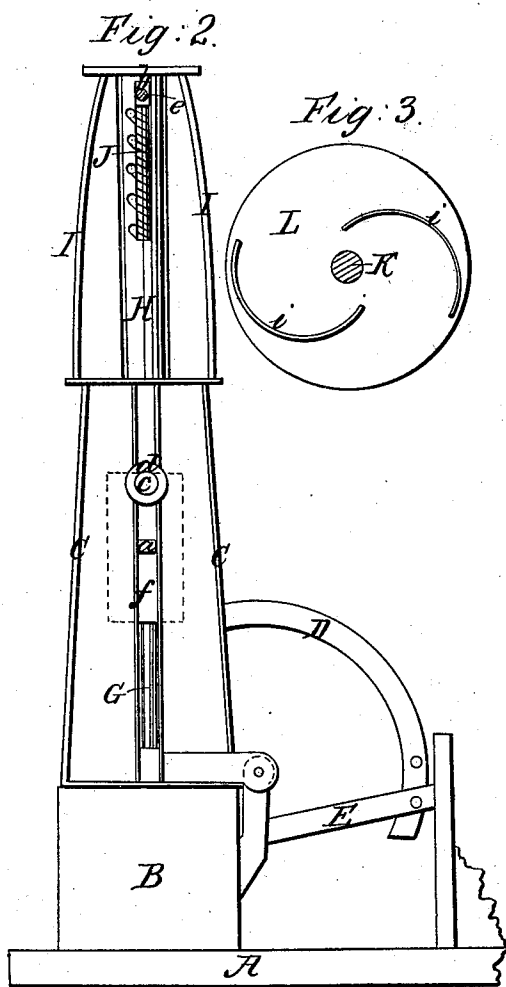
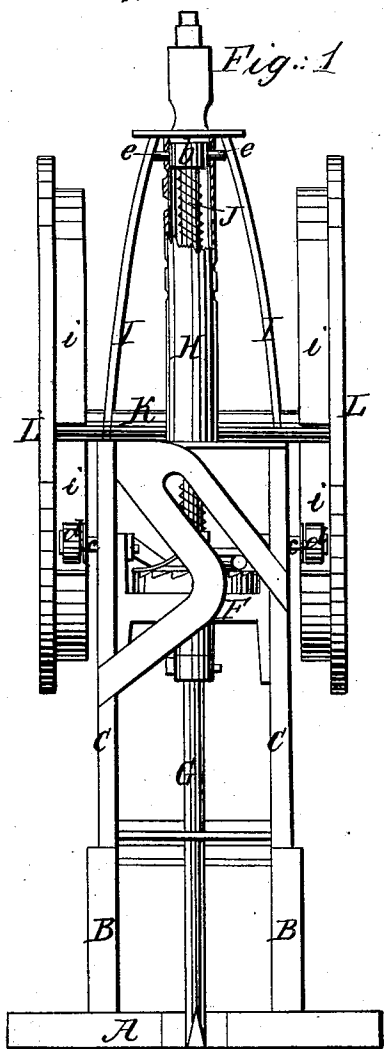


C. W. Hermance,

Stone Drill.

N^o 84, 188.

Patented Nov 17, 1868.



Witnesses:

Leopold Bier
J. J. Jones

Inventor:

C. W. Hermance
per Alexander Mason
Atty

United States Patent Office.

C. W. HERMANCE, OF SCHUYLERVILLE, ASSIGNOR TO W. P. OSTRANDER, A. H. PEAR-SALL, B. G. SHULTS, AND A. L. FINNE, ALL OF THE STATE OF NEW YORK.

Letters Patent No. 84,188, dated November 17, 1868.

IMPROVED STONE-DRILLING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, C. W. HERMANCE, of Schuylerville, in the county of Saratoga, and in the State of New York, have invented certain new and useful Improvements in Stone-Drilling Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of machines used for drilling stone, marble, &c., and consists principally in the arrangement of the devices for raising the drill up, and also in the mode of compressing the spring which forces the drill down into the stone, enabling the operator to regulate the force of the stroke as may be desired.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a front view;

Figure 2, a side elevation, with the driving-wheels removed; and

Figure 3, an inside view of the driving-wheel, of reduced dimensions.

