(No Model.) 2 Sheets—Sheet 1.

A. SCHWITTER.

ROSE ENGINE.

No. 355,562. Patented Jan. 4, 1887.

Fig. 2.

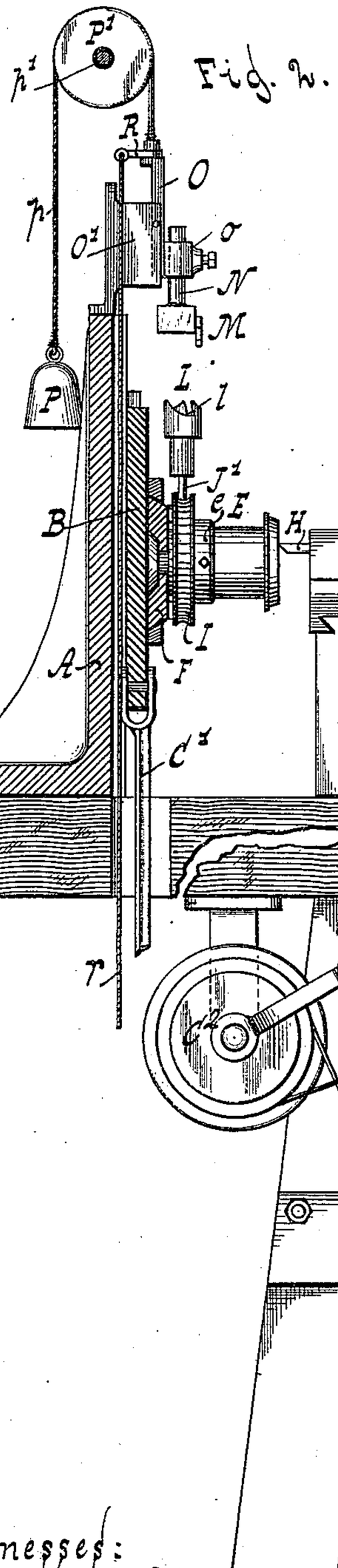
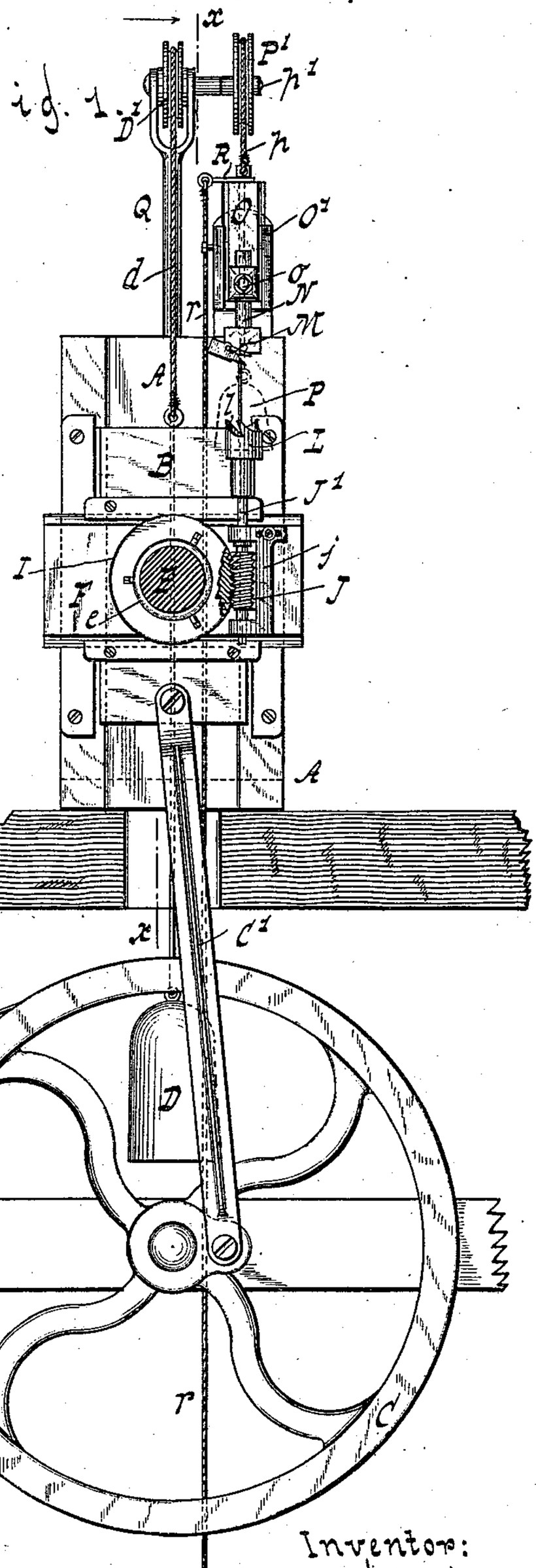


Fig. 1.



