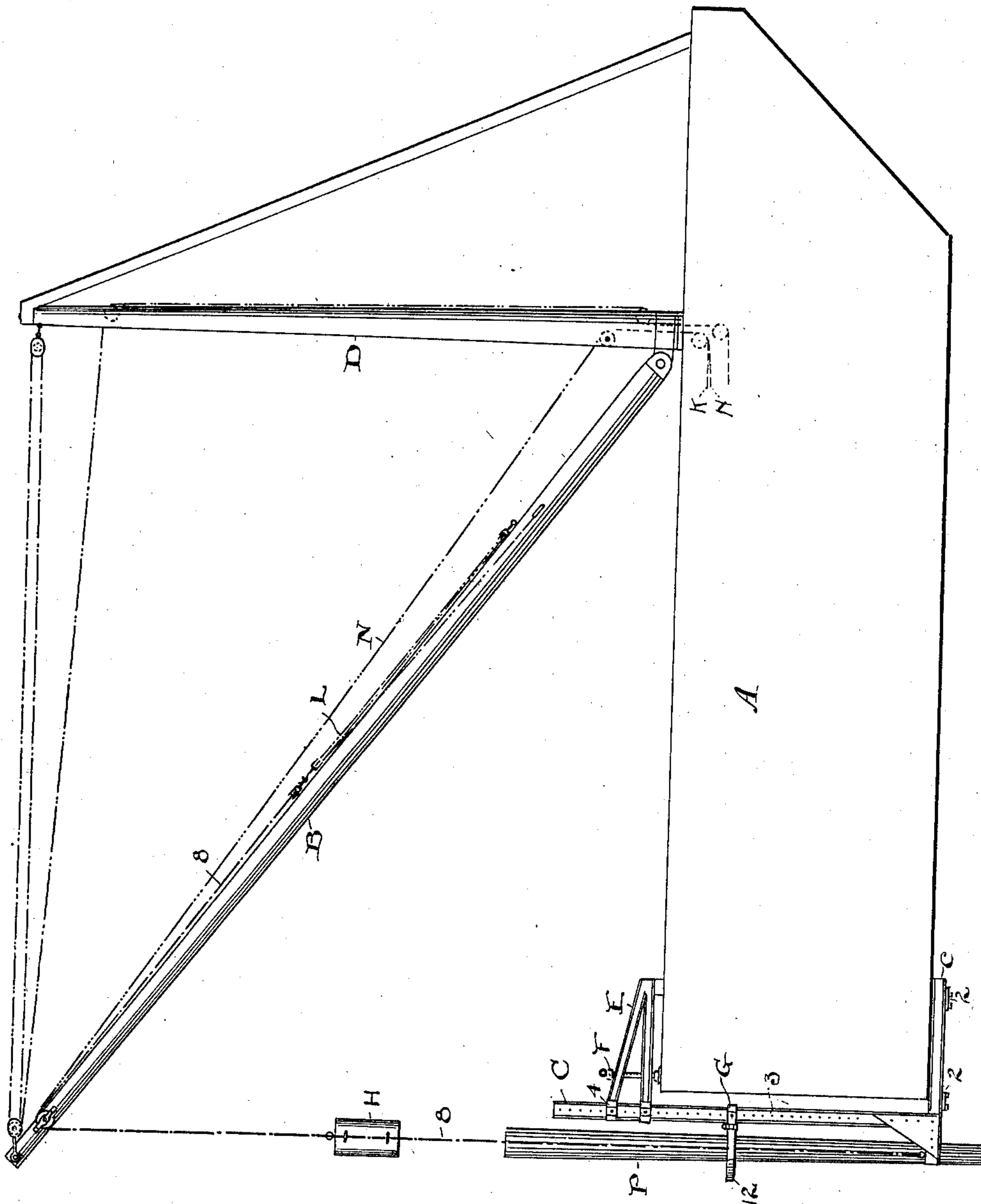


FIG. 1.

