A. Schwitter,

Sheet 1-3 Sheets.

Engraving Machine,

No. 44,461. Patented Sep. 27, 1864.

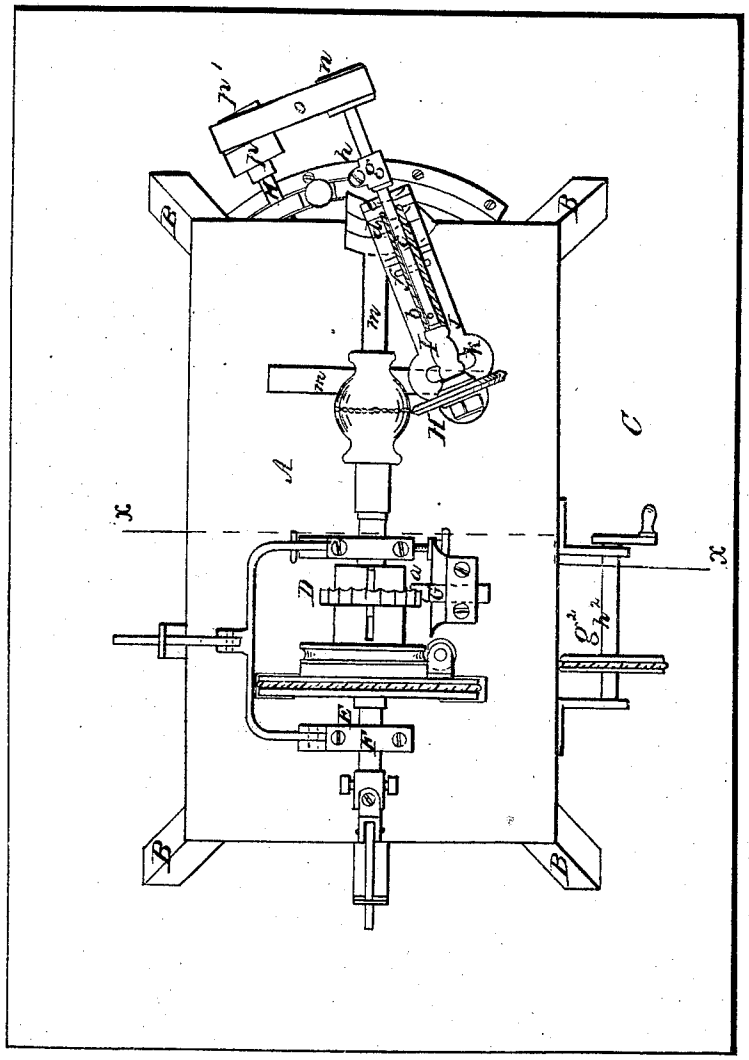

Fig. 1.

Witnesses

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Sheet 2-3 Sheets.

