

No. 668,112.

Patented Feb. 12, 1901.

S. MESSROPIAN.
STONE BORING MACHINE.

(Application filed Sept. 8, 1900.)

(No Model.)

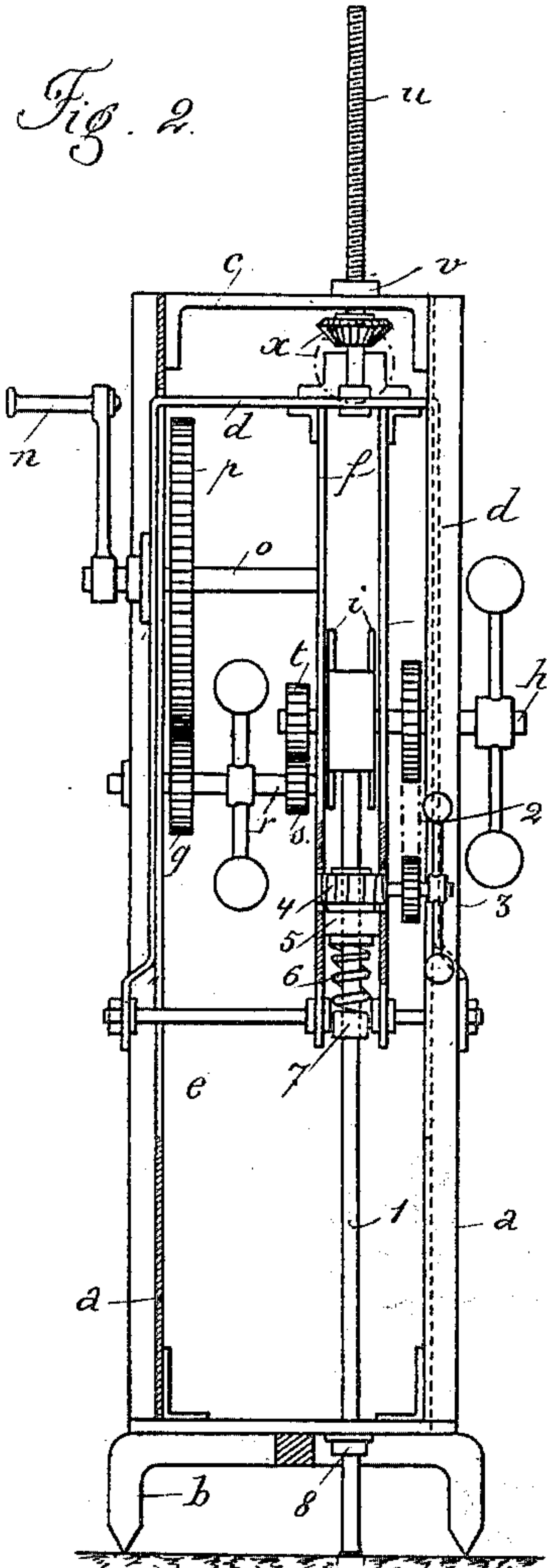


Fig. 2.

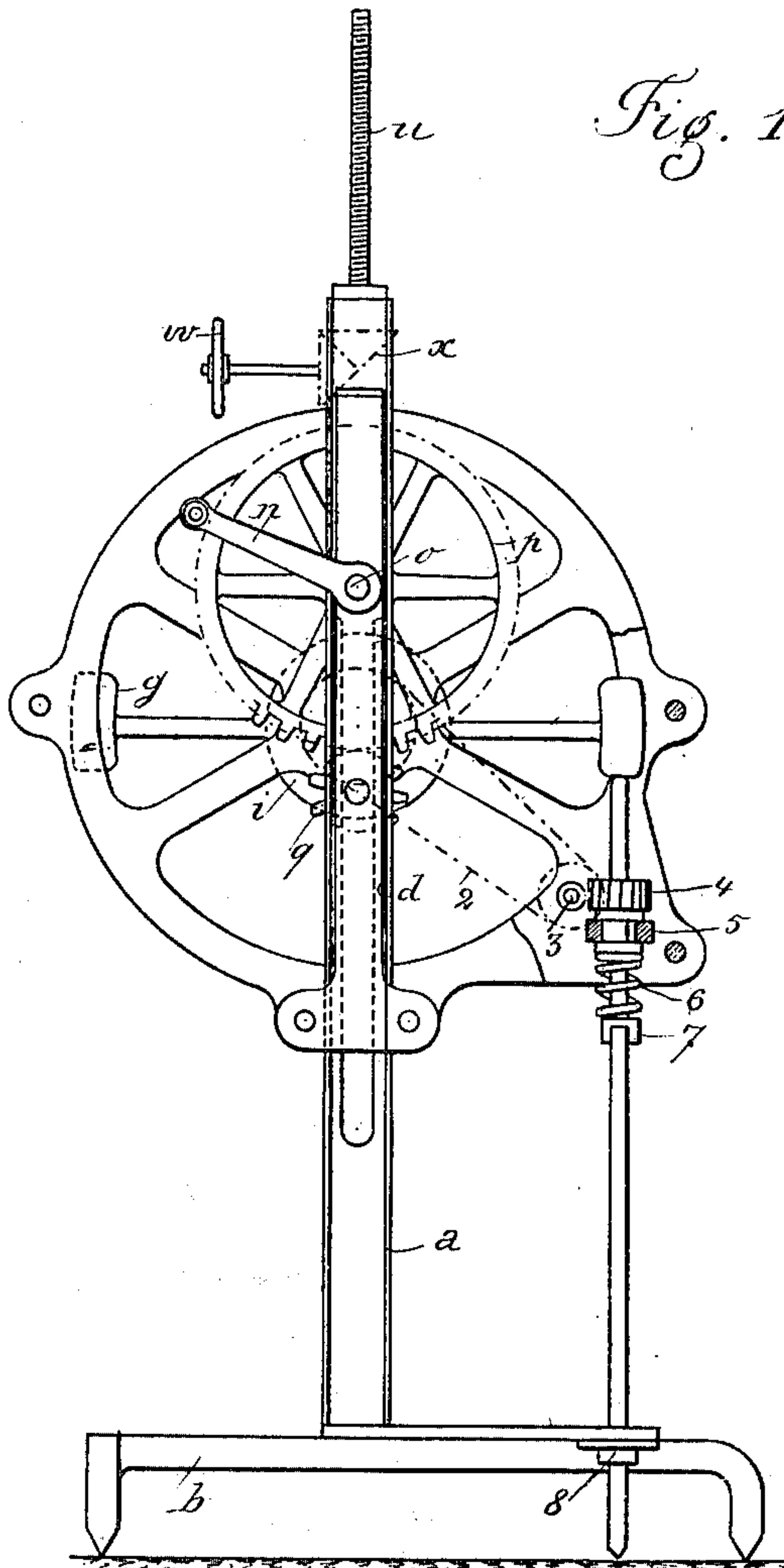


Fig. 1.

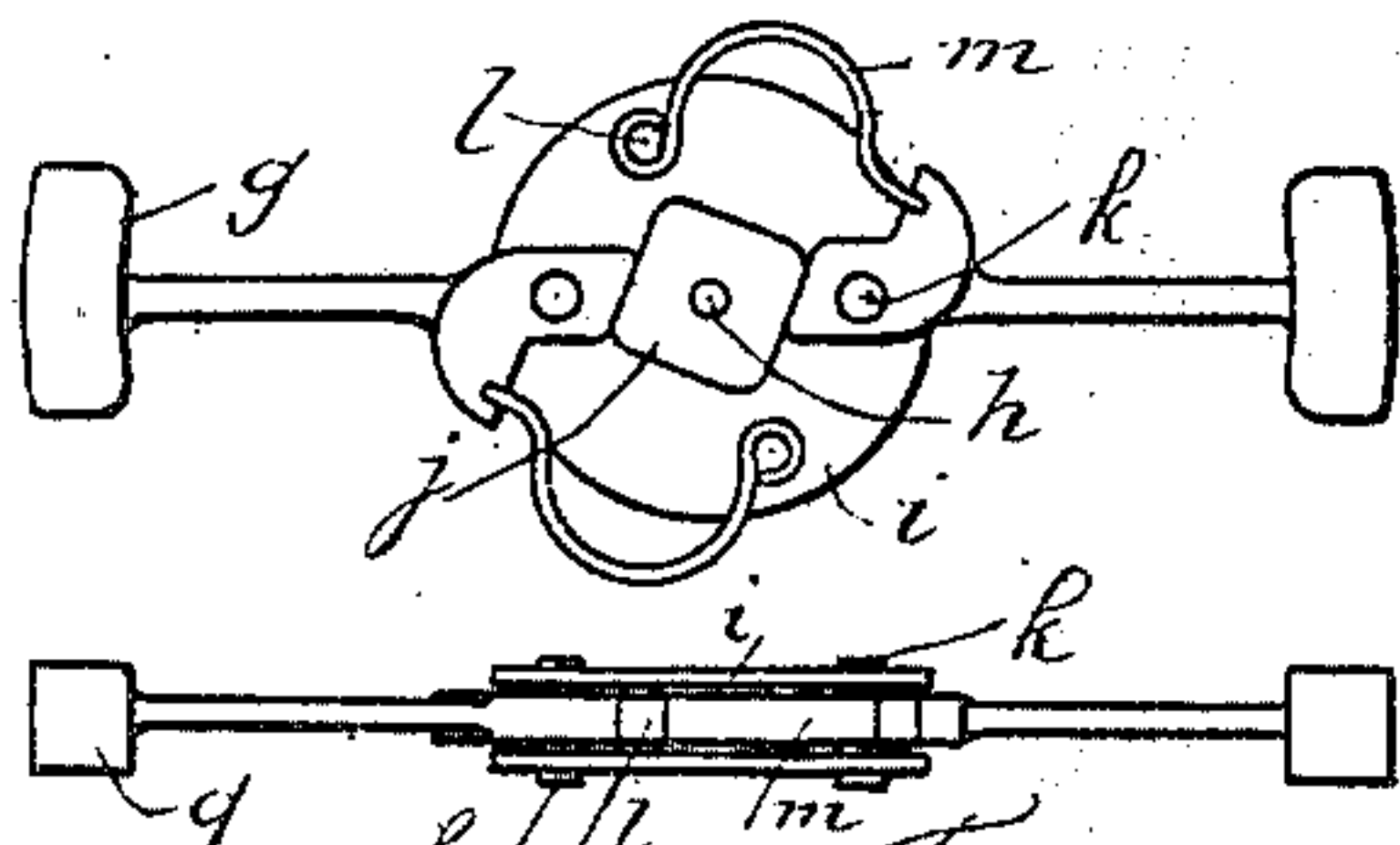


Fig. 4.

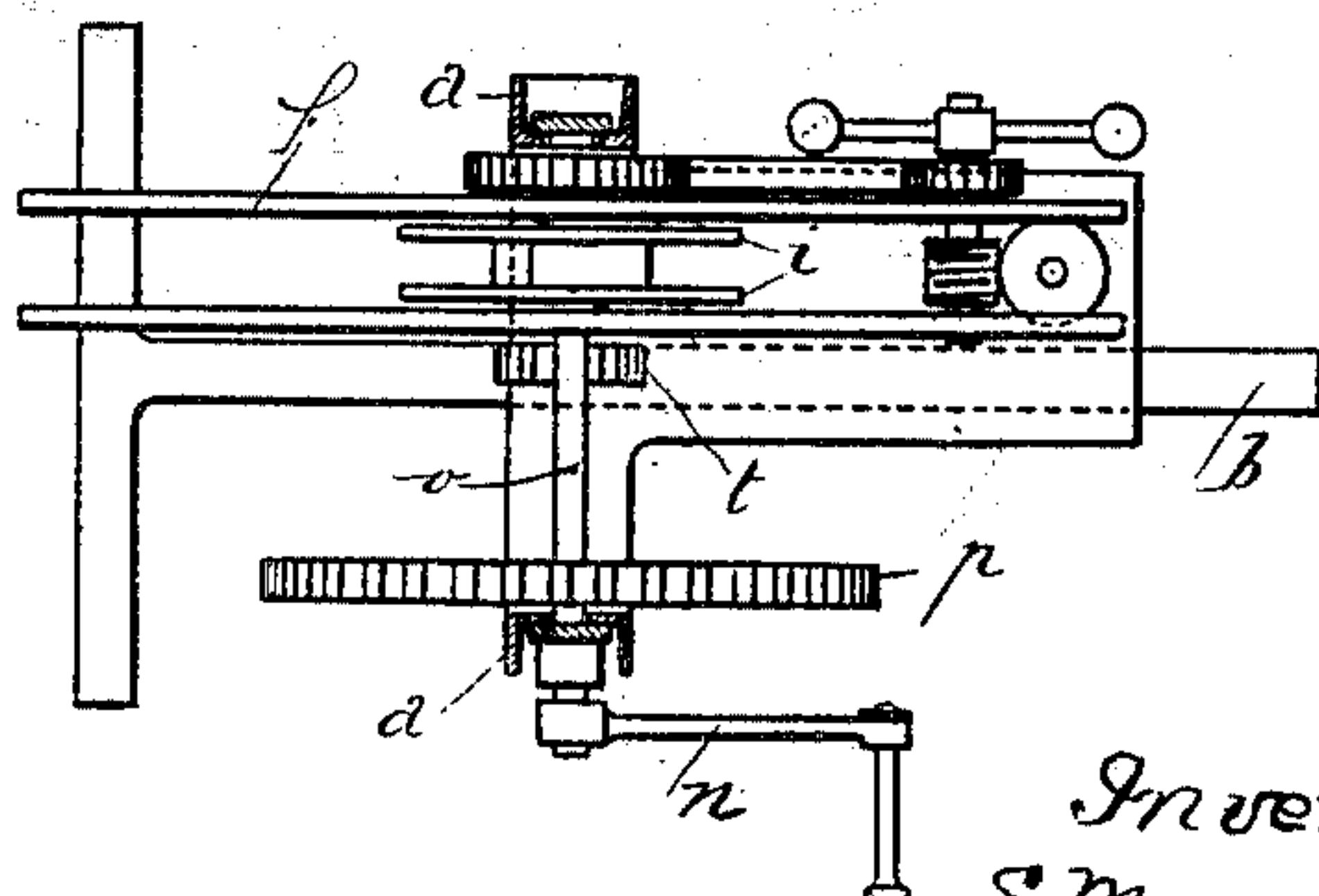


Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

SAMSON MESSROPIAN, OF TOULON, FRANCE.

STONE-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 668,112, dated February 12, 1901.

Application filed September 8, 1900. Serial No. 29,400. (No model.)

To all whom it may concern:

Be it known that I, SAMSON MESSROPIAN, a citizen of the Republic of France, residing at Toulon, France, have invented certain new and useful Improvements in Stone-Boring Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to machines for boring rocks or stones, as in stone-quarries, the object of the invention being to provide an improved machine of this class capable of being operated by power or by hand.

With this object in view the invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically claimed.

Referring now to the accompanying drawings, which illustrate the machine as an example, Figure 1 is a side view, partly in section. Fig. 2 is a front view, partly in section. Fig. 3 is a top view, in which the hammers are supposed to be taken away. Figs. 4 and 5 are side and top views of the details of the plates and hammers.

a a are two iron U-shaped standards fixed at their lower end to a tripod-stand *b* and united together at their upper end by a rigid cross-bar *c*. A movable frame *d*, sliding in the grooves *e* of the U-shaped iron standards, carries two plates *f*, forming a cage within which are located the articulated and operating parts of the hammers *g*. On the shaft *h* are fixed both plates *i*, which are connected together by a square piece *j* and by the four rods *k k l l*. The rods *k k* form pivots for the articulated hammer-handles, which are provided at their ends with cams which rest against the sides of the square piece *j*. When they are in the radial position, these cams are subjected to the impulse of springs *m m*, which being secured on rods *l l* always retract the handles to their radial position as soon as they have given a blow. At the side opposite to the point of action of the springs these cams are rounded and allow the handles of the hammers to be kept back until the heads of the hammers have left the top of the borer through the rotation of the plates.

The movement of rotation is transmitted to the shaft *h* by a crank *n*, a shaft *o*, the gears *p q*, a shaft *r*, and the gears *s* and *t*, the latter gear *t* being keyed on the shaft *h*. The whole mechanism is located within the frame *d* and the plates *f*, and it may be raised up and lowered as desired by the hands of the workman through the screw *u*, rotating in the stationary nut *v*, by means of the hand-wheel *w* and the bevel-gears *x x*.

The borer 1 is rotated automatically by a chain 2, running from the shaft *h* to a shaft 3, bearing in both plates *f*, and upon which is keyed a screw which transmits the motion to the wheel 4, held by a stationary piece 5. The top of the borer is square and goes through the wheel 4. A spiral spring 6, bearing at one end against the piece 5 and at the other end against a collar 7 on the borer 1, prevents the borer from jumping up after each blow.

On the shafts *o*, *h*, and 3 are mounted ball fly-wheels for controlling the movement of rotation. At the lower end the borer is guided in a hole 8.

To work by machinery-power, the crank *n* is replaced by a pulley. The tripod-stand may be constructed so as to permit of the inclination of the apparatus for boring in an oblique direction.

I claim—

In a stone-boring machine, the combination with a rotary shaft of two plates secured thereto, a polygonal piece secured centrally between said plates, hammers having handles pivoted between said plates, cams on the hammer-handles each provided with a flat face to rest on a face of the polygonal piece, rods connecting the plates, and springs, each attached at one end to one of said rods and at the other end to the hammer-handle cams with a tendency to keep the flat faces of the cams in contact with the faces of the polygonal piece, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SAMSON MESSROPIAN.

Witnesses:

ALEXIS GAVARD,
ANDRÉ GASTINEL.