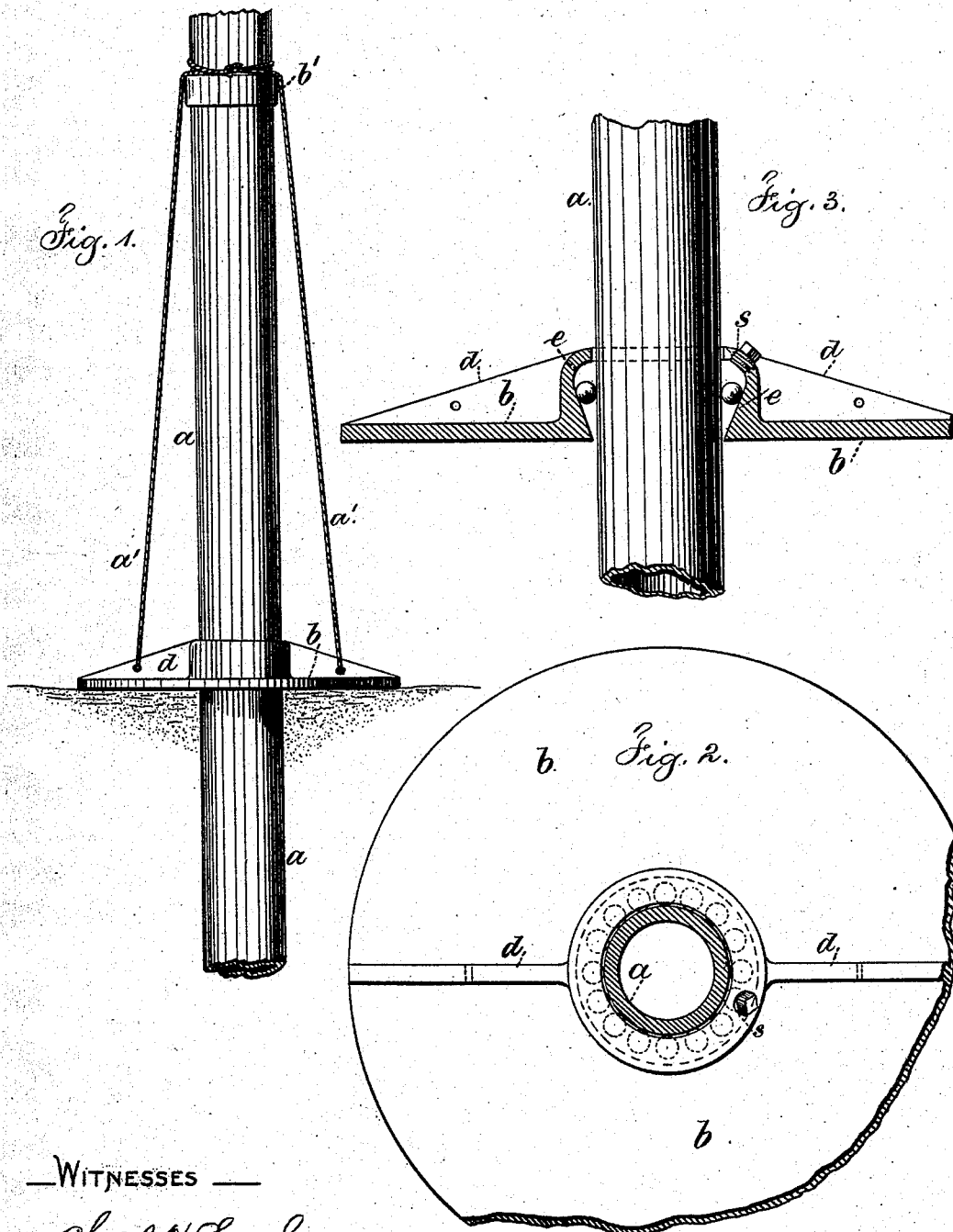


H. CARLEY & J. JOHNSON.
Bearing-Plate for Piles.

No. 219,618.

Patented Sept. 16, 1879.



—WITNESSES—

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—INVENTORS—

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UNITED STATES PATENT OFFICE.

