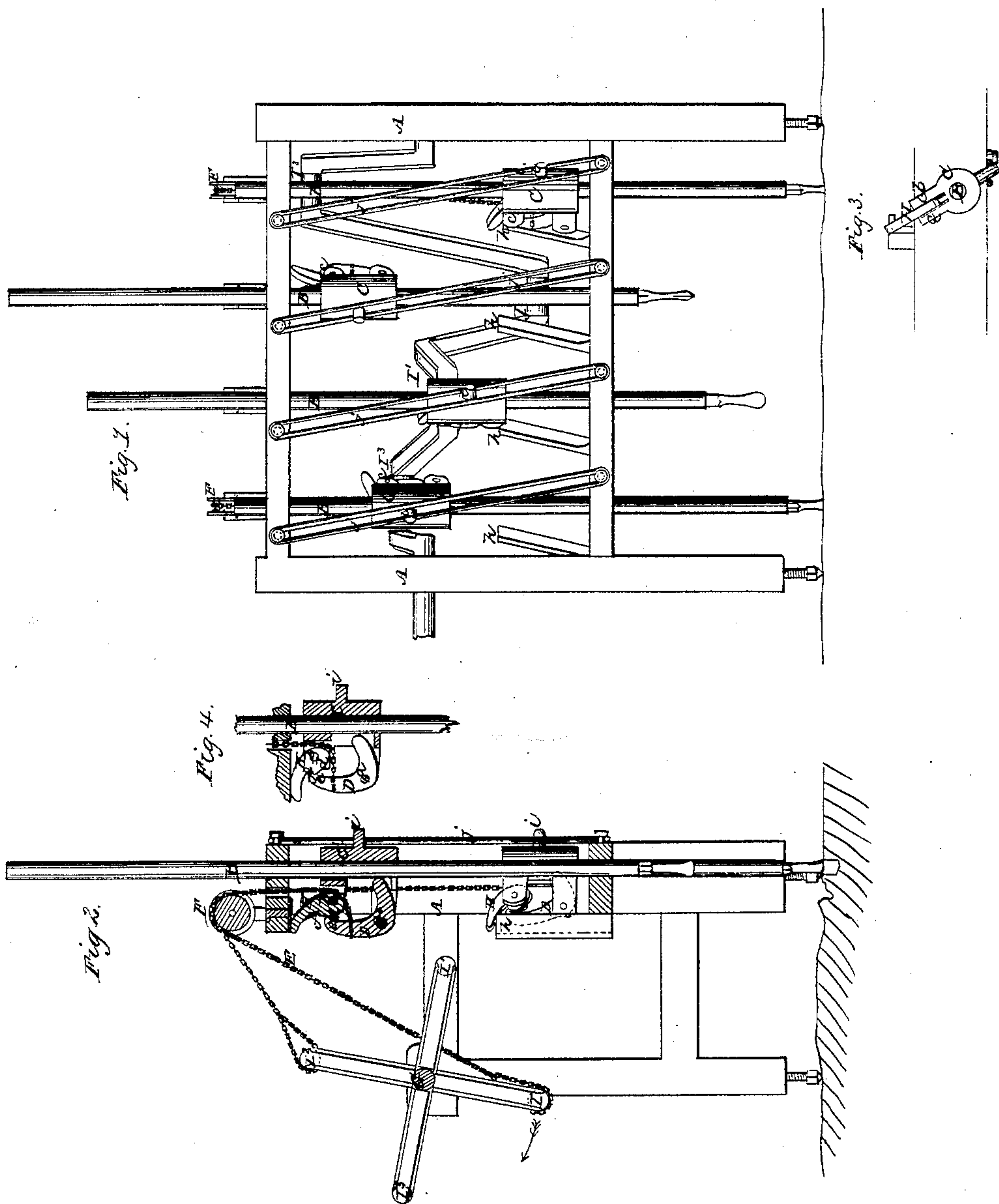


F. Davison,

Stone Drill.

N^o 11,889.

Patented Nov. 7, 1854.



UNITED STATES PATENT OFFICE.

FERDINAND DAVISON, OF PETERSBURG, VIRGINIA.

STONE-DRILLING MACHINE.

Specification of Letters Patent No. 11,889, dated November 7, 1854.

