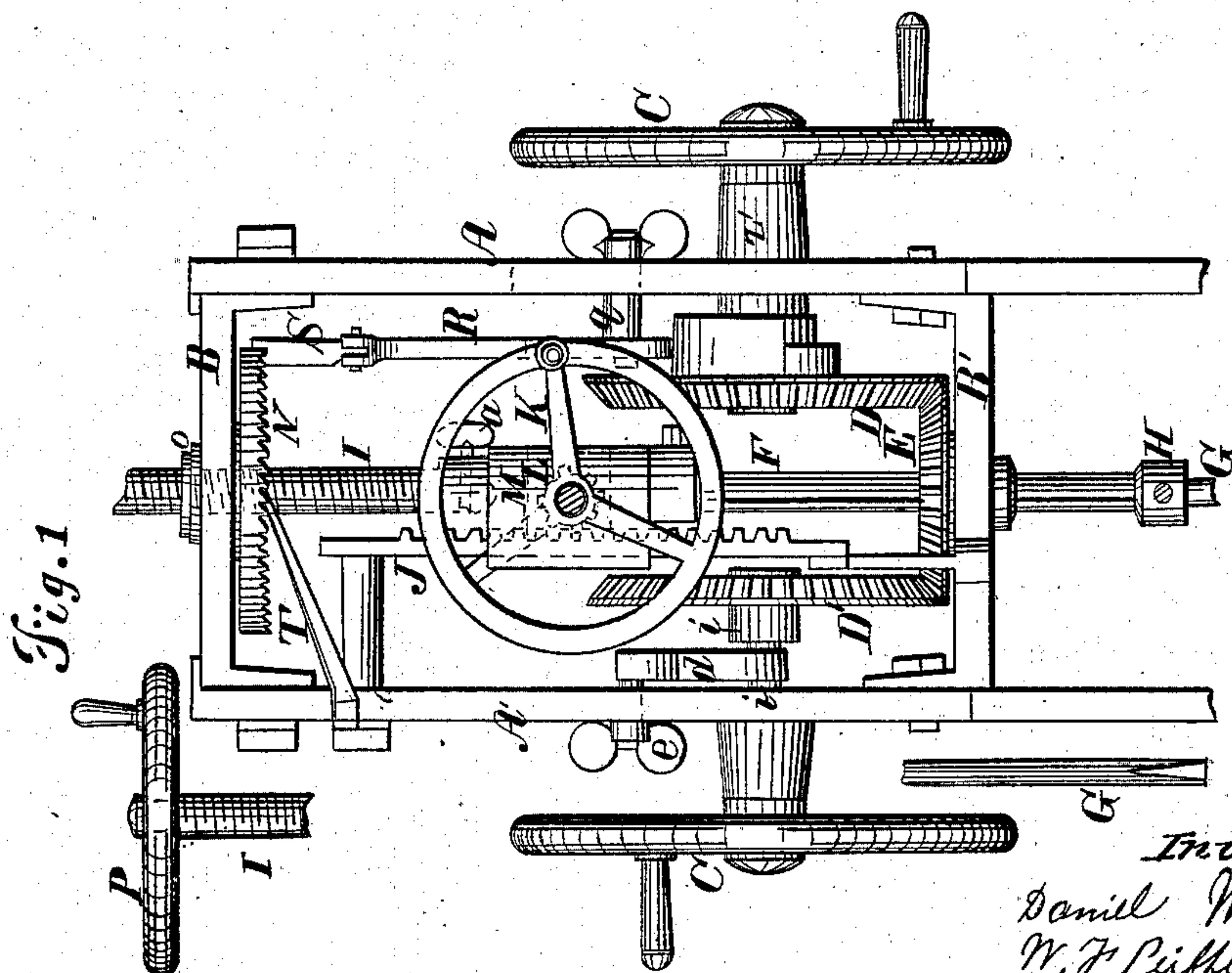