HARVEY CARLEY, OF LONG BRANCH, NEW JERSEY, AND JOB JOHNSON, OF BROOKLYN, NEW YORK, ASSIGNORS TO SAID JOHNSON.

IMPROVEMENT IN BEARING-PLATES FOR PILES.

Specification forming part of Letters Patent No. **219,618**, dated September 16, 1879; application filed May 5, 1879.

To all whom it may concern:

Be it known that we, HARVEY CARLEY, of Long Branch, in the State of New Jersey, and JOB JOHNSON, of Brooklyn, in the State of New York, have invented an Improvement in Bearing-Plates for Piles, of which the following is a specification.

In driving piles into sand under exposure to the action of waves there is difficulty in maintaining the pile in the proper position. Sometimes the pile itself sinks, because of the loosening of the same under the agitation of the water, and the weight of the pile displacing the sand. Beneath a close and dense sand there is sometimes soft mud, and the pile will suddenly drop when the same penetrates through the sand. If the pile is supported by bearing-plates upon the sand there is risk of the sand washing away beneath such plate and allowing the structure to settle where such wash takes place.

Our invention is made for furnishing a bearing upon the surface of the sand or other material under the water, whereby the pile will be supported, and the bearing-plate may sink from time to time without losing its power to support the pile in its original position.

In the drawings, Figure 1 is an elevation of the pile and its bearing-plate. Fig. 2 is a plan of said bearing-plate; and Fig. 3 is a section of the bearing-plate and pile.

The pile will usually be a metal tube; but it may be a solid bar. It is to be provided with a point of any desired character.

The bearing-plate *b* is to be of a size and character adapted to the surface upon which it is to rest. It has an opening through the center for the pile *a*, and it is strengthened by ribs *d*, having holes through them for the reception of ropes or chains *a'*, by which the bearing-plate is supported from the top of the pile or from a collar, *b'*, while the said pile is being driven to its place. The hole in this bearing-plate through which the pile passes is larger than the pile, so that the plate is free to rest upon the surface of the sand; and there is a central hub of sufficient thickness at the portion of the plate surrounding the

pile for a cavity to be made around the pile within said bearing-plate, said cavity having an inclined or inverted conical surface at *e*, and upon this surface there rests a group of balls, that, by preference, are made of steel or gun-metal, and these run down the inclined surface and remain in contact with the surface of the pile.

After the pile has been driven the bearing-plate can be lowered to and rest upon the sand or other material into which the pile is driven, and the bearing-plate can sink from time to time according to the surface of the sand, because the balls are loosened by their contact with the pile, tending to roll them upwardly into the larger portion of the cavity; but if at any time the pile tends to sink, it cannot do so without carrying the bearing-plate down with it, because the downward pressure of the pile tends to roll the balls down into a narrower portion of the recess in the plate and clamp the pile as firmly as it would by bolts and nuts.

By this device we are enabled to prevent the pile sinking; but the bearing-plate may sink from time to time if its support is washed away.

Two or more of these bearing-plates may be used with the same pile if they sink into the sand. We remark that the efficiency of the bearing-plate is not injured should the cavity become filled with sand, because the balls will operate with a very slight movement in either direction.

There is an opening at *s* for the insertion of the balls after the bearing-plate is around the pile. This hole may be plugged up. The bearing-plate may be made in two parts, bolted together around the pile.

We claim as our invention—

1. The combination, with a pile, of a bearing-plate containing a cavity around the pile, and balls within said cavity acting to support the pile, or to allow the plate to descend, substantially as set forth.

2. In combination with a metal pile and a bearing-plate surrounding the same, the balls, or their equivalents, to grasp and hold the

pile, but allow the plate to descend and rest upon sand or material into which the pile passes, substantially as set forth.

3. The bearing-plate *b*, having a recess surrounding the pile and an inclined surface for the balls, and provided with an opening for the insertion of said balls, substantially as set forth.

4. The bearing-plate having a central opening for the pile and a hub, and provided with the strengthening-ribs *d*, in combination with

the ropes or chains connected with such ribs, and by means of which the bearing-plate is suspended or lowered, substantially as set forth.

Signed by us this 1st day of May, 1879.

HARVEY CARLEY.
JOB JOHNSON.

Witnesses:

WILLIAM G. MOTT,
GEO. T. PINCKNEY.