

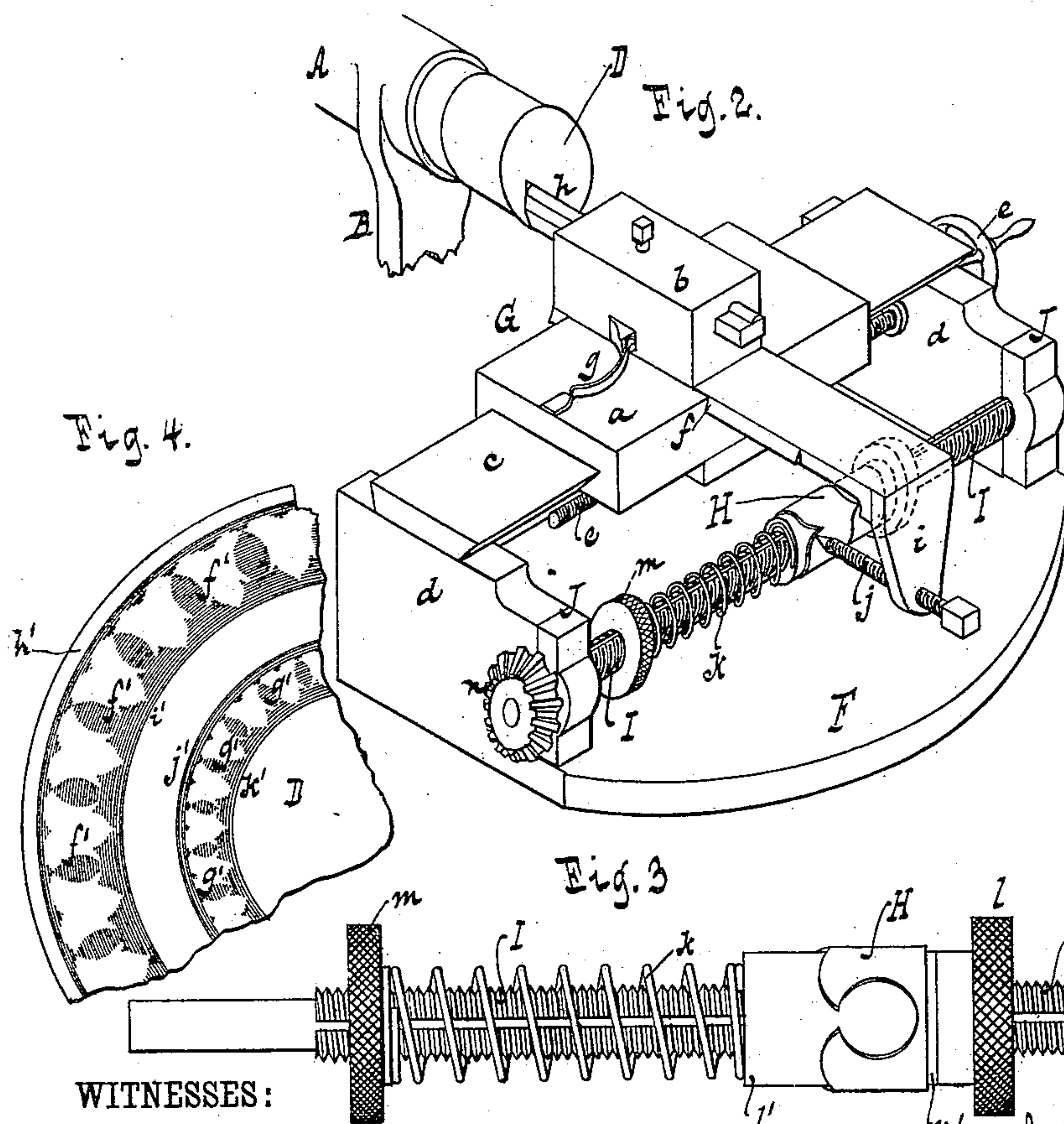