A represents the bottom or bed-plate, near one end of which are two standards, B B.

On top of the said standards a frame, C, is placed, which frame is hinged to the rear edge of the standards, and by that means may be placed at any angle desired. From a suitable point on the rear side of the frame a bent bar, D, extends backward and downward, which bar is held at any point desired in or between stationary bars E, by means of a pin, bolt, screw, or any other suitable manner. The drill being placed in the frame C, and parallel with its sides, it will be seen that, by changing the position of the said frame, and securing it by means of the bent bar D, the drill will operate at any angle in the stone desired.

The sides of the frame C are slotted lengthways, as shown in fig. 2, and between the sides is placed a cross-head, F, which is provided with lugs *a a*, which project through the said slots, and maintain the cross-head always in the same position while it is being worked up and down. The manner of working the cross-head up and down will be hereinafter described.

Through the centre of the cross-head F is a hole, and the cross-head is provided with a stationary and a movable collar, through which the drill-rod G is passed. There is also on the upper side of the cross-head F, a device for turning the drill when the machine is in operation. This device, as shown in the drawings, is not new, having already been patented by me in January, 1868.

On top of the frame C is placed a hollow tube, H the sides of which are slotted and notched, as shown in fig. 2.

This tube is held by braces, I I, or in any other manner desired.

The drill-shaft G passes up through said tube, and the spiral spring J, which is generally used for forcing the drill downwards, is placed around the drill-shaft in the tube H. The lower end of the spring J rests on a stationary collar on the drill-shaft, just above the cross-head F, and its upper end presses against a movable collar, *b*, placed around the drill-shaft, inside of the tube.

The movable collar *b* is provided with pins *e e*, which project through the slots in the tube H.

It will now be readily seen that, by pressing the collar *b* downwards, and placing the pins *e e* in the notches in the tube, the spring J will be compressed, and, consequently, the force of the drill increased. The tube H being provided with a series of notches in which the pins *e e* may be placed, the force of the drill can, of course, be regulated to suit any kind of stone or work desired.

The manner of raising the cross-head F with the drill-shaft is as follows :

The sides of the cross-head F are provided with pins *c c*, which project through the slots in the sides of the frame C, and have at their outer ends friction-rollers *d d*.

At a suitable point in the frame C is placed a shaft, K, at each end of which is secured a wheel, L, which wheels extend along the sides of the frame C. The inner side of the wheels L L is provided with stationary semicircular flanges or cams, *i i*, which catch under the friction-rollers *d d*, on the cross-head F, raising the same up until the wheels have been turned sufficiently far to release the friction-rollers from the said cam, when the spring J forces the cross-head down, ready to be raised again by the next cam. It will, however, be observed, that the flanges or cams *i i* are so arranged that they catch the friction-rollers near the outer edge or periphery of the wheels, and drop them near the axle.

By this arrangement a great deal more power is obtained from the same spring than would be obtained by the usual arrangement of the cams or flanges, as the cross-head is dropped at the very moment when the spring is compressed the most, while, in other machines, the spring always expands somewhat before the cross-head or drill-shaft is released from the cams.

This mode of arranging the cams or flanges is not confined merely to rock-drilling machines, but may be used on any machine where a certain part should be regularly raised up and forced down.

Having thus fully described my invention,

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

1. The arrangement of one or more flanges or cams, or their equivalents, on the side of a wheel, for the purpose of operating a machine, by raising a certain part thereof and letting it fall again when said flanges

or cams operate from the periphery to the axle of the wheel, that is, commence the raising at or near the periphery, and letting go near the axle, substantially as herein set forth.

2. The tube H, having its sides slotted and notched as described, in combination with the movable collar b, and pins e e, for the purpose of compressing the spring

J, thereby regulating the force of the drill operated by said spring, substantially as shown and described.

In testimony that I claim the foregoing, I have hereunto set my hand, this 17th day of October, 1868.

Witnesses: C. W. HERMANOE.
LEOPOLD EVERT,
A. N. MARR.