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Engraving Machine,

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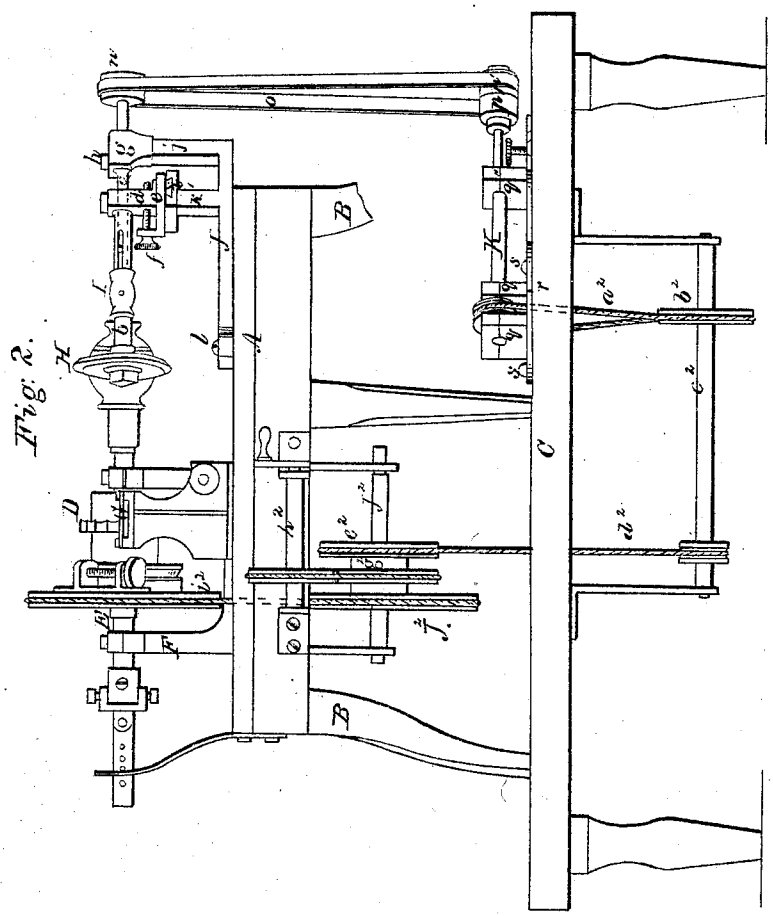
Fig. 2.



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No. 44,461. Fig. 3. Patented Sep. 27, 1864.

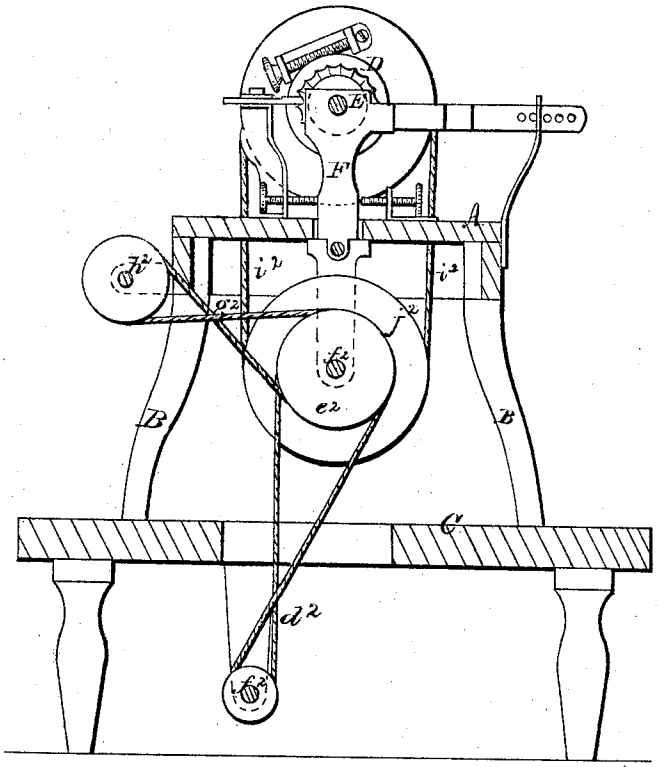
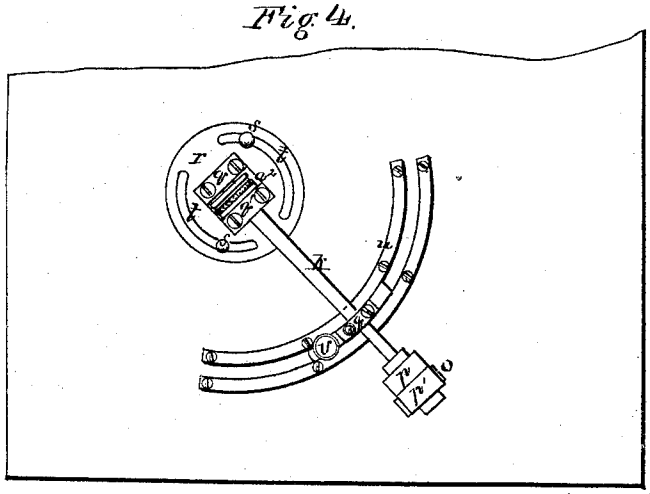


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

ANTON SCHWITTER, OF NEW YORK, N. Y.