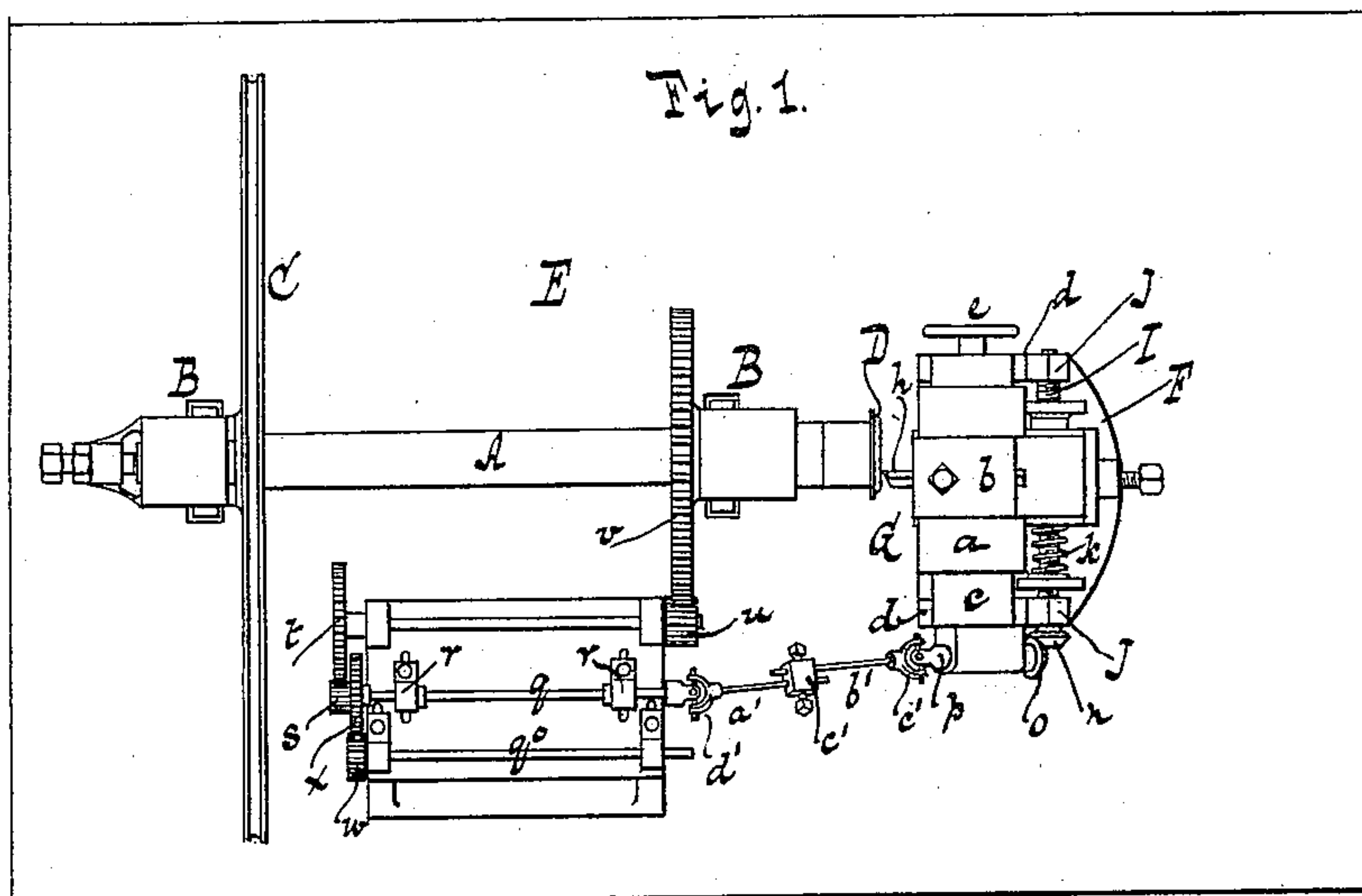
(No Model.)

