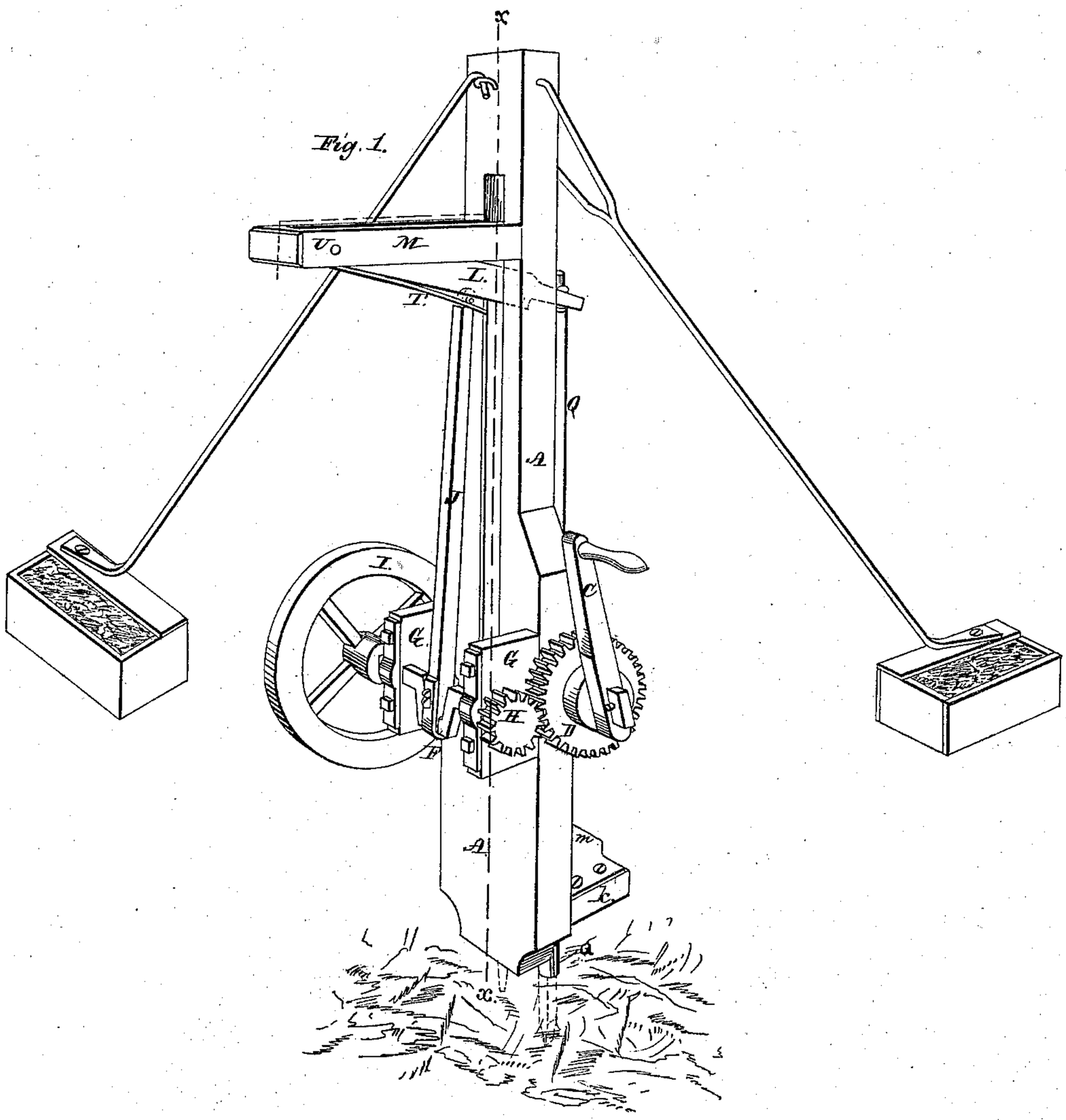
Sheet 1-2 Sheets.

# W. M. Barton,

# Stone Drill,

No. 15,591, Patented Aug. 19, 1856.

Fig. 1.



Sheet 2-2 Sheets.

# W. M. Barton,

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Fig. 2.

