G. H. CAVANAGH.
Pile-Driver.

No. 205,244. Patented June 25, 1878.

Fig:1.

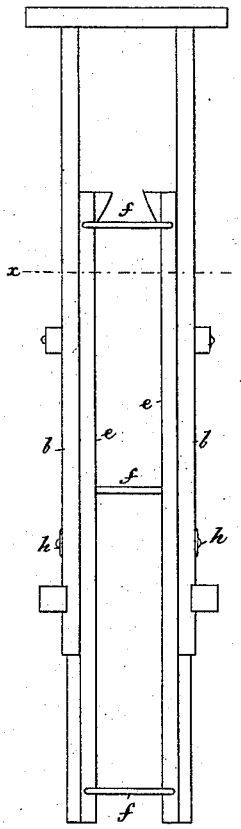


Fig:2.

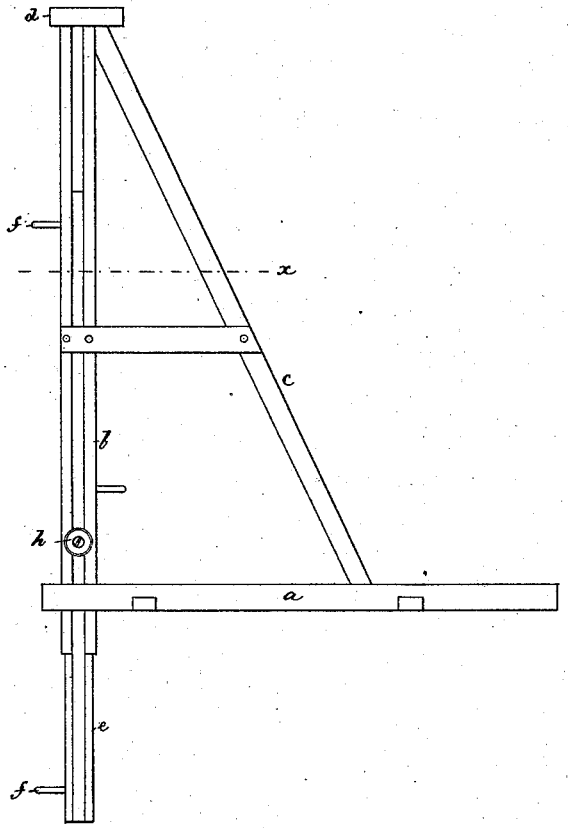
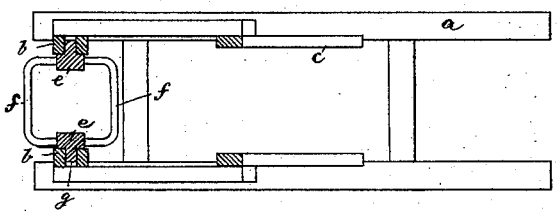


Fig:3.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE H. CAVANAGH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PILE-DRIVERS.

Specification forming part of Letters Patent No. **205,244**, dated June 25, 1878; application filed May 23, 1878.

To all whom it may concern:

Be it known that I, GEORGE H. CAVANAGH, of Boston, county of Suffolk, State of Massachusetts, have invented an Improved Extension Pile-Driver, of which the following is a specification:

This invention relates to improvements in pile-drivers, whereby a pile may be driven by the hammer in cuts or gulleys below the base of the frame-work of the machine.

In driving piles as now commonly practiced, if the top of the pile is to be left at a distance below the base of the driver, or if a pile driven into the earth at the bottom of a ditch or gulley is to have its top left at a distance below the base of the driver, it has been customary and necessary to saw off the upper end of the pile after it was driven; but this plan is objectionable, for all that portion of the pile which is so sawed off is wasted.

It has been attempted to drive the upper end of a pile below the base of the driver and save such waste of pile by applying to the upper end of the pile being driven a follower, against which the hammer might strike; but this plan results frequently in driving the pile crooked, and is practiced but slowly, for the follower device has to be changed as to its length.

My invention consists in making the guideway for the hammer vertically adjustable, so that such guideway may be lowered as the pile is driven, whereby the top of the pile may be driven and left at any desired distance below the base of the driver, or in a ditch or gulley, without sawing off the top of the pile, thereby wasting it, or without employing a follower.

Figure 1 represents in front elevation a sufficient portion of a pile-driver to illustrate my invention; Fig. 2, a side elevation thereof; and Fig. 3, a section on line *x x*, Fig. 1.

The base *a*, uprights *b b*, back-brace *c*, and top bar *d* are of usual construction. The hammer (not shown) will be lifted and let fall in any usual manner. The guideway *e e*, which directs the hammer, is connected by suitable curved metallic braces *f*, and projections *g* on said guideways enter grooves in the uprights *b*, (see Fig. 3,) so that the said guideway may be raised or lowered as may be desired, so as to cause the lower end of the guideway to follow along at the proper distance from the top of the pile being driven, so as to drive the said pile below the base *a* of the driver.

In Figs. 1 and 2 the said guideway is shown as lowered a considerable distance below said base, as it will be when driving a pile below the surface of the ground or into a ditch or gulley.

In ordinary pile-drivers the hammer slides up and down between, and is directed by, the uprights *b b*.

The guideway portion *e e*, which receives between its sides the hammer, may be lifted or raised or lowered in any suitable way—as, for instance, by means of a chain or rope connected with it and a pulley on a shaft or drum located at the top of the frame, or by means of a pinion to engage rack-teeth upon the guideway.

The guideway is shown as held in position by holders *h*, which retain said guideway firmly in place within or between the uprights *b*. These holders *h* may be variously modified without departing from my invention.

It will be obvious that a pile-driver constructed in accordance with this invention will be specially adapted or advantageous for driving piles on land which is not level.

I am aware that a pile-driver is old having a vertical adjustment of the hammer guideway above, but not below, the main frame or platform.

I claim—

1. In a pile-driver, an extensible guideway, adapted to be projected or extended below the platform or frame, substantially as and for the purpose described.

2. The uprights *b b*, combined with a vertically-adjustable guideway, adapted to be lowered below the base of the driver, to permit the hammer to follow and operate upon the head of the pile to drive it below the level of the base, as may be desired.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. H. CAVANAGH.

Witnesses:

J. B. CROSBY,

NATHL. TUCKER.