A. SCHWITTER.

ROSE ENGINE.

No. 297,454.

Patented Apr. 22, 1884.



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ROSE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 297,454, dated April 22, 1884.

Application filed January 24, 1884. (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.

This invention relates to an improvement in rose-engines, whereby patterns which are composed of a series of uniform designs—such, for instance, as a series of leaves of the same form, which may be termed “repetition designs”—can be produced by means of a pattern-die containing a single one of said repetition designs; and, furthermore, different patterns can be produced by means of one and the same pattern-die.

The peculiar and novel construction of the rose-engine which forms the subject-matter of my invention is pointed out in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 represents a plan or top view. Fig. 2 is a perspective view of that portion which embodies my invention, on a larger scale than the previous figure. Fig. 3 is an elevation of the spindle which carries the pattern-die, on a larger scale than the previous figure. Fig. 4 is a portion of a pattern produced by means of my rose-engine.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates an arbor, which has its bearings in standards B, and to which a revolving motion is imparted by a belt-pulley, C. On one end of this spindle is secured the article to be ornamented. In the example shown in the drawings this article consists of a metallic disk, D, which may form the back plate of a watch-case. The standards B, which form the bearings of the arbor A, rise from a bed-plate, E, and on this bed-plate is adjustably secured a secondary bed-plate, F, which carries the slide-rest G and the pattern-die H. The slide-rest G consists of two slides, *a b*, the slide *a* being fitted on a guide, *c*, which is firmly secured to standards *d*, rising from the secondary bed-plate F. A screw, *e*, serves to adjust the slide *a* on its guide *c*. The slide *b* is fitted in a guide-groove, *f*, extending transversely across the slide *a*, and it is pressed toward the end of the spindle A by a spring, *g*; or, if desired, this spring

can be omitted, and the slide *b* can be pressed toward the end of the spindle A by hand, as will be hereinafter more fully explained.

In the head of the slide *b* is secured the tool or graver *h*, and the tail of said slide is provided with a depending lug, *i*, which carries the tracer *j*. The pattern-die H is feathered on a spindle, I, which has its bearings in boxes J, secured to or formed on the ends of the standards *d*, and on said spindle is placed a spring, *k*, which has a tendency to force the pattern-die toward a thumb-nut, *l*, which is tapped to fit a screw-thread on the spindle. The tension of the spring *k* can be adjusted by a nut, *m*.

On one end of the spindle I is mounted a bevel-wheel, *n*, which gears into a bevel-wheel, *o*, Fig. 1, mounted on a shaft, *p*, to which motion is transmitted from a shaft, *q*, which has its bearings in standards *r r*, rising from or firmly secured to the main bed-plate E, and which is geared together with the spindle A by cog-wheels *s, t, u*, and *v*. (See Fig. 1.) These cog-wheels are so proportioned that the pattern-spindle I revolves at a greater velocity than the spindle A, which carries the disk D, and in the example shown in the drawings an additional shaft, *q'*, is shown, which is geared together with the shaft *q* by cog-wheels *w x*, so that when the motion is transmitted to the pattern-spindle I from the shaft *q'*, instead of from the shaft *q*, the relative velocity between the spindle A and the pattern-spindle I is changed. Of course, the same effect may be produced by providing several sets of gear-wheels, so that the speed of the pattern-spindle can be adjusted to a variety of work. The shaft *q* (or *q'*) is connected to the shaft *p* by two rods, *a' b'*, which are connected together by a coupling, *c'*, so that their combined length can be increased or decreased, as may be requisite. The rod *a'* is connected to the shaft *q* by a universal joint, *d'*, and the rod *b'* is connected to the shaft *p* by a universal joint, *e'*, such being necessary, because the two shafts *p* and *q* are not situated in line with each other, neither are they at all times in the same plane, since the secondary bed-plate F must be adjusted on the main bed-plate E, in accordance with the shape of the article to be ornamented, as is well known in rose-engines.

