

(No Model.)

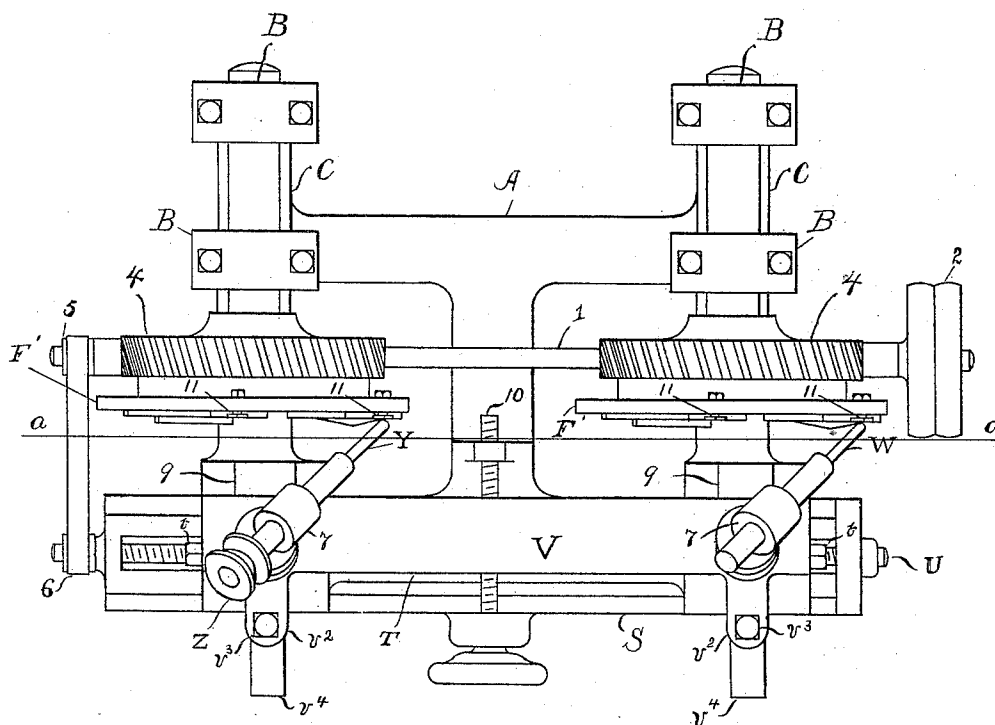
3 Sheets—Sheet 1.

F. SNOW.
CARVING MACHINE.

No. 467,596.

Patented Jan. 26, 1892.

Fig. 1.



WITNESSES.

E. E. Winkley
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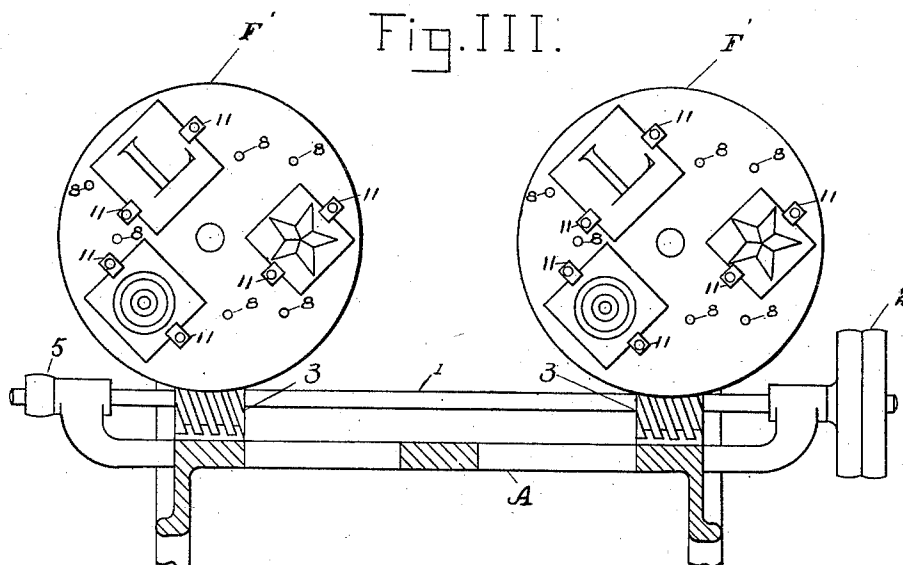
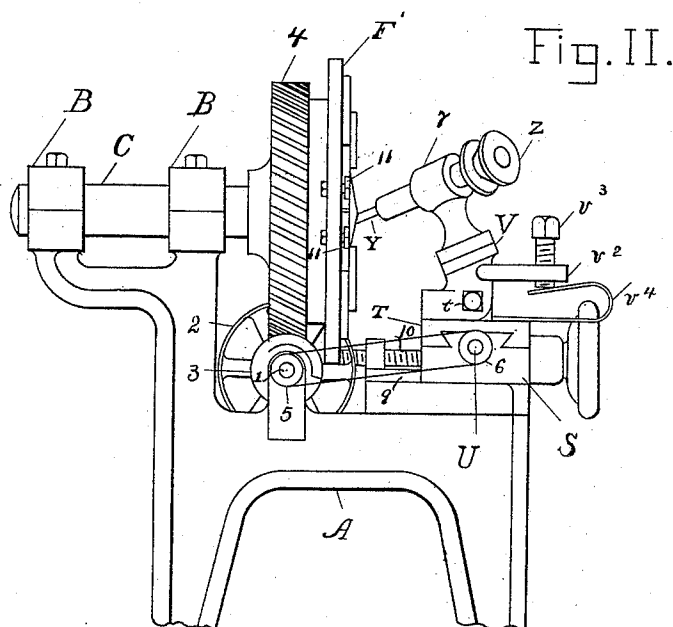
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3 Sheets—Sheet 3.

