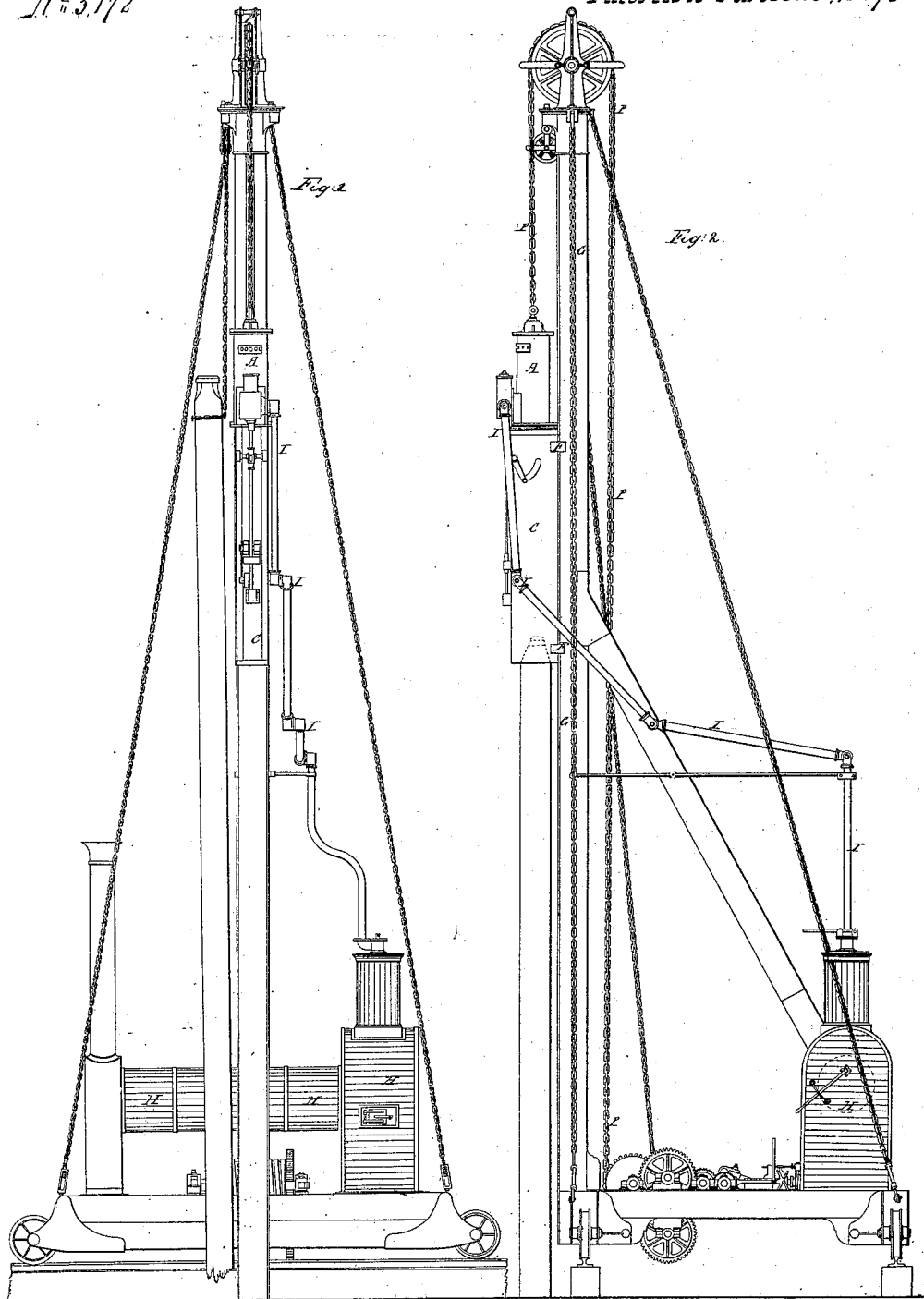


*J. Nasmyth,
File Driver.*

Sheet 1-2 Sheets.