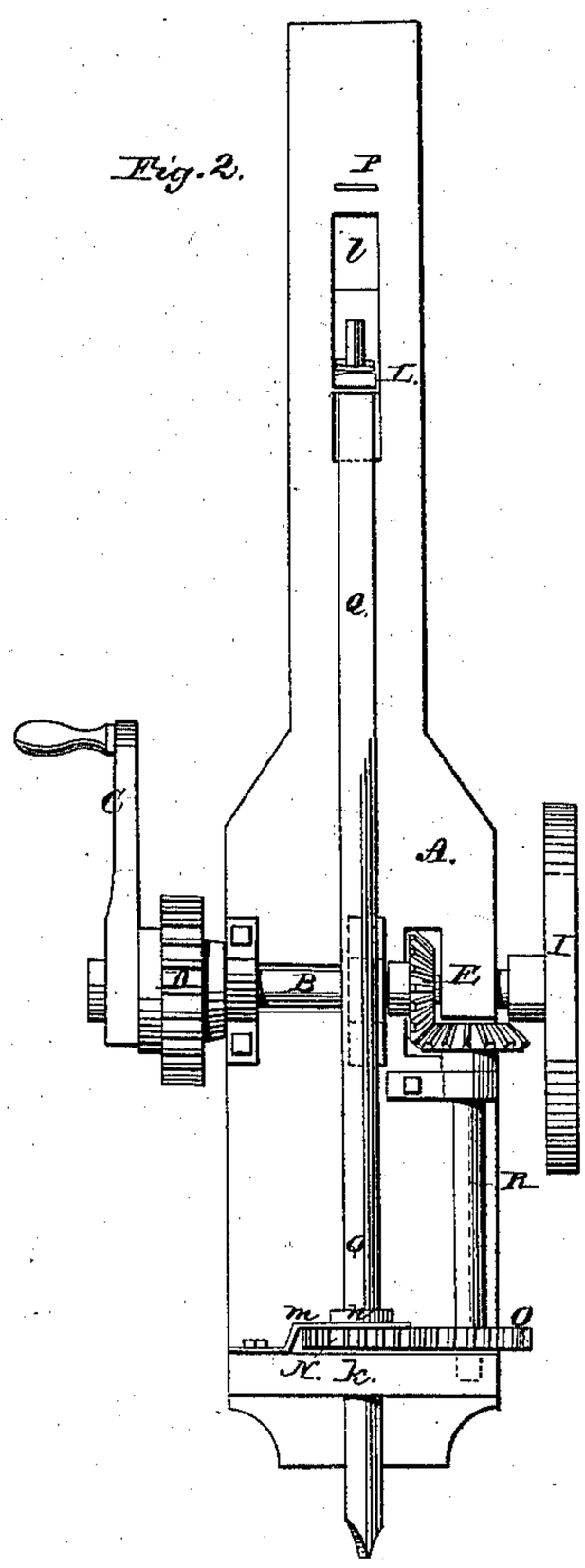
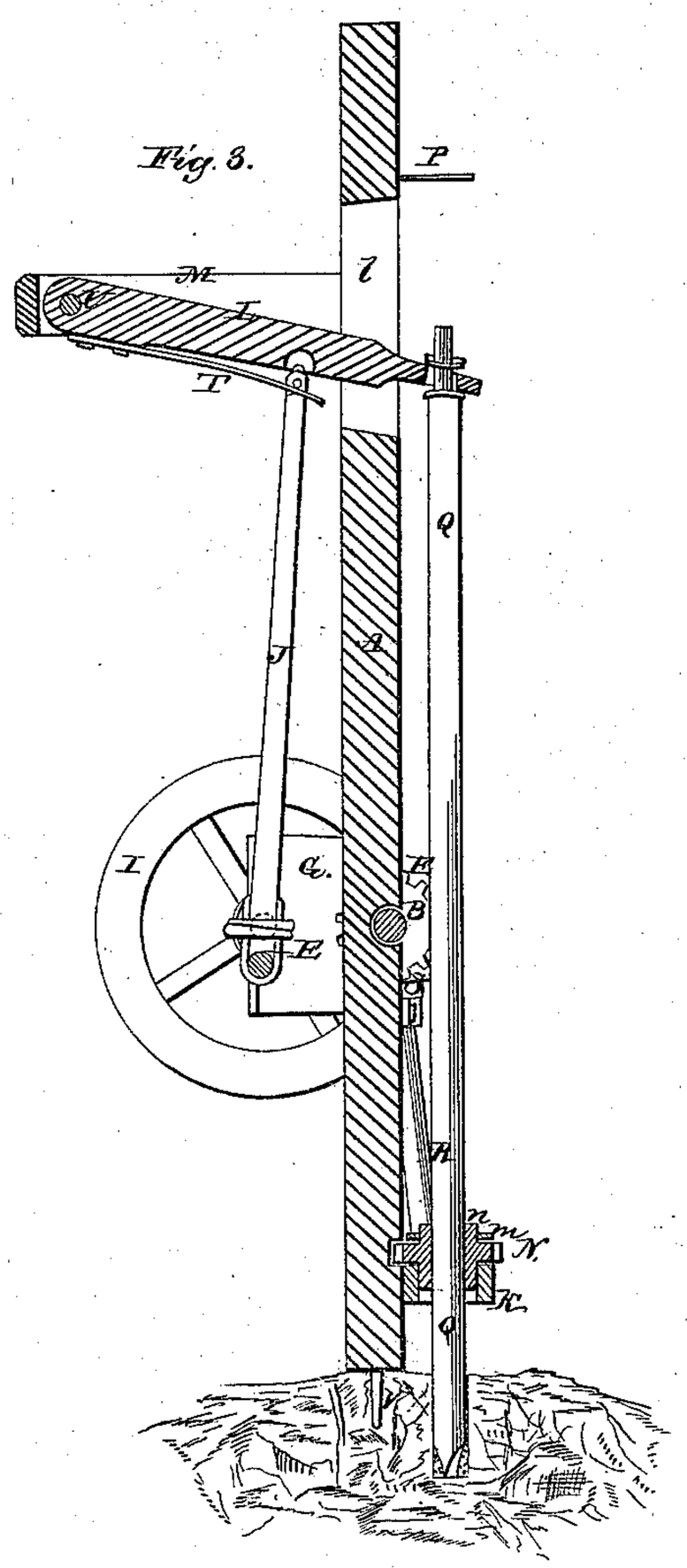



Fig. 3.