ROSE-ENGINE FOR ORNAMENTING GLASS, &c.

Specification forming part of Letters Patent No. **44,461**, dated September 27, 1864.

To all whom it may concern:

Be it known that I, ANTON SCHWITTER, of the city, county, and State of New York, have invented a new and Improved Rose-Engine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan or top view of this invention, partly in section. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse vertical section of the same, taken in the plane indicated by the line *x x*, Fig. 1. Fig. 4 is a partial plan of the mechanism necessary to impart motion to the rotating cutter.

Similar letters of reference indicate corresponding parts.

Rose-engines of the ordinary construction serve to produce curved or other ornamental lines on the surfaces of pitchers, goblets, cups, or other articles made of sheet metal, and the tools used for this purpose are sharp-pointed pieces of steel held firmly in a movable or adjustable rest. Such tools are sufficient for the purpose for which they are intended, but they cannot be used to ornament the surface of articles made of glass or other material of such a nature that it cannot be cut by steel.

This invention consists in the employment or use on a rose-engine of a rotating tool made of a composition of emery with liquid silex, or of any other suitable material, and applied, in combination with the spindle and mechanism of an ordinary rose-engine, in such a manner that by the action of said tool lines can be produced on glass, or on the surface of articles made of glass or other similar material, with the same facility as on articles made of metal.

The spindle, to the end of which the rotating tool is secured, has its bearings in head-blocks which are adjustable in different directions in such a manner that the rotating tool can be readily moved up to or away from the surface of the article to be ornamented, and that the same can be brought to bear on the side or end of said article with equal facility.

A represents the table or platform which supports the machanism of an ordinary engine turning-machine, and which rests upon legs B at a convenient height for the operator, who is to stand on the floor C.

The engine turning or rose machine is constructed in the ordinary manner with a rosette, *d*, which is secured to a spindle, E. This spindle has its bearings in a frame, F, which oscillates transversely on the table, being subjected to the action of a spring, which keeps the rosette in contact with the guide G. This guide is provided with a projecting lip, *a*, which bears on the front side of the rosette, and the spindle has a longitudinal motion in its bearings, and it is subjected to the action of a spring, which keeps said front side of the rosette in contact with the lip of the guide, so that by rotating said spindle a longitudinally-sliding and a transversely-oscillating motion is imparted to it and to the article which may be secured to it.

The article to be ornamented is secured to the end of the spindle E by a chuck, or in any other suitable manner, so that it runs true with the same, and the ornamentation on its surface is produced by the action of a rotating cutter or tool, H. This tool may be made of a composition of emery with liquid silex or any other suitable material, or it may be made of steel or any other material, according to the nature of the surface on which the ornamentation is to be produced.

For the purpose of cutting lines into the surface of an article of glass an emery-wheel is the best, and this wheel or tool is secured to a spindle, I, which is composed of two parts, *b c*, one sliding within the other. The tubular shaft *b* carries on one end the tool H, and its other end has its bearing in a head, *d*, to which a longitudinally-sliding motion can be imparted in the guideways *e* by means of a set-screw, *f*, or in any other suitable manner. The solid part *c* of the spindle I has its bearing in a swivel-head, *g*, which turns on a pivot, *h*, and it (the part *c*) extends into the tube *b* nearly to its extreme end, as clearly shown in Fig. 1 of the drawings. By turning the set-screw *f* the tube *b* is made to slide on the solid rod *c*, and the spindle I is lengthened or shortened according to the spot where the tool is to act. The guideways *e* of the head *d* move in a dovetailed segmental groove, *i*, which forms a portion of a curve described in such a manner that in turning the swivel-head the