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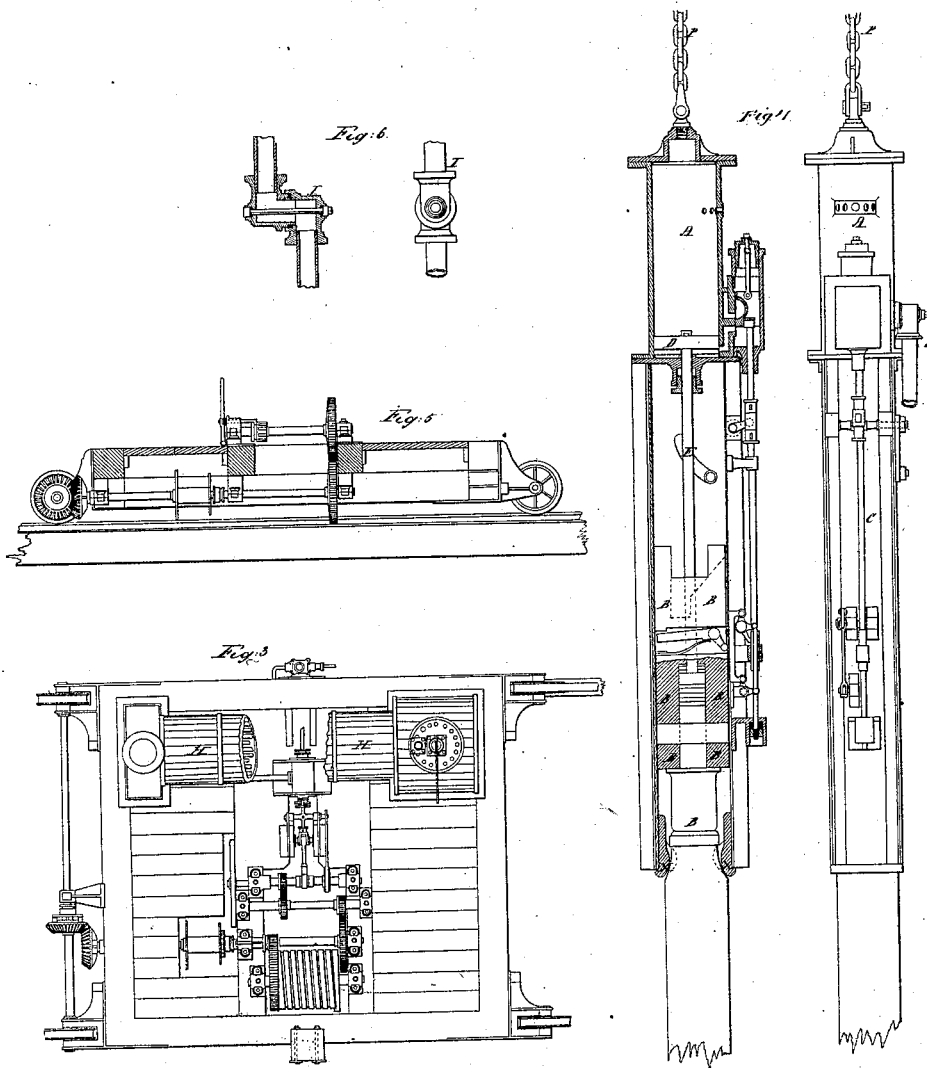
Patented June 26, 1847.



*J. Nasmyth,
File Driver.*

N^o 5142.

Patented June 26, 1847.



UNITED STATES PATENT OFFICE.

JAMES NASMYTH, OF PATRICROFT, ENGLAND.

STEAM PILE-DRIVER.

Specification of Letters Patent No. 5,172, dated June 26, 1847.