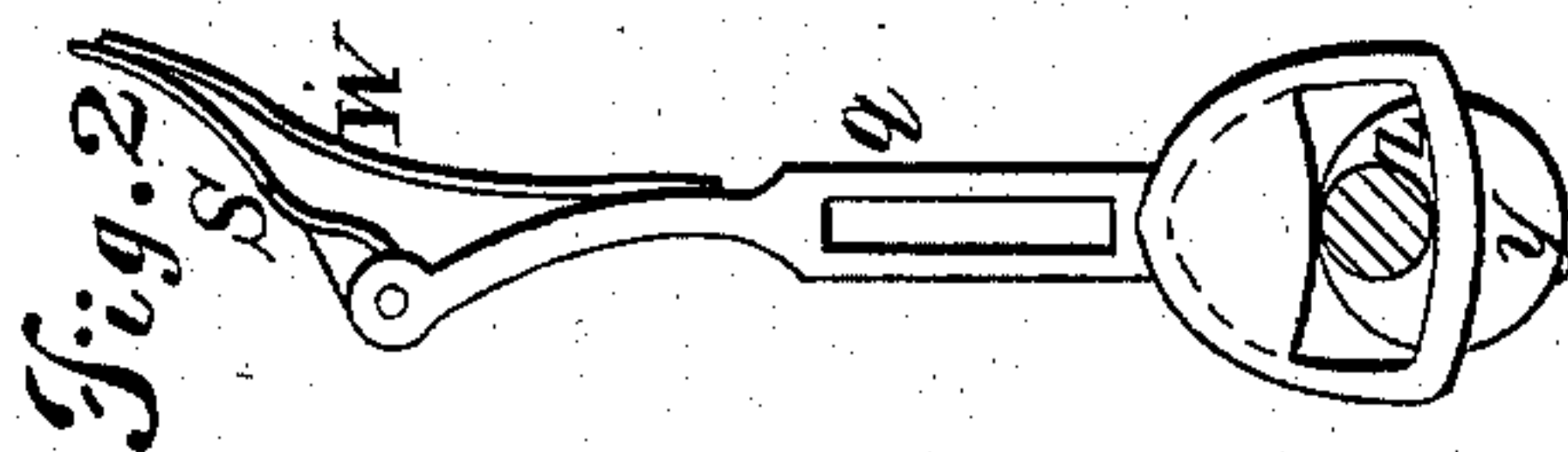