# UNITED STATES PATENT OFFICE.

WILLIAM M. BARTON, OF RUSSELLVILLE, TENNESSEE, ASSIGNOR TO WM. M. BARTON AND ROBERT M. BARTON.

## MACHINE FOR DRILLING AND DRESSING STONE.

Specification of Letters Patent No. 15,591, dated August 19, 1856.

*To all whom it may concern:*

Be it known that I, WILLIAM M. BARTON, of Russellville, in the county of Jefferson and State of Tennessee, have invented a new and useful Improvement in Drilling and Dressing Stone, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, representing my improvement as applied to a hand churn-drill, of which—

Figure 1 is a view in perspective; Fig. 2, a side elevation, and Fig. 3 is a longitudinal section at the line *x*, *x*, in Fig. 1.

In the accompanying drawing it will be seen, that instead of having a cumbrous frame to support the different parts of the drill, a simple slab (A) is employed for that purpose, upon which, they are conveniently and compactly arranged. Near the middle of the slab a recess is made to receive a transverse shaft (B) held in place by suitable boxes. One end of this shaft projects beyond the edge of the slab, and has a crank handle (C), attached to it, by which the drill is operated. Between this handle and the slab, this shaft (B) carries a cog wheel (D) while its other end carries a bevel pinion (E), working in a recess in the slab. On the other side of the slab and directly opposite to the shaft (B) a crank shaft (F) is supported on two brackets (G), a pinion (H) being mounted on one end of said shaft (F) which matches with the cog wheel (D) on the shaft (B) and a fly wheel (I) on its opposite end. The crank shaft carries the connecting rod (J) which communicates the motion of the bell crank to the cutter or drill.

The drilling instrument is arranged on the same side of the slab as shaft (B), having its lower end square in its section and guided in the square eye of a wheel which eye permits the drill to rise and fall freely, while the wheel (N) rotates it. The wheel (N) is supported in a bracket (*k*) projecting from the lower end of the slab. The drill at its head is attached to the end of an arm (L) which projects through a mortise (*l*) made for that purpose in the slab, the opposite end of the arm being pivoted to a bracket (M). A small but stiff recoil spring (T) situated immediately above the head of the drill stock (Q) so as to be pressed back by its rise, acts on its descent to increase the force of the blow.

The rotation of the drill is effected by making its shank square and passing it through the square eye in the shaft of a small pinion (N) which shaft (*n*) has one of its bearings in the bracket (*k*) and the other in another plate or bracket (*m*) bolted thereto; said pinion (N) meshing into a similar pinion (*o*) on the end of a shaft (R) mounted in suitable bearings on the other end of which shaft a bevel pinion (S) is carried which meshes into the bevel pinion (E) on the shaft of the crank handle. From this it is plain that the turning of the handle (C) gives to the drill a rotary motion simultaneously with the reciprocating motion already mentioned. The gearing must be so proportioned as to establish the desired relation between the frequency of the strokes and the revolutions of the drill.

From the foregoing it is clear that, were the connecting rod directly and unyieldingly connected with the arm (L) the drill which is carried by said arm, must necessarily advance its full stroke at each revolution of the crank shaft or the machine either must be stopped or broken; consequently it is impossible in this manner to drill a hole, which can only be accomplished by a succession of unequal strokes, each advancing beyond the other and penetrating to a gradually greater depth. Therefore to remedy this and to obtain all the advantages of a positive motion, I connect the pitman to the arm (L) by means of a stiff spring (T) which will permit the crank and pitman to continue their motion at full stroke when the drill and its arm are arrested. The spring is secured by one end near the pivot (U) of the arm, and by its other to the pitman and forms the connection between the two. The base of the drill is held in place by an iron projection (V) which is pointed and either penetrates the surface of the rock or is supported in any desired angle by braces extending from its top and forming two legs of a tripod standard while the slab forms the third leg.

It is obvious that under the arrangement of parts before described, the machine is made very compact and yet the drill has a long range of stroke with ample provision against breakage, and works steadily, the weight of the drill on one side of the slab or stock being counterbalanced by that of the vibrating arm, connecting rod and

crank, on the other; while on the other two opposite sides, the winch with the gearing on the one, counterbalances the fly wheel on the other.

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

The arrangement herein described, of the drill Q on one side of the slab or stock A, and the crank F, and connecting-rod J on the other, with the spring T and vibrating arm L to connect the said drill and connecting rod, as herein set forth.

In testimony whereof, I have hereunto subscribed my name.

WILLIAM M. BARTON.

In presence of—

CLISBE RIGGS,

ROLEN G. ESTES.