To all whom it may concern:

Be it known that I, JAMES NASMYTH, of Patricroft, in the county of Lancaster, in the Kingdom of England, have invented a new and useful Machine for Driving Piles; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is the elevation front view, Fig. 2, elevation side view, Fig. 3, ground plan Figs. 4, 5, and 6 some details on larger scale.

The principal feature in this my invention consists in the first place in the employment of the pile which is about to be driven, for the support of the pile driving part of my apparatus (which being of considerable weight, consisting as it does of the cylinder A, constructed like that of a common single acting steam cylinder, a hammer block, (B) or monkey which is a heavy weight attached to the piston rod (E) of the steam cylinder and a cylindrical or other formed case (C) which is attached to the lower end of this cylinder and acts as a guide to the monkey and incloses the head of the pile on which it rests; these together weigh about 3 tons (more or less) and very importantly aids the driving of the piles by predisposing it to penetrate into the ground.

The maner in which the apparatus A B C is made to rest on the pile may be seen by reference to Fig. 2 and Fig. 4 in which it will be seen that the guide case C has a mouth piece *x x* so formed as while it permits the head of the pile to pass up into the inside of the case to a certain extent, yet prevents the apparatus A B C from sinking farther down upon the pile by embracing the shoulders of the pile at *x x* on which therefore it rests with its entire weight as before described. This is the first feature of novelty in my pile driving machine.

The second feature of novelty consists in the application of the direct acting steam hammer to the driving of piles.

The process is as follows: Steam or other elastic fluid being admitted under the piston D (Fig. 4) by a suitable valve or valves (raises up the hammer, monkey or beetle B; the same being connected with the piston D by the piston rod E) and when it has by its pressure raised up the hammer block B to a

certain height this steam is allowed to escape from under the piston, the action of gravity then causes the hammer block to fall with great force on the head of the pile, so knocking it into the ground, which action is instantly followed by a proportionate descent of the whole apparatus A B C and no sooner has this again settled itself on the shoulders of the pile when by the above described action the pile receives another blow, and so rapid is the recurrence of these blows, that they can be dealt out on the head of the pile at the rate of upward of 80 per minute. The valve can be worked by the apparatus now in use for direct action steam hammers or in any other way.

A third feature of my invention consists in the manner in which I cause the pile, while it is being driven, to become as it were part and parcel of the machine. This I effect by erecting an upright pole or stanchion (G) on the platform on which the boiler rests at one side which pole is braced by guy chains or ropes, and on which are affixed plates of iron for the guide pieces (F, F) to slide that connect the cylinder &c to the great upright or pole (G) which not only permits the cylinder and other apparatus to sink down with the pile but also maintains the position of the pile in full integrity as regards its relation to the great upright G. By this means not only is the pile kept quite true in its vertical or other direction, but also by reason of the mouth piece *x x* all tendency to twist is prevented.

A fourth feature of novelty in this my invention, consists in the peculiar manner in which by means of a jointed steam pipe I am enabled to convey the steam from the boiler H to the cylinder A at whatever position the cylinder A may be with respect to the boiler. This jointed steam pipe is seen in Fig. 1 and marked I I I, the joints and lengths into which the pipes are divided permit them to fold up length by length according to the relative position of the apparatus A B C and the boiler H. The joints should not be less than three in number and are made somewhat similar to gas fittings so as to be steam tight and turn freely in their sockets.

These then are the principal features of novelty which in combination I claim as my invention applied to and used for the aforesaid purpose of driving piles.

What I claim as my invention, and desire to secure by Letters Patent is—

1. The employment of the pile to be driven as the foundation or base on which
5 to rest my pile driving apparatus.

2. The manner in which I secure and guide the pile in its descent by its temporary attachment to, or connection with the driving apparatus, and upright frame work
10 of the machine, and

3. I claim the combination of the movable engine with the boiler by means of jointed steam pipes capable of accommodating themselves to the varying position of the machine during the descent of the pile, substantially as herein described. 15

JAMES NASMYTH.

Witnesses:

ELLIS CUNLIFFE,
PRIESTLEY BIRCH.