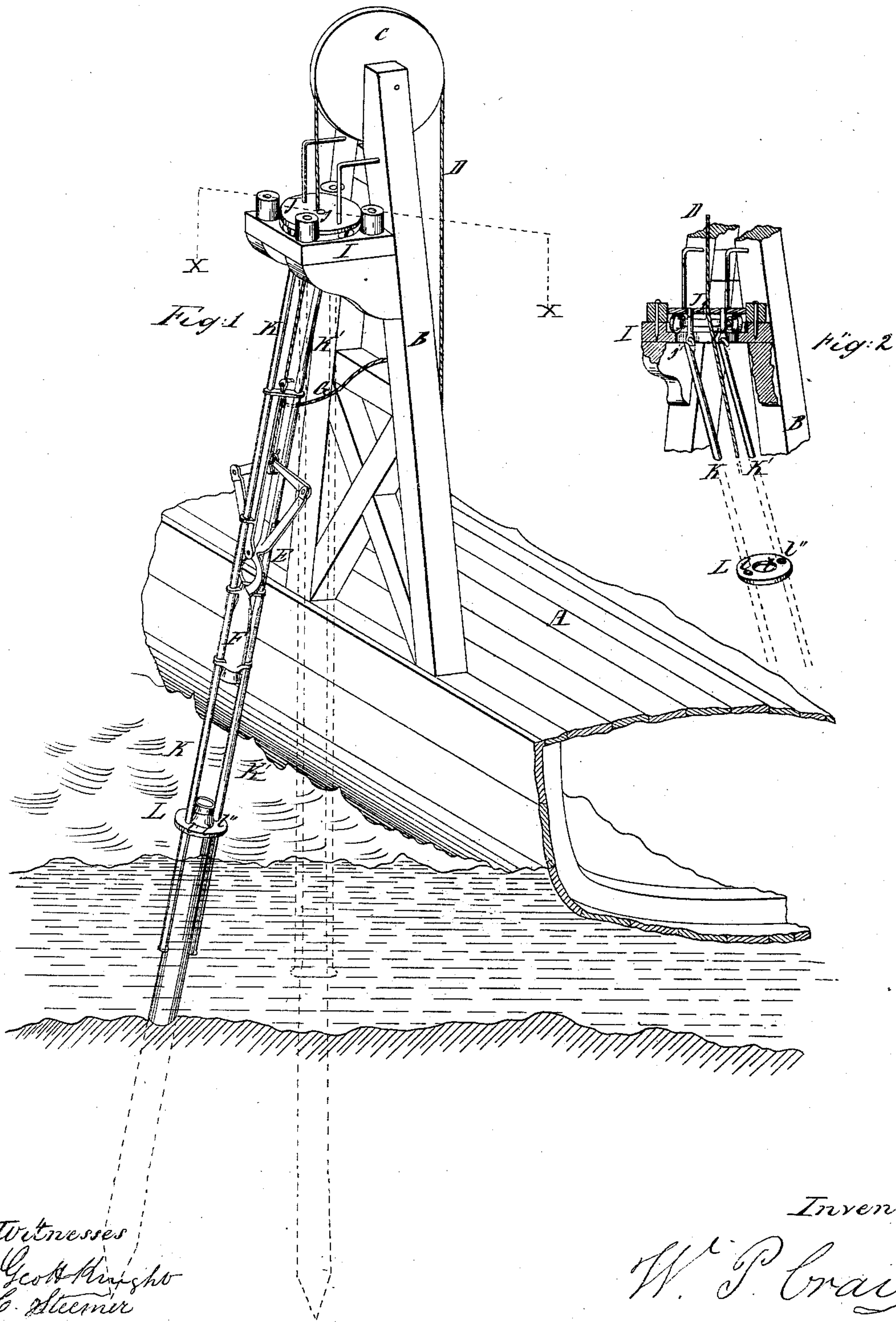


W. P. Craig.

Pile Driver.

N<sup>o</sup> 23,354.

Patented Mar. 29, 1859.



Witnesses  
Geo. H. Knight  
C. Steiner

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# UNITED STATES PATENT OFFICE.

WALDO P. CRAIG, OF NEWPORT, KENTUCKY.

## PILE-DRIVER.

Specification of Letters Patent No. 23,354, dated March 29, 1859.

*To all whom it may concern:*

Be it known that I, WALDO P. CRAIG, of Newport, Campbell county, Kentucky, have invented a new and useful Pile-Driver; and I hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a provision to facilitate the driving of piles, and is particularly applicable to brace piling and other slanting work and to operations conducted in an open or tempestuous sea.

Figure 1, is a perspective view illustrating my invention. Fig. 2, is a vertical section at  $x-x$ , Fig. 1.

The boat A, frame B, pulley C, hoisting rope D, nippers E, ram F, and discharging rope G, may be of customary form and arrangement.

A bracket I, projecting horizontally from the frame A, supports a turntable J having free rotation about its axial line where it has a hole  $i$  for the hoisting rope D.

Depending from the table J, are two eyes  $j'$ ,  $j''$ , which receive each one, the hooked upper extremity of a rod K, or K'.

L is an annulus or ring called by me the "loose collar" its central aperture  $l$ , being adapted to fit and rest upon the shoulder of a pile while smaller apertures  $l'$ ,  $l''$ , on opposite sides of the central one receive the rods K, K'. These rods K, K', afford a means of directing the ram unerringly upon the head of the pile in whatever oblique position the latter may be placed, and although the boat may be agitated by the waves.

Operation: The boat being properly moored and the ram at its upper position a pile is elevated and presented in the usual manner and has the collar L,  $l$ ,  $l'$ ,  $l''$ , slipped over its head bringing the rods K, K', on opposite sides of it. These rods and the pile are simply held in position by a rope while a blow from the ram fixes the pile in the ground. If one blow is not sufficient to give

a permanent direction to the pile the action of the ram is repeated till that object is effected. The rope being then removed the action of the ram is continued until the pile is driven to the desired depth, the ram being guided to the head of the pile in whatever slanting position the latter may be placed and the work proceeding notwithstanding the rocking or pitching of the boat. Several miles of piling have been thus driven by me in situations where repeated failures had caused it to be pronounced impracticable. For example a stretch of more than a mile in a very exposed situation in the open sea to wit at the south west pass of the mouth of the Mississippi river and more than a thousand feet at Pass a Loutre. These improvements which have added from 6 to 10 feet depth to the channel at these important points could not it is believed have been accomplished by any other known means.

In actual operation the frame B, is the front stanchion of a movable crane having wheels which rest upon a tramway upon the deck of a steamboat and the hoisting of the ram is performed by the steam engine.

I claim as new and of my invention and desire to secure by Letters Patent.

1. The described application and arrangement of the guides K and K', attached at their upper ends by universal joints to the frame, and at their lower ends sliding in apertures  $l'$  and  $l''$  in a collar L, adapted to fit over the end of a pile and follow the same in its descent.

2. In combination with the above, the turntable J, constructed and operating substantially as and for the purpose set forth.

In testimony of which invention, I hereunto set my hand.

W. P. CRAIG.

Witnesses:

GEO. H. KNIGHT,  
C. STEEMER.