In the example shown in the drawings the

disk D is ornamented with two series of repetition designs, f' and g' , the number of each of the repetition designs being twenty-four. The pattern-die contains the counterpart of a single repetition design on an enlarged scale, one half of such design being shown in Fig. 2 and the other half in Fig. 3. By referring to these figures, it will be seen that the design on the pattern-die is much larger than each of the repetition designs f' and g' on the disk; but, notwithstanding this fact, both series of designs f' and g' are produced by means of one and the same pattern-die. The pattern-spindle I makes twenty-four revolutions to each revolution of the spindle A, and the pattern or design contained on the pattern-die is repeated twenty-four times on the disk D. At the low places of the pattern-die the tracer moves inward, and the graver is permitted to act on the disk D, and if the trace comes opposite a high place on the pattern, the graver is thrown out of contact with the disk. The design produced by the graver on the disk D consists of a series of circular lines, Fig. 4, which are continuous all round as long as the tracer is opposite to a low place of the pattern-die continuing all round without interruption; but if the tracer is opposite to a portion of the pattern-die which is partially low and partially high, the circular lines produced on the disk D are not continuous, being interrupted by blank spaces. After each complete revolution of the disk D, the slide a is moved by means of the screw e , so as to bring the point of the graver nearer to or farther from the center of the disk D, and the pattern-die H is moved on its spindle I by means of the nut l . This last-named movement must be so gaged that, assuming the tracer at the time that the graver produces the circular line h , Fig. 4, is opposite or next to the end i of the pattern-die, Fig. 3, said tracer will have traveled or been moved to the opposite end, m' , of the pattern-die by the time that the graver produces the circular line i' , Fig. 4. In other words, the movement of the pattern-die on its spindle depends upon the proportion of the distance between the extreme circles of the design, and of the distance between the ends l' m' of the pattern-die, and said movement must be greater for each revolution of the disk D when the distance between the extreme lines of the design is diminished. For instance, in making the design g' , Fig. 4, the movement of the pattern-die on its spindle must be greater after each revolution of the disk D than it is in making the designs f' . If it is desired to bring the extreme lines i' h' of the designs f' , for instance, closer together, the proportional movement of the pattern-die

is increased, and the nature of the whole design is thereby changed more or less, and by changing the relative speed of the pattern-die and of the disk D another change in the design is effected, so that by means of one and the same pattern-die a large number of different designs can be produced.

The movements of the screw e and of the nut l can be effected by hand, and a skillful and practiced workman can produce good work with great rapidity; but suitable mechanism may be provided for moving the screw e and the nut l . For instance, a ratchet-wheel may be mounted on the screw e , and a suitable pawl may be so arranged that it turns the ratchet-wheel one tooth for each revolution of the spindle A which carries the disk D, and a similar mechanism may be used for turning the nut l .

I am aware that designs are produced by means of pattern-dies mounted in rose-engines in a manner similar to mine; but in all cases known to me each pattern-die contains the entire design to be produced and revolves with the same speed as the disk or other article on which the design is to be copied. In this case the pattern-die requires no movement in the direction of the length of its spindle, and for each new design a new and very expensive pattern-die must be provided. I do not therefore claim, broadly, as my invention the combination of the graver, the tracer, and the pattern-die.

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

1. The combination, substantially as hereinbefore described, with the tracer, the graver, the pattern-die, and with the spindle which carries the work or the article to be acted upon by the graver, of a multiplying-gear for imparting to the pattern-die a revolving motion faster than that of the spindle which carries the work, and of means for moving the pattern-die in the direction of the length of its supporting-shaft.

2. The combination, substantially as hereinbefore described, of the spindle A, shaft q , multiplying-gear to transmit motion from the shaft A to the shaft q , shaft p , extension-rods a' b' , with universal joints d' e' , spindle I, geared with the shaft p , pattern-die H, feathered on the spindle I, spring k , nut l , and slide-rest G, carrying the tracer j and graver h .

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

ANTON SCHWITTER. [L. S.]

Witnesses:

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E. F. KASTENHUBER.