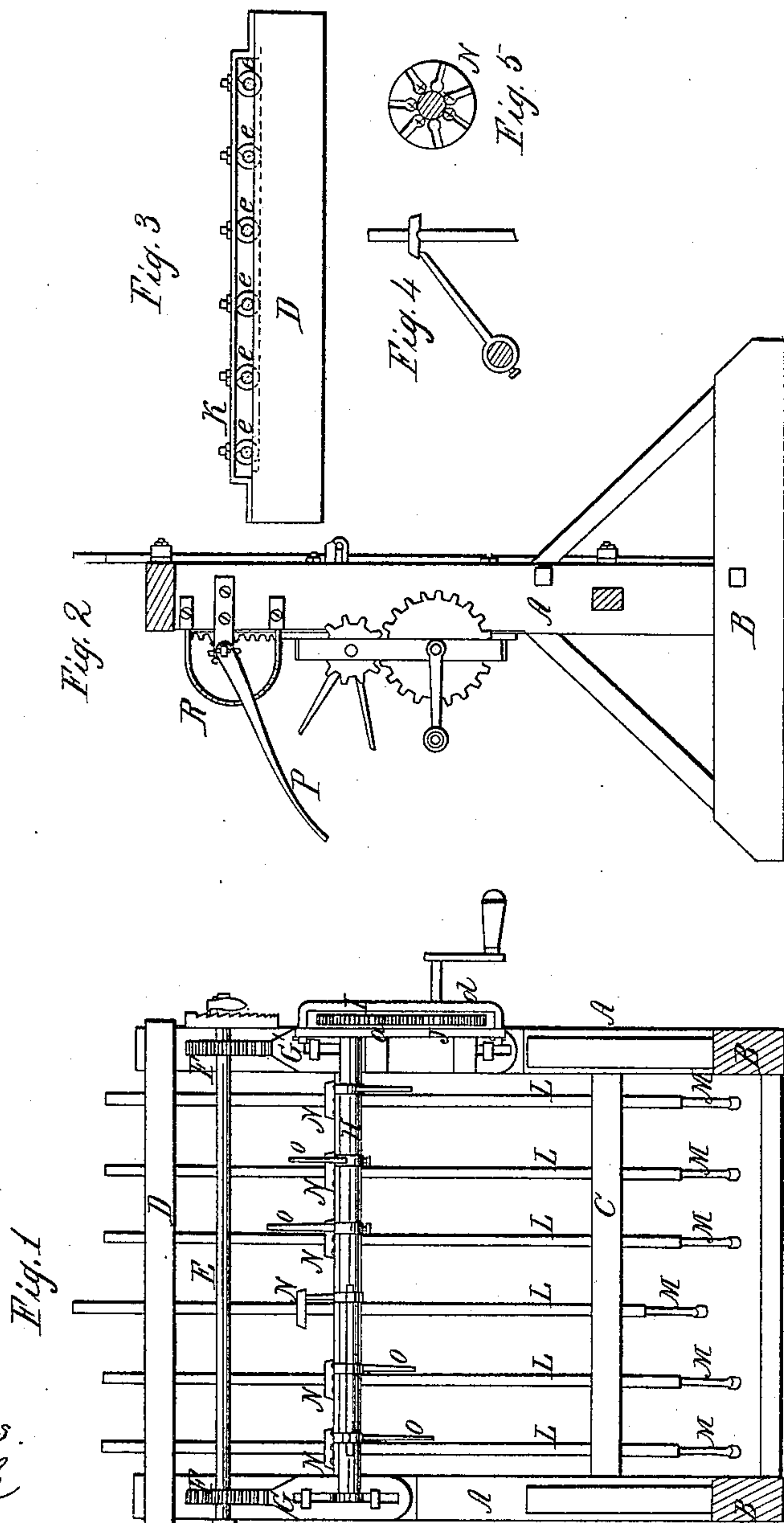


A. M. Southard,

Stone Drill.