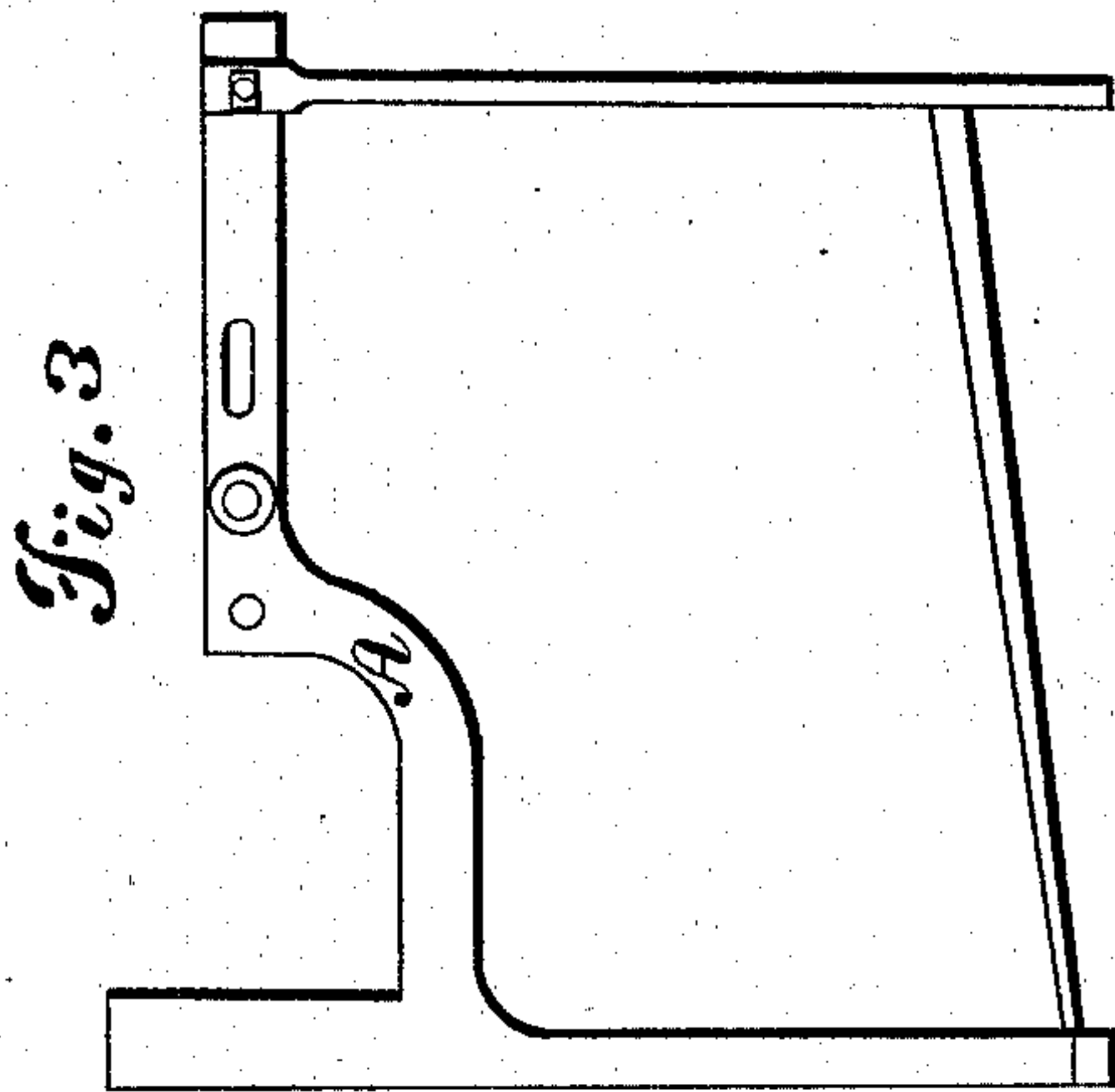