head *d* will be caused to move in the curved groove, and by moving said head *d* in the curved groove the swivel-head *g* will be compelled to turn on its pivot without binding. The pivot *h* of the swivel-head screws into a standard, *j*, which rises from a slotted plate, J, and another standard, *k'*, rising from the same plate, supports the curved groove *i* in which the carriage moves which forms the guide-rest for the head *d*, as shown in Fig. 2. The plate J is perforated with a cross-shaped slot, *k*, and it is secured to the table A by a screw, *l*, which passes through a T-shaped slot, *m*, in the table, and is fastened by a nut or in any other convenient manner. By the combined action of the slots *k* and *l* the plate J can be adjusted to any desirable position and the tool can be readily brought to bear on the side or end of the article to be ornamented.

The end of the solid part of the spindle I extends through the swivel-head *g* and bears the pulley *n*, and a belt, *o*, extending from a fast-and-loose pulley, *p p'*, over the pulley *n*, serves to impart motion to the spindle I and tool H. The pulleys *p p'* are mounted on a shaft, K, which has its bearings in three boxes, *q q' q''*, a detached plan view of which is shown in Fig. 4. The boxes *q q'* are close together and secured to a plate, *r*, which is fastened down to the floor by screws *s*, passing through semicircular slots *t*, so that by taking hold of the outer end of the shaft K the boxes, together with the plate *r*, can be turned in either direction. The box *q''*, which supports the shaft K near its outer end, moves in semicircular guideways *u*, forming a portion of a circle described from the center of the plate *r*, so that the several boxes *q q' q''* will describe concentric circles when the shaft swings round the center of said plate. A thumb-screw, *v*, passing through a flange projecting from the box *q''*, serves to fasten the latter, and with it the shaft K, in the desired position. By these means the shaft K can always be brought in the proper relation toward the shaft I, which carries the tool. It must be remarked, however, that this arrangement can be altered in various ways, and different means can be employed to transmit the motion from the shaft K to the shaft I—such as cog-wheels and extension-rods with universal joints—and I do not wish to confine myself, therefore, to the precise mechanism shown in the drawings, but reserve the right to change the same, as may be desirable. The shaft K derives its motion by means of a belt, a^2, from a pulley, b^2, on a shaft, c^2, which in the drawings is represented below the floor C, but which may be arranged in any other convenient position. Motion is imparted to this shaft by a belt, d^2, from a pulley, e^2, on the counter-shaft f^2, which has its bearings in suitable hangers under the table A, and to which motion is imparted by a belt, g^2, from the driving-shaft h^2. A belt, i^2, extending from a pulley, j^2, on the counter-shaft, imparts motion to the spindle of the rose-engine.

The operation is as follows: The article to be ornamented is secured to the end of the spindle E in the ordinary manner, and after the rosette has been selected for the desired ornamentation the engine is started. The tool, which rotates by means of the belts and pulleys hereinbefore specified, is brought in contact with the surface of the article to be ornamented, and the position of the tool is adjusted by the set-screw *f*, and by shifting the slotted plate J, if necessary. By the use of the rotating tool the same ornamentations can be produced on articles of glass or other similar material, which are executed by the ordinary pointed tool on articles of sheet metal—such as ice-pitchers, &c.—and the operation of ornamenting articles of glass, &c., can be executed with ease and facility.

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

1. The use of a rotating tool in combination with an ordinary rose-engine, arranged and operating substantially as and for the purpose set forth.

2. The adjustable head *d* and swivel-head *g*, in combination with the extension-spindle I, carrying the tool H, all constructed and operating substantially as and for the purpose described.

3. The slotted plate J, carrying the bearing for the tool-spindle I, and arranged in combination with the slotted table A, in the manner and for the purpose substantially as set forth.

4. The swinging shaft K, arranged in combination with the adjustable tool-spindle I in the manner and for the purpose substantially as herein set forth.

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