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Fig. III.

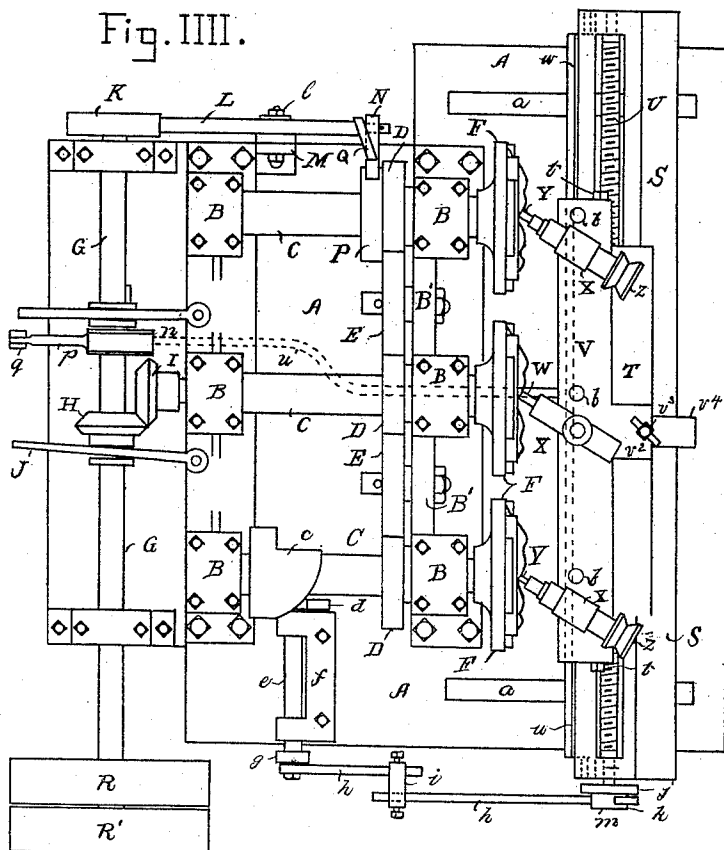
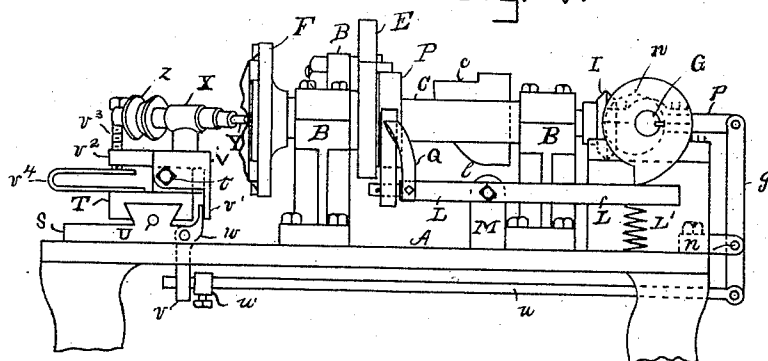


Fig. V.



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UNITED STATES PATENT OFFICE.

FREDERICK SNOW, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE NATIONAL CARVING COMPANY, OF KITTERY, MAINE.

CARVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 467,596, dated January 26, 1892.

Application filed March 12, 1891. Serial No. 384,721. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK SNOW, a citizen of the United States, residing at Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Carving-Machines, of which the following is a specification.

My invention relates to improvements in carving-machines in which two or more shafts are mounted in suitable bearings upon a frame or table and each provided with a face-plate attached to the extremity thereof, respectively adapted to carry eccentrically attached thereto the pattern to be reproduced and the material to be carved.

My invention further relates to the manner of mounting the cutters and tracer with reference to the other parts of the machine, as hereinafter described.