ATTEST

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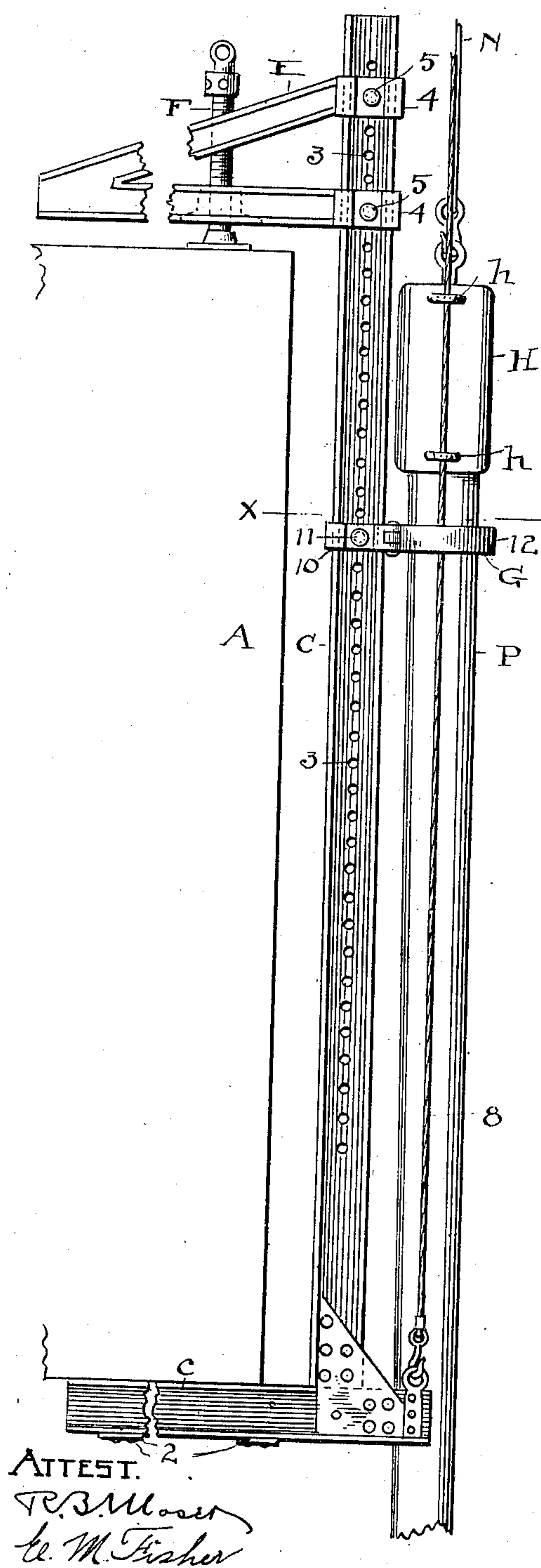
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3 SHEETS—SHEET 2.

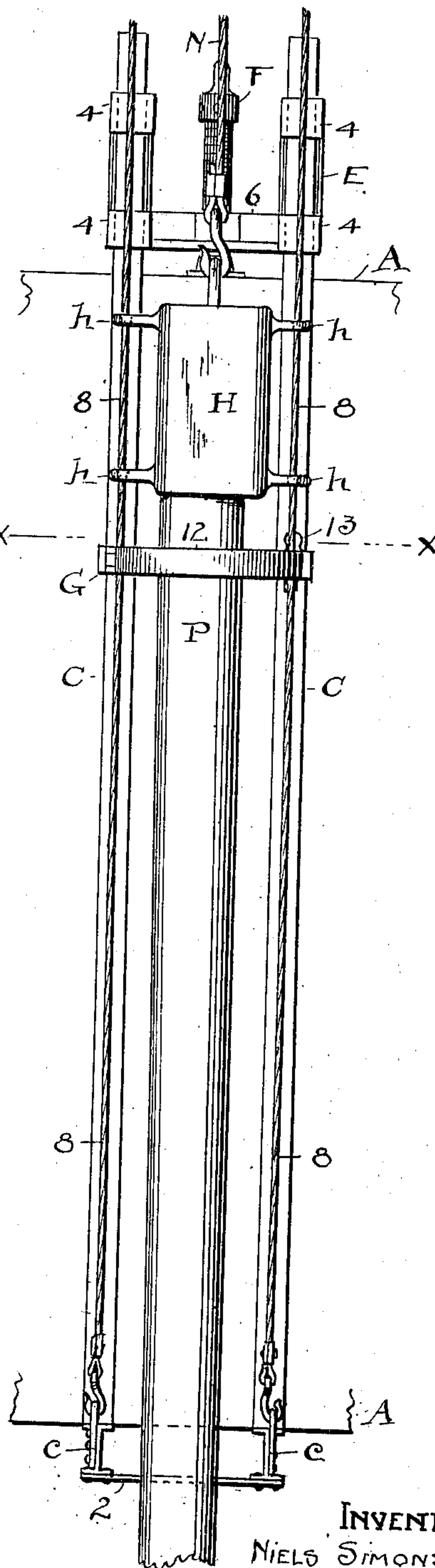
FIG. 2.

Fig. 3.



ATTEST.

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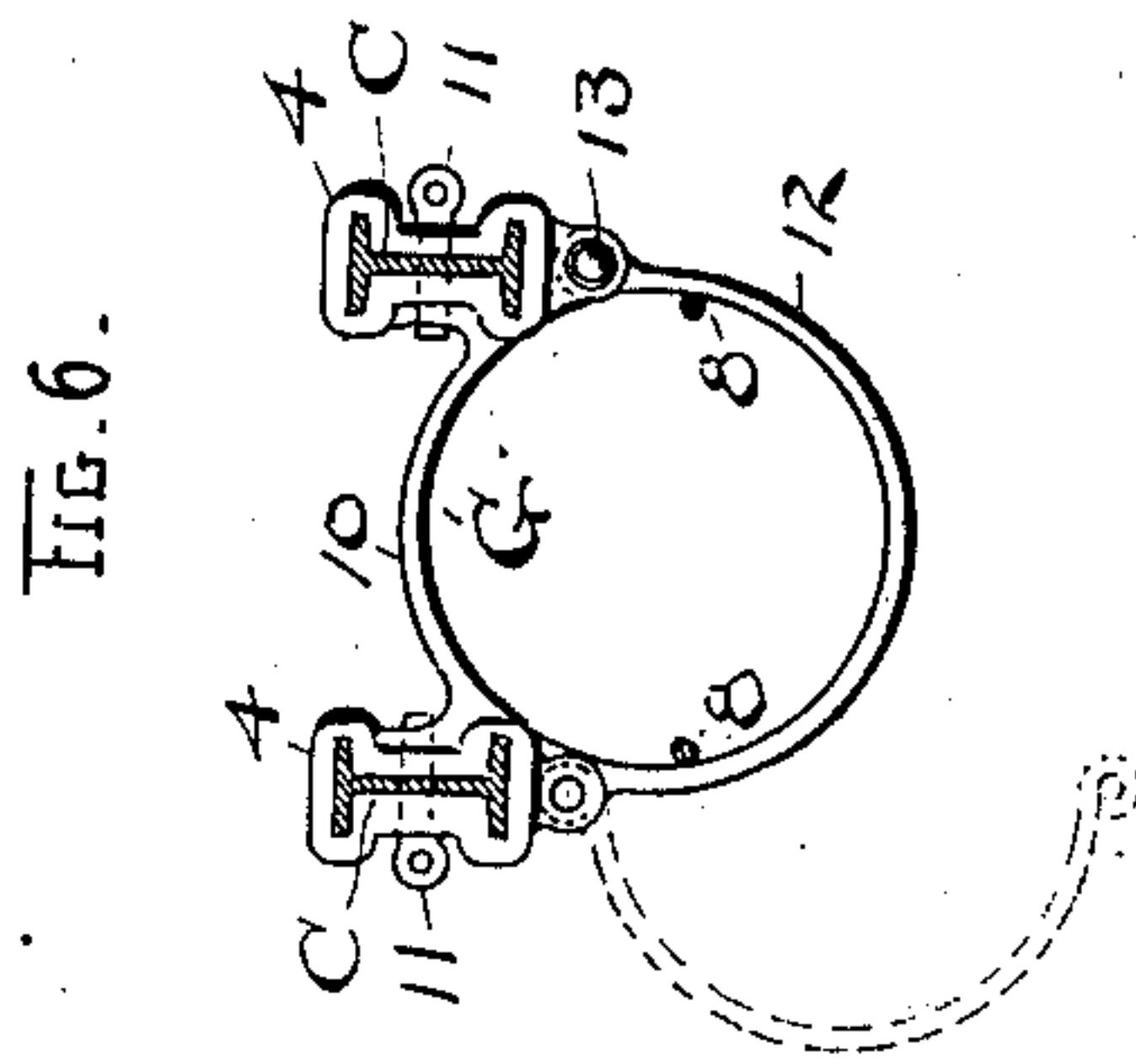
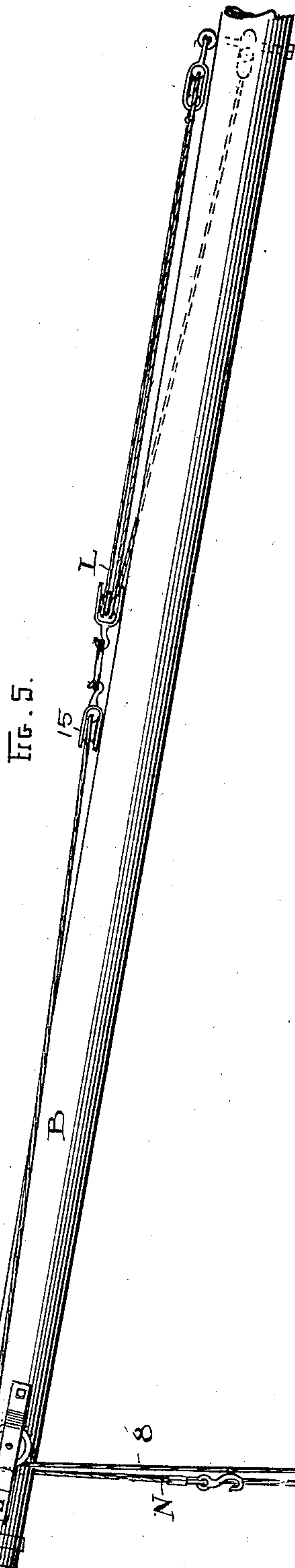
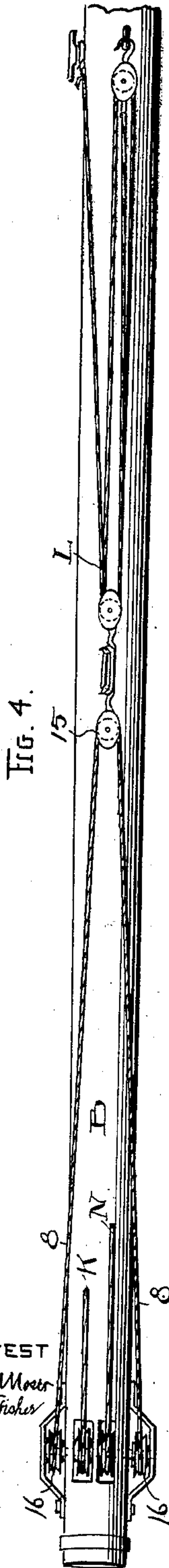
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3 SHEETS—SHEET 3.



ATTEST
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& M. Fisher

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ATTY

UNITED STATES PATENT OFFICE.

NIELS SIMONSON, OF CLEVELAND, OHIO.

PILE-DRIVER.

SPECIFICATION forming part of Letters Patent No. 736,452, dated August 18, 1903.

Application filed April 22, 1903. Serial No. 153,850. (No model.)

To all whom it may concern:

Be it known that I, NIELS SIMONSON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Pile-Drivers; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to pile-drivers; and the invention consists in the construction and combination of parts substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved mechanism as it appears in operation on a scow or barge. Fig. 2 is an enlarged elevation of the immediate front of a scow and of the attachment directly connected therewith, and Fig. 3 is a front elevation of the attachment seen in Fig. 1. Fig. 4 is a plan view of the boom or arm of the derrick and the sheaves, cables, and other parts thereon; and Fig. 5 is a side elevation of the parts and means shown in Fig. 4 with means for handling the piles attached thereto. Fig. 6 is a plan view of the guide or guiding device for the piles looking down from line *xx*, Fig. 3.

The present invention is an improvement on the pile-driving mechanism set forth and claimed in my Letters Patent of the United States issued July 4, 1899, and numbered 628,128, and the invention comprises several material changes in view of the said patent, as will be seen in the drawings and description. Thus A represents a scow or boat, referred to as a "vessel" in general terms, and in which I erect a derrick with a boom B and an upright mast or shaft D, carrying the boom much as usual, and the operations are carried on from or over the end of the boom, as heretofore.

In the old construction I required a guiding-frame for the piles to be built or erected in the place where the piles were to be driven, so as to steady and guide the same and afford a grip for the guide-lines, and such frame generally consisted of suitable stakes or piles driven firmly into the bottom of the lake or water-bed, and which was expensive to pro-

duce and unsatisfactory when done. In my present invention I have entirely dispensed with this temporary framework and have substituted an attachment directly to the scow or boat. This attachment, as shown herein, comprises two bars or beams C, referred to also as "uprights," which stand in a vertical position and constitute part of a rigid frame, which is secured to the scow by means of arms c, rigid with the lower ends or portions of beams C and adapted to reach and hold under or against the bottom of the scow. These arms are rigidly connected by one or more cross-pieces 2. A double-armed clamping device E is engaged with the upper ends of beams or uprights C and serves as a medium for engaging the attachment as a whole to the scow or vessel. Any suitable form or construction may be given to this device E. The said beams or uprights C are in this instance I-beams, with holes 3 transversely through the same at regular intervals through a portion of their length, and clamp E at the top of the scow is provided with eyes 4, sleeved loosely on beams C to slide up and down thereon and have holes for fastening pins or bolts 5 through said holes 3 to firmly engage the clamp on said beams. Then the clamp itself is fastened and beams C are firmly engaged on the scow by screw F. A cross piece or part 6 between the sides of clamp E serves for engaging screw F therewith. This attachment as a whole may be moved to the sides or to the rear of the vessel and is a new article of manufacture and use in itself. The rigid lower arms c or portions thereof project outward beyond the point of attachment to posts or beams C, and guide-lines 8 for hammer H are secured to these outer extremities. This connection is best made before the attachment as a whole is swung into working position on the vessel, because the lower part of the vessel is liable to become submerged to a considerable depth in the water. To swing the said attachment to one position or another on the vessel, a special lift-line K is provided for that purpose, and the same line is used to swing the pile in position.