Witnesses:
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William Miller

Inventor:
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by Van Santvoord & Hauff
his Attorneys.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

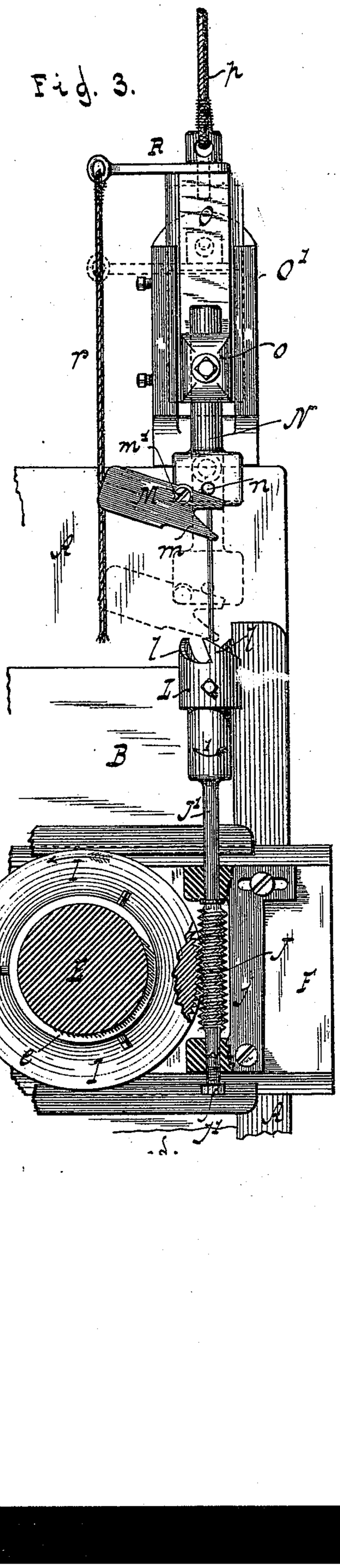
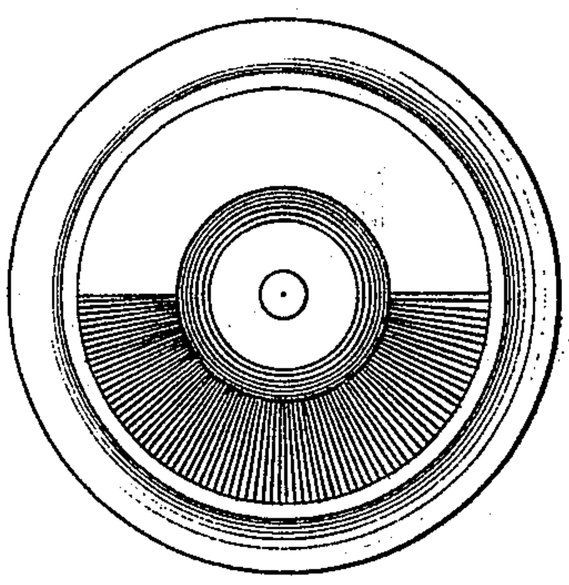


Fig. 4.



Inventor:
Anton Schwitter.
by Van Santvoord & Hauff
his Attorneys.

UNITED STATES PATENT OFFICE.

ANTON SCHWITTER, OF BROOKLYN, NEW YORK.

ROSE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 355,562, dated January 4, 1887.

Application filed May 20, 1886. Serial No. 202,767. (No model.)

To all whom it may concern:

Be it known that I, ANTON SCHWITTER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Rose-Engines, of which the following is a specification.

My invention consists in an attachment to rose-engines which is constructed to impart a rotary feed to the work-support; and it consists, essentially, of a toothed ring geared to the work-support and a drop-cam secured to a slide which engages with said toothed ring to rotate the same, thereby revolving the work-support, all of which is more fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a sectional front elevation of a rose-engine provided with my improvement. Fig. 2 is a vertical section thereof in the plane *x x*, Fig. 1. Fig. 3 is a sectional elevation of the feeding mechanism on a larger scale than the preceding figures. Fig. 4 is a face view of a watch-case partially engraved.

Similar letters indicate corresponding parts.

In these drawings, the letter A designates a frame, into which is fitted the carriage B, that can reciprocate vertically. Various means may be used for imparting to the carriage its up-and-down movement—such as a rack and pinion or suitable levers.

In the example shown by the drawings, Fig. 1, I have represented a crank-wheel, C, which is connected to the carriage by a pitman, C′, and is rotated by its belt connection with a cone-wheel, C^2, that is turned by hand. The weight of the carriage, Fig. 1, is counterbalanced by a weight, D, that is attached thereto by a rope, *d*, passing over a pulley, D′, so that it can be moved very easily. On the carriage B is mounted the work-support E, which, as shown in this example, is secured so as to be capable of rotation to a slide, F, that is fitted into guideways extending transversely across the carriage; but for the purposes intended to be accomplished by this invention the work-support may be secured directly to the carriage B. The tail-stock G, Fig. 2, is constructed with a bed-plate having guides for a bed, *g*, which can move parallel to the face of the work-support, and a tool-carriage, *g′*, which can be moved to and from the work-support in suitable guideways, and to this latter the graver H is secured.

The above-described mechanism constitutes part of a well-known rose-engine, and is represented to more clearly show the application and operation of my feeding mechanism.

A worm-wheel, I, Fig. 3, is rigidly secured to the work-support, and it is engaged by a worm, J, the spindle J′ of which has bearings in a bracket, *j*, that is secured to the slide F. The lower end of the spindle rests upon one end of a screw, *j′*, so that the worm can be adjusted vertically. The spindle extends vertically upward and carries a ring, L, having thereon teeth *l*, (two or more,) which are adapted to be consecutively engaged by a cam, M, that is arranged in line with said teeth and is provided with a tooth, *m*. When the cam is brought downward to bear upon one of the teeth the spindle J′, and consequently the worm thereon, is turned in the direction of arrow 1, Fig. 3, and the work-support is rotated. The cam is pivoted at *m′* to a shank, N, and in order that it may be moved freely up and down the shank is secured in the post *o* of a slide, O, that is guided and can reciprocate vertically in the ways of a frame, O′, secured to the frame A. A pin, *n*, on the shank N prevents the cam from deviating when it engages the teeth; but the cam can oscillate so as to clear the front of the tooth on the upward movement. The weight of the slide O and that of the parts attached thereto are overbalanced by a weight, P, Figs. 1 and 2, which is attached to the slide by a string or rope, *p*, that passes over a pulley, P′, having bearings on a shaft, *p′*. This shaft is secured to a forked standard, Q, Fig. 1, which also supports the pulley previously mentioned. This weight P constantly holds the slide in its raised position, as shown by full lines in Fig. 3, and in order to lower the cam M into engagement with the toothed ring L an arm, R, is secured to the top of the slide, and this is connected by a rope or wire, *r*, with a treadle or lever, R′, Fig. 1, so that the operator by depressing this treadle with his foot can accomplish the rotation of the work-support.

In Fig. 4 is shown a watch-case on which are engraved radiating lines, such as are pro-

duced by the action of the graver upon the same as the carriage reciprocates vertically, and the work-support is turned after each up-and-down movement.

The toothed ring I is attached to the spindle J′ by a key, screw, or other means, so as to allow it to be removed and replaced by another, and its teeth are of such a length that the rotation through the length of one tooth gives the desired rotation of the work-support, and consequently the distance between the linear cuts of the tool. By providing rings of the same diameter, but with varying number of teeth, a greater or less amount of feed can be obtained. The height of the cam M above the toothed ring can be adjusted by shifting the shank N in the post *o*.

In the example shown in the drawings the work-support consists of a chuck, *e*, with which the gear I is integral, and this chuck is secured in the slide so as to be capable of rotation by a conical nut which is countersunk in the slide. The mandrel to which the work is attached is secured in this chuck.

The object of my invention is to provide mechanism which will accurately feed the work-support, and which mechanism can be operated by foot, so as to leave the hands of the operator free.

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

1. The combination, with the work-support, of a toothed ring geared thereto, and a drop-cam arranged in line with and adapted to engage with the teeth on said ring, and means, such as described, for drawing the cam into engagement with the toothed ring, substantially as described.

2. The combination, with the frame A and the work-support, of the toothed ring geared thereto, the frame O′, secured to the frame A, the slide guided in said frame, the shank adjustably attached thereto, and the cam secured to the shank and constructed to engage with the toothed ring, substantially as set forth.

3. The combination, with the frame A, of a slide reciprocating on said frame, a work-support on said slide, a toothed ring geared to said work-support, a frame, O′, secured to the frame A, the slide fitted in said frame and carrying an adjustable shank, a toothed drop-cam pivoted to said shank and constructed to engage with the toothed ring, and means, such as described, for drawing the cam into engagement with the toothed ring, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

ANTON SCHWITTER. [L. S.]

Witnesses:
A. FABER DU FAUR, Jr.
E. F. KASTENHUBER.