The object of my invention is to produce a machine adapted to reproduce large objects in any desired material; also, to increase the reproducing capacity of machines of this class without increasing the number of face-plates and consequent loss of power.

My invention is an improvement on the carving-machine shown and described in Letters Patent granted to William A. N. Long, No. 407,736, dated July 23, 1889.

The accompanying drawings illustrate my invention, in which—

Figure I is a top view or plan of a carving-machine embodying my invention. Fig. II is a side view of same. Fig. III is a section on line *aa*, Fig. I. Fig. IV is a plan or top view of a carving-machine as secured to William A. N. Long by said Letters Patent. Fig. V is a side view of same.

Similar letters and figures have reference to similar parts in the several views.

In standards forming part of the frame or table A are secured the bearings B B, in which the shafts C C are free to rotate. The shafts C C carry on their outer extremities the face-plates F' F'. A rotary motion in the same direction is imparted to the plates F' F' by means of the worms 3 3, carried on a common shaft 1, which engage with the worm-gears 4 4 on the face-plates F' F'. The power is applied by means of the fast and loose pulley 2 on shaft 1. A pulley 5 is also attached to

shaft 1, from which a belt runs to screw-shaft U, thereby communicating a rotary motion thereto, for the purposes hereinafter set forth.

S is an adjustable slide-bed, which slides upon the dovetails 9 and adjustable with reference to the face-plates F' F' by the screw 10. Upon the slide-bed S is mounted the slide T, provided with nuts on the underside, through which passes the screw-shaft U in bed S, similar to screw-feed in ordinary cutter. Upon the slide T is mounted the tool-carrier bar V, which is secured thereto by the screws *t* passing through the ends of the tool-carrier bar and into lugs formed on slide T, so that the tool-carrier bar V is free to be tilted back for the purposes hereinafter set forth.

The form and arrangement of slide-bed S, the slide T, and the tool-carrier bar V are similar to that shown in Letters Patent to Long, hereinbefore named, and constitute no part of my invention, except as the same may enter into the combinations hereinafter specified.

On the tool-carrier bar V are mounted the tool-carriers 7 7, one adapted to carry the tracer W and the other the cutting-tool Y. The tool-carriers 7 7 are so arranged with reference to other parts of the machine that when the tracer W and tool Y are adjusted therein and brought in contact with material to be carved, as hereinafter specified, the axes thereof will be parallel to each other and oblique to the faces of the face-plates and in a plane depressed with reference to the plane of the axes of said plates.

The tool Y is mounted in a spindle which passes through the tool-carrier 7, and to the outer end of which is attached the pulley *z* and to which rotary motion may be imparted from any convenient source.

The tool-carrier bar V is provided with the projections $v^2 v^2$, through which the screws $v^3 v^3$ pass, and springs $v^4 v^4$ are placed between the projections $v^2 v^2$ and the slide T. The springs $v^4 v^4$ act together with the weight of tool-carrier bar and tool-carriers to keep cutter W in contact with the surface of the pattern, also regulating the inward and outward motion of the cutter. The tension of springs $v^4 v^4$ is regulated by screws $v^3 v^3$.

I adapt the face-plates F' F' to carry eccentrically attached thereto the patterns to be reproduced and material to be carved by the following device: In the face-plates F' F' are corresponding series of perforations 8 8 8 8 8 8, in which may be secured the clamps 11 11 11 11 11 11, by means of which the work or pattern may be secured to the plate. The clamps 11 11 11 11 11 11 are adapted to be secured in any of the perforations 8 8 8 8 8 8.

I do not wish to limit my invention to specific device above described, as it is evident that material and patterns may be secured to face-plates eccentrically by a number of well-known devices.

The operation of my invention is as follows: After the patterns have been secured to one of the face-plates F' F' by means of clamps 11 11 11, &c., secured in perforations 8 8 8, &c., portions of the material to be carved are secured on the other face-plate in corresponding positions by means of corresponding clamps and perforations, each pattern on one face-plate having its corresponding portion of material correspondingly placed on the other, and both pattern and portions of material being set away from the center of face-plates F' F'. The tracer W and cutting-tool Y are then adjusted so that the inner extremities thereof shall be equidistant from faces of the face-plates. A slow rotary motion is then imparted to face-plates F' F', power being applied to pulley 2, giving the several patterns and portions of material secured thereon an eccentric motion, and at the same time the screw-shaft U is slowly rotated, carrying the tracer and tool along the face of the plates. The tool Y is rapidly rotated by means of a cord running from any convenient source of power to pulley z. As the face-plates F' F' are revolved the several patterns are brought in contact with tracer W, which rides over the surface thereof, and at the same time the revolving cutting-tool, following the inward and outward motