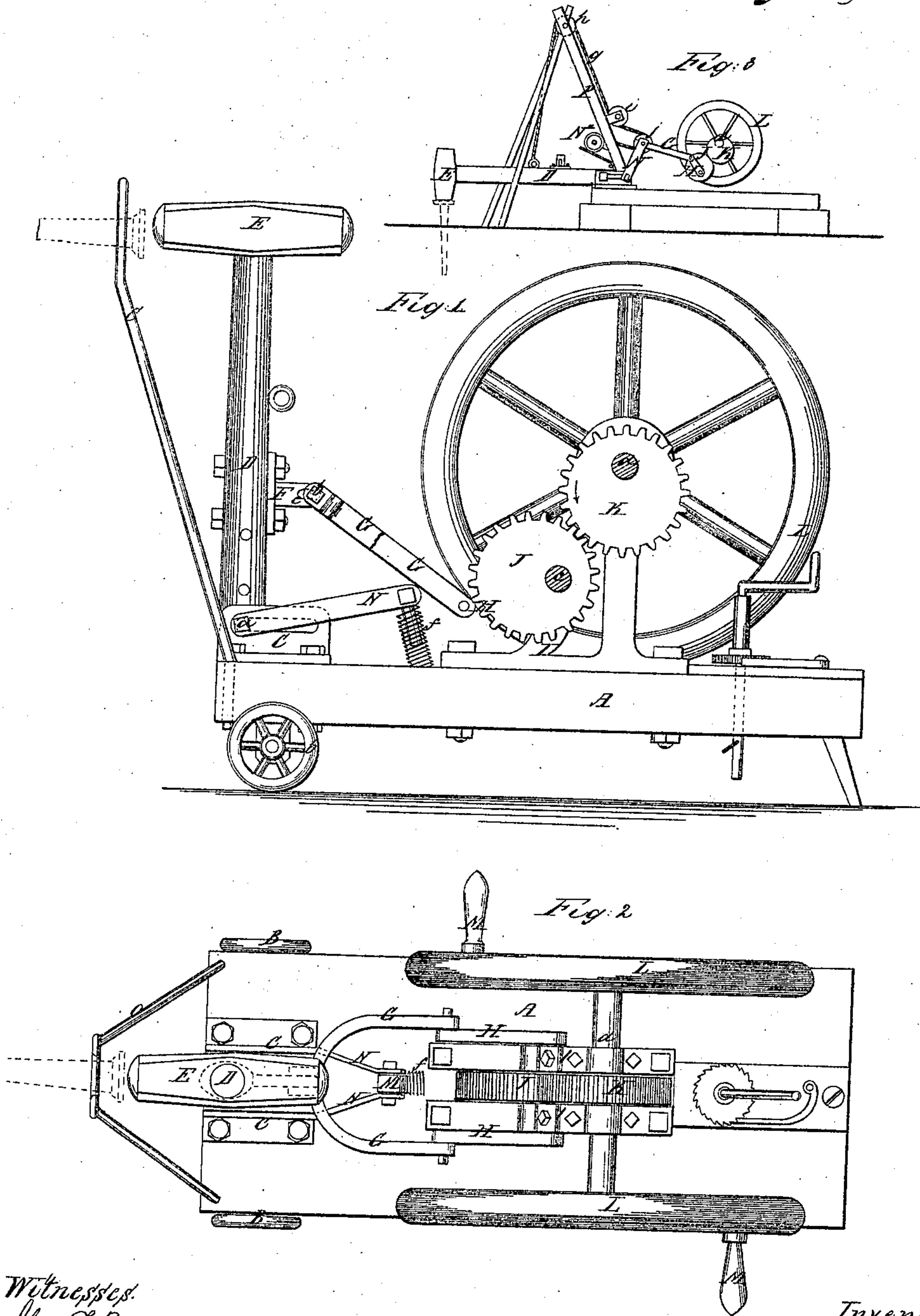


*W. Hyde,
Stone Drill.*

N^o 55,009.

Patented May 22, 1866.



*Witnesses:
Alex. J. Roberts.
Thos. Lusch.*

*Inventor
Walter Hyde
per Mumfords
Attorneys*

UNITED STATES PATENT OFFICE.

WALTER HYDE, OF NEW YORK, N. Y., ASSIGNOR TO MRS. DEBORAH A. BALLOU, OF SAME PLACE.

IMPROVED ROCK-DRILLING MACHINE.

Specification forming part of Letters Patent No. 55,009, dated May 22, 1866.

To all whom it may concern:

Be it known that I, WALTER HYDE, of the city, county, and State of New York, have invented a new and Improved Rock-Drilling Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention. Fig. 2 is a plan or top view of the same. Fig. 3 is a diagram of a modification of the same.

Similar letters of reference indicate like parts.

This invention relates to a machine which is intended for horizontal, vertical, and oblique rock-drilling, for tunneling and for mining purposes. It is constructed with a hammer, which is hinged to a suitable platform or truck, and to which an oscillating motion is imparted by an eccentric-gear which is connected with the hammer, so that the forward motion of said hammer is very rapid, while its backward motion is comparatively slow, and powerful blows can be imparted to the drill with comparatively little or no strain to the machine. The connection between the hammer-handle and the mechanism for imparting motion to the hammer is so arranged that said handle works in a plane at right angles with the platform, and that the machine may be run forward against the receding drill any desired distance without throwing the hammer out of line or range with the drill. By combining with the hammer a derrick and suitable guide-pulleys the apparatus may be adjusted for drilling in a vertical or in an oblique direction.

A represents a platform, made of wood or other suitable material and supported by two or more wheels, B, which serve to move the apparatus toward the work as the drill recedes. From the front end of this platform rise two brackets, which form the bearings for the pivot *a*, which forms the fulcrum for the handle D of the hammer E. To the inner edge of the handle D is secured a bracket, F, to which are secured, by a pivot, *b*, two curved rods, G, which form the connection between the handle of the hammer, and two cranks, H, that are mounted

on the ends of a shaft, *c*. This shaft has its bearings in a standard, I, which rises from the platform A, and on said shaft is secured an eccentric cog-wheel, J. This cog-wheel gears in another cog-wheel, K, which is mounted on the driving-shaft *d*. On the end of this driving-shaft are mounted two large fly-wheels, L, with cranks M, by means of which a revolving motion can be imparted to the shaft *d* by one or two persons standing on the platform A, or by any other suitable motive power.

The pivot *b*, which forms the connection between the bracket F and the curved rods G, moves in a slot, *e*, in said bracket, so that the hammer, after having been driven forward by the action of the cranks H and connection-rods G, is free to follow up the drill by its own momentum and to produce blows of considerable force and effect.

The eccentric cog-wheels G and H are geared together in such a manner that the high part of the wheel K gears in the low part of the wheel J just when the hammer advances, and consequently a considerable velocity is imparted to said hammer as the same moves forward, while its velocity in its backward movement is reduced. By these means I am enabled to work the machine with considerable velocity without overstraining any part thereof, and blows of great force are imparted to the drill.

The recoil of the hammer is taken up by a block, M, which is held between two arms, N, and supported by a spring, *f*, which rests on the platform A.

The drill is supported by a guide, O, which rises from the front edge of the platform, as shown in Figs. 1 and 2 of the drawings.

For the purpose of drilling in a vertical or oblique direction, the recoil-block M and the drill-guide O are removed and a derrick, P, is connected to the platform, as shown in Fig. 3. The hammer is turned down to a horizontal position and suspended from a rope, *g*, which extends over a sheave, *h*, in the top of the derrick, and thence under a pulley, *i*, secured to the derrick, and round a pulley, *j*, which is secured between the arms N, and thence to the reel N." By this connection the hammer is raised to a considerable height and then dropped with great force on the drill.

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

1. The eccentric gear J K, in combination with the platform A, handle D, and hammer E, constructed and operating substantially as and for the purpose described.

2. The slot E in the bracket F, in combination with the eccentric gear J K and hammer E, constructed and operating substantially as and for the purpose set forth.

3. The curved rod G and double cranks H, in combination with the eccentric gear J K and hammer E, constructed and operating substantially as and for the purpose described.

The above specification of my invention signed by me this 19th day of March, 1866.

WALTER HYDE.

Witnesses:

WM. F. McNAMARA,
JULIE E. HALL.