G represents a holder or confining medium for the pile P. Its construction is made clear in Fig. 6, where it is shown as having a main curved part 10, slidably and adjustably sup-

ported at its ends on uprights or posts C by bolts 11, and a curved gate 12 at its front, hinged on part 10 and temporarily secured at its other end by bolt 13 or the like. Hinging is better than bodily removing the gate, because it prevents losing the gate off in the water, and the pile is most easily swung into position with an open gate. Altogether by the foregoing construction I obtain a pile holding and guiding device G which can be readily adjusted to any desired elevation on its support, according as piles are to be driven in respect to the surface of the water, and the said device is readily changed from one elevation to another and can be placed exactly where wanted. It also becomes a permanent member of the attachment and goes with it to the trade and its use.

Hammer H has ears *h*, top and bottom, slideable on guide or line wires 8, and these wires are stretched and held tight by means of a rope-and-tackle mechanism L, located back on the top of boom B and engaged with said wires or wire 8 by a tackle-block 15 with a sheave therein. The wires 8 are, in fact, a single strand of wire or like suitable cable or cord running over said sheave 15 and sheaves 16 at the sides and end of boom B and has its ends fastened to or upon the arms *c* at the bottom of the scow. With this arrangement of wire or cord 8 it can be uniformly stretched at both its sides where it is engaged by hammer H, but which is impossible when two separate wires are used, as in my original construction. If tightening is required, it is easily done through the tackle mechanism L. The hammer is controlled by cable N through suitable means. (Not shown.)

Any suitable tightening means for line-wire 8 may be used in lieu of the rope-and-tackle mechanism shown.

Obviously the attachment herein shown and described may need modification in one respect or another for its adaptation to vessels of different kinds, assuming that a flat-bottomed vessel like the one shown is not always available, and the invention is understood to be as broad as such adaptations.

What I claim is—

1. In pile-driving mechanism, an attachment adapted to be affixed to a vessel, comprising an upright member, means connected therewith to engage the bottom and top of the vessel, and a pile-guide on said member, substantially as described.

2. The attachment for vessels to be used in driving piles comprising an upright member, means on said member to rigidly fix the same upon a vessel, and a vertically-adjustable pile-guide on said upright member, substantially as described.

3. The attachment herein described comprising

a set of parallel uprights, means rigid with the lower portion of said uprights to engage beneath a vessel, and tightening mechanism on said uprights to engage the same with the top of a vessel, substantially as described.

4. The attachment substantially as described comprising a pair of uprights and means to fix the same rigidly upon a vessel, top and bottom, and a guide for a pile engaged adjustably on said uprights, substantially as described.

5. The attachment consisting of a pair of uprights provided with transverse perforations between their ends, an extension rigid with said uprights to engage under a vessel, a clamping device for said uprights adapted to bear upon the top of the vessel, and a guide for the pile adjustable in said perforations, substantially as described.

6. A pile-guiding attachment constructed to be removably supported upon a vessel, in combination with a derrick and guide-lines fixed to said attachment and stretched over said derrick, substantially as described.

7. In pile-driving mechanism, a vessel and a derrick thereon, a pile-guiding device on said vessel, and guide-lines for a hammer engaged with the lower portion of said attachment and stretched over the said derrick and a hammer on said lines, substantially as described.

8. In pile-driving mechanism, a derrick provided with a boom in combination with a guide-line for a hammer, an attachment on the vessel with which the ends of said line are connected, a block and a sheave therein over which the said guide-line is free to run, and means to tighten said wire connected with said block, substantially as described.

9. In pile-driving mechanism, means to guide a pile comprising a support and a guiding device for a pile thereon having a hinged gate adapted to swing open and receive the pile, substantially as described.

10. The attachment substantially as described comprising uprights and means to secure the same to a vessel, and a pile-guide adjustably fixed on said uprights and having a gate at its front, substantially as described.

11. The guide mechanism for a pile comprising a suitable support and a two-part guide thereon, one of said parts adjustable up and down on said support and the other part hinged to swing open and shut, substantially as described.

Witness my hand to the foregoing specification this 4th day of April, 1903.

NIELS SIMONSON.

Witnesses:

R. B. MOSER,
R. ZBORINK.