N^o 68,580.

Patented Sep. 3, 1867.



Witnesses.
W. Stothridge
Armary

Inventor
A. M. Southard
per
Alexander Mason
Att'y

United States Patent Office.

A. M. SOUTHARD, OF SAVANNAH, MISSOURI, ASSIGNOR TO HIMSELF AND
W. J. HOBSON.

Letters Patent No. 68,580, dated September 3, 1867.

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, A. M. SOUTHARD, (assignor to myself and W. J. Hobson,) of Savannah, in the county of Andrew, and in the State of Missouri, have invented certain new and useful improvements in "Drilling Machines" for stone quarries; 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.

In the annexed drawings, making part of this specification, A A represent two uprights, which are erected at a suitable distance apart upon the base B, and which are properly braced, as seen. C and D represent two cross-pieces between the two uprights A A. G and G' represent two metallic plates, which have rack-bars formed upon their upper ends. These plates are slotted, as seen, and are secured through these slots by headed screws or bolts to the uprights A A in such a manner that a vertical or endwise movement may be given to them the length of their slots. F represents a shaft, which runs crosswise of the uprights, having bearings near each end in metallic plates which are secured to the sides of the uprights. This shaft is provided with a lever, P, and also with two pinions, F F', which catch into the teeth of the rack-bars on plates G and G'. R represents a curved metallic piece, attached to one of the uprights, and provided on one edge with notches or teeth, into which the lever P catches when desirable, for the purpose hereinafter described. H represents a cross-shaft, which has its bearings in projections formed upon the plates G and G', and moves up and down with these plates. The projection or flange *a* on the plate G' has a bar, *d*, secured to it upon one side, and between this bar and flange two gear-wheels, I and J, are situated, their axles having their bearing in them. The axle of wheel I is the end of shaft H. The axle of wheel J has a crank-handle upon it, and by turning said handle the shaft H, through its wheel I, is revolved. The shaft H is provided with a series of arms *o o*, which are secured to it by means of collars and set-screws. These arms are secured upon the shaft in spiral form. L L represents a series of vertical round bars of iron, with drill-teeth M M secured in their lower ends. These bars pass through eyes *e e*, which said eyes are secured on one side by means of nuts upon a shank attached or forming a part of them within a slot in a bar, K, as seen, (Figure 3,) the other side of the eye resting in a groove in the bars C and D. These eyes slide in their grooves and slots, and are adjustable by means of their nuts. Secured upon bars L are the disks N N. These disks, as seen in Figure 5, are provided on their under sides with radiating grooves, which terminate near the centre opening in said disks, through which the bars L pass in circular cavities *x x*.

When the shaft H is revolved the points of the arms *o o* catch under the disks N N and raise them with their bars a certain distance; then, leaving them, the bars L with their drills are allowed to fall. The effect of the catching of the ends or points of the arms in the cavities *x x* is to give the disks with their bars a slightly rotary motion as they are being raised. The plates G and G', with their shaft H, are raised and lowered by means of the shaft F, with its pinions, and thus the bars L L will be allowed to cut deeper into the stone which is being drilled. The bars L may be adjusted laterally by means of the movable eyes *e e*. It will be seen that the arms *o o*, being placed upon the shaft H in spiral form, the bars L are raised successively, and not all at one time. The points M M can be removed for the purpose of sharpening when desirable.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the shaft F and its pinions and lever P with the plates G and G' and their shaft H, arms *o o*, and gear-wheels I and J, as and for the purpose herein specified.
2. The disks N N, constructed as described, and used in combination with the bars L L, shaft F, plates G G', shaft H, arms *o o*, and gear-wheels I and J, the whole arranged and operating as specified.
3. The arrangement of the bars L L in and with the adjustable eyes *e e*, as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of April, 1867.

A. M. SOUTHARD.

Witnesses:

D. K. HUFFMAN,
ABRAM DOBBS.