To all whom it may concern:

Be it known that I, FERDINAND DAVISON, of Petersburg, in the county of Dinwiddie and State of Virginia, have invented a new and useful Improvement in Machines for Drilling Stone; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a front view of an upright drilling machine constructed according to my invention, and Fig. 2, a vertical section of the same. Fig. 3, is a top view of the catch block by which the drill is attached to the machinery for raising it, and Fig. 4, a vertical section of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a new and improved combination of parts for the purpose of catching hold of the drill bar or drill to attach it to the machinery by which it is lifted or drawn back, and of setting it free therefrom to enable it to strike the blow, either by the force of its own gravity or by force applied by springs or their equivalents properly arranged and attached for the purpose.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation.

In Figs. 1 and 2, A, is a framing of proper strength and proportions to receive any number of cylindrical drill bars, B, B, B, B, which are arranged side by side working in suitable guides. Each drill bar is furnished with a catch block C, of cast or wrought iron which is capable of sliding freely or turning on the drill bars. This catch block is slotted on one side to receive a dog D, which is pivoted to it by a pin *a*, connected at its tail *e* with a chain E, which passes over a pulley F, at the top of the machine, and connects with one I, of a series of cranks I, I¹, I², I³, on the driving shaft G. This chain by passing around a proper guide in the catch block is made to act in such a way that when the dog is not under other control the weight of the catch block draws the dog toward, and makes it bite, the drill bar, whose own weight further tightens the bite to enable the bar to be raised by the revolution of the crank. Above the slot in which the dog works, is placed a trigger H, which works on a pin *b*, between two ears,

c, c, in the catch block. One part of this trigger serves as a guide to the chain E, and another part has an eccentric face *d*, which works inside the tail *e*, of the dog and in contact with the said tail which is slightly bent at the end to enter a notch *f*, above the eccentric. When the catch block is being drawn upward, the tail of the dog is in contact with the face *d*, below the more eccentric part, and is made to hold the trigger stationary; but just before the upward motion of the catch block terminates, the trigger comes in contact as shown in Fig. 2, with the upper part of the framing A, or with some fixture attached thereto, and a very slightly continued upward motion serves to move the more eccentric part of its face *d*, into contact with the tail of the dog and throw it back far enough to set free the drill bar which then falls. The catch block ascends far enough after setting free of the drill bar to bring the tail of the dog into the notch *f*, as shown in Fig. 4. During nearly the whole time of the descent of the catch bar, which is lowered by the ascent of the crank to which the chain is connected, the trigger remains by reason of its weight, in the position shown in Fig. 4, and holds the dog free of the drill bar, but just before the descent terminates the trigger comes in contact with a fixed stop *h*, on the lower part of the framing and the remainder of the downward motion is sufficient to release the tail of the dog from the notch and throw up the trigger far enough to bring the lower or least part of its face *d*, opposite the tail of the dog, and thus leave the dog entirely under control of the chain E, when the catch block ascends. In Fig. 2, one of the triggers is shown as just having reached its stop *h*, and being about to liberate its dog. The whole of the working parts of the machine are actuated by the revolution of the crank shaft G, and consequent raising and lowering of the catch blocks by means of the chains connected with their dogs. The turning of each drill bar is effected by means of a stud *i*, attached to its catch block and working in an oblique guide *j*, secured permanently to the framing. The drills being set entirely free every time they strike, are self feeding.

The invention is applicable to work the drill horizontally or in any other direction, but when the position is such that the grav-

ity of the bar will not act to give force to the blow it will be necessary to apply springs or equivalent devices for that purpose and also to apply a spring or equivalent to the catch block to return it after drawing back the bar.

I do not claim the invention of a clamp or catch block constructed to move freely along the drill in its descent but to grip it in its ascent, as such clamps are in common use. But

What I claim and desire to secure by Letters Patent is—

The peculiar device for clamping and releasing the drills or drill bars consisting of the dog D to which the chain or its equivalent

is attached, and the trigger H, for locking and unlocking the same on the drill bar, said dog and trigger being constructed, combined and arranged within the catch block C, substantially as described so that the latter locks the former at the termination of the descent of the catch block and unlocks it at the termination of the ascent thereof, by striking some parts of the framing of the machine or certain fixtures provided for the purpose.

FERDINAND DAVISON.

Witnesses:

I. W. COOMBS,
JOS. GEO. MASORE.