WARNER, PEIFFER & LEPPER.

Metal Drilling Machine.

No. 67,826.

Patented Aug. 13, 1867.



Witnesses:

*W. M. May*  
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*W. F. Piiffer*  
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*Alexander Macon*  
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# United States Patent Office.

DANIEL WARNER, W. F. PEIFFER, AND A. F. LEPPER, OF PORT CLINTON, OHIO.

*Letters Patent No. 67,826, dated August 13, 1867.*

## IMPROVEMENT IN DRILLING MACHINES.

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

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, DANIEL WARNER, W. F. PEIFFER, and A. F. LEPPER, of Port Clinton, in the county of Ottawa, and in the State of Ohio, have invented certain new and useful improvements in 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.

In the annexed drawings A A' represent two uprights, which are made of metal, and which are secured upon a suitable platform or base. B B' represent two metallic cross-pieces, which serve to connect and secure the two uprights firmly together. z z' represent two short shafts, which pass through the uprights A A' at right angles. These shafts are provided on their outer ends with the balance-wheels C C', and on their inner ends with the bevel gear-wheels D D'. F represents a shaft, which stands in a vertical position between the two uprights, and which passes through the hub of the wheel E which revolves in an opening in the lower cross-bar B'. The wheel E has a pin in its hub which takes into a groove in the shaft, whereby motion is communicated to the shaft which is allowed to slide vertically through the wheel E. The two bevel-wheels D D' take into the bevel-wheel E, on opposite sides, as seen. To the lower end of the shaft F the drill G is secured in the socket by means of a set-screw in the enlarged end of the shaft. J represents a rack-bar which is secured between the two uprights, and parallel with the shaft F. M represents a metallic box, a portion of which embraces the rack-bar J, having a groove in it in which the rack-bar passes. A short shaft passes through this box M, and said shaft is provided with a wheel, K, which acts as a balance crank-wheel, and also with a pinion, L, which takes into the teeth of the rack-bar J. The shaft F passes its upper end into the lower side of this box, and a shaft, I, has its lower end inserted in an opening in the upper side of the box, the two shafts, I and F, being on the same vertical line. Both of these shafts are provided with grooves around those ends which enter the box, and the ends of set-screws which pass through the box project into these grooves and prevent the shafts from drawing out, but do not prevent them from revolving. The shaft I has a thread cut upon it. N represents a ratchet-wheel, which is provided with a hub which passes through an opening in the upper cross-bar B. This hub has a thread cut in its inside to correspond with the thread of shaft I. The hub revolves in the opening in cross-bar B. R represents a lever, which has a box formed upon its lower end, in which an eccentric wheel y, upon shaft z, works, giving said lever, when the machine is in operation, a rocking or oscillating motion. This lever R is provided with a slot made longitudinally of it, through which the end of a pin, q, passes, and said lever rocks or oscillates against or over this pin. The upper end of lever R is provided with a spring-pawl, S, which catches into the teeth of the ratchet-wheel N. The lever R, when it oscillates, causes (through its pawl S) the wheel N to revolve intermittently, and this wheel, by means of its thread in its hub, depresses or elevates the shaft I. T represents a spring-pawl which serves to prevent the wheel N from moving in but one direction. d represents the upper portion of journal-box which fits over the shaft or axle z', which is adjustable by means of a set-screw, e. This portion of the box can be removed so as to allow the bevel-wheel D' to be slipped out of gear with the wheel E. The pin q passes through a slot in the support A, and is provided with a screwed end and a nut for tightening it up in the slot. By adjusting this pin higher or lower in its slot the wheel N will be moved more or less, as the operator may desire. The wheel N being for the purpose of feeding the drill to its work through the shafts I and F and box M, it is very important that it should be so arranged that it could be fed as fast or as slowly as the work may require. The drill is made to revolve by turning the crank balance-wheels C C', which cause the wheels D D' to give motion to wheel E upon the shaft F to which the drill is attached. When the wheel C is revolved the eccentric upon its axle causes the lever R to oscillate, as has been described, and to feed the drill to its work. The screw is elevated by means of a hand-wheel, for that purpose provided, when the drill may be raised at the same time. It will sometimes be desirable in drilling softer material to feed faster than can be done by the feeding mechanism heretofore described. The shaft I can be elevated so as not to obstruct the upward movement of box M, and the feeding and elevating operations performed by the hand-wheel K, pinion L, and rack-bar J. The frame of this machine may be placed in a horizontal position, as seen in fig. 3, which would leave the drill lying horizontally, or it may be placed vertically, as in fig. 1.

Having thus fully described our invention, what we claim is—

1. The arrangement of shafts  $z z'$ , bevel-wheels D D, and bevel-wheel E with shaft F and box M, as and for the purpose specified.

2. In combination with the subject-matter of the first claim, we claim the hand-wheel K, pinion L, rack J, and box M, all constructed and arranged substantially as and for the purpose specified.

3. The lever R, constructed and used as specified, with the wheel N and shaft I, as and for the purpose set forth.

In testimony that we claim the foregoing, we have hereunto set our hand this 30th day of March, 1867.

DANIEL WARNER,  
W. F. PEIFFER,  
A. F. LEPPER.

Witnesses:

J. M. S. WERN,  
O. E. PYE.