W. A. WILLIAMS
PILE DRIVER AND STONE BREAKER.
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Witnesses:
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Inventor:
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By his Attorneys:
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To all whom it may concern:

Be it known that I, William A. Williams, a citizen of the United States, residing in
Easton, in the county of Northampton and
State of Pennsylvania, have invented certain new and useful Improvements in Pile-
Drivers and Stone-Breakers, of which the
following is a specification.

My invention relates to mechanism for
driving piles and breaking stones of the class
in which a vertically-reciprocating hammer
is supported by a derrick by means of which
it can be conveniently moved from place to
place as required.

The object of my invention is to simplify
mechanism of this class, make it strong, du-
urable, and accurate, as well as free from jars
and undue strains.

In carrying out my invention I provide a
derrick of any suitable kind, and from the
boom thereof I suspend, by means of ropes or
other suitable flexible supports, a tubular
guide for a hammer, which latter is adapted to
reciprocate vertically in the guide. De-
VICES are provided for clamping the guide to
a pile for supporting it on a stone or over
stones to be broken and for moving it from
place to place as required.

In the accompanying drawings, Figure 1 is
a view, partly in side elevation and partly in
vertical section, of my improvements. Fig.
2 is a view, on an enlarged scale and in vertical
section, showing particularly how the
tubular hammer-guide is clamped to a pile.

Fig. 3 is a perspective view of the handle em-
ployed for moving the hammer-guide when
breaking stone. Fig. 4 is a perspective view of
the devices employed for clamping the
guide to a pile. Fig. 5 is a detail view in
perspective, showing the upper end of the
derrick-boom and the devices employed for
suspending therefrom the hammer-guide and
the hammer. Fig. 6 is a perspective view of
one of the legs of the tripod employed for
supporting the hammer-guide when breaking
stone.

The derrick may be mounted on a barge
when driving piles or on any suitable support
or foundation when breaking stone.

The vertical post A of the derrick is piv-
otted to its support, and the boom B is hinged at b, as usual, so that its outer end may be
adjusted vertically to any desired extent. A
rope B', attached to the outer end of the
boom and passing over pulleys B' B", is em-
ployed for raising and lowering the boom.
ring Q is employed which is clamped to the
guide and to which the legs R of a tripod are
attached. The legs of the tripod are hinged
to the ring, and one of these legs may be used
as a handle for moving the guide into position
over the stone to be broken. When the
mechanism is being used for breaking small
stones, I preferably dispense with the tripod,
removing the legs R and substitute for one of
them a handle S, such as shown in Fig. 3.
When the handle is thus applied, the guide
may be moved within certain limits to locate
the hammer over the stones to be broken and
the hammer may be reciprocated by the au-
tomatic mechanism.

It will thus be seen that the mechanism is
very simple in construction and operation
and that it can be used for driving piles, as
well as breaking stones, without imparting
jars, vibrations, or strains to the derrick
mechanism.

I claim as my invention—
1. The combination of a derrick, a tubular
hammer-guide flexibly suspended therefrom
and adjustable vertically thereon, a hammer
reciprocating vertically in the guide and flexi-
ble means for raising and lowering the ham-
mer.

2. The combination of a derrick, an inflexi-
ble tubular hammer-guide suspended there-
from and adjustable vertically thereon, a
hammer reciprocating vertically in the guide
and clamping devices at the lower end of the
guide.

3. The combination of a derrick, an inflexi-
ble tubular hammer-guide suspended there-
from and adjustable vertically thereon, a
hammer reciprocating vertically in the guide,
and means for supporting or steadying the
guide applied to the lower end thereof.

4. The combination of a derrick, a tubular
hammer-guide suspended therefrom and ad-
justable vertically thereon, a hammer recip-
rocating vertically in the guide, a sectional
detachable clamping member secured to the
lower end of the guide, and a sectional det-
achable clamping member connected there-
with having a lower flared portion for the pur-
pose specified.

5. The combination of a supporting-frame,
an inflexible tubular hammer-guide flexibly
suspended therefrom and adjustable verti-
cally thereon, a hammer reciprocating verti-
cally in the guide and flexible means for rais-
ing and lowering the hammer.

In testimony whereof I have hereunto sub-
scribed my name.

WILLIAM A. WILLIAMS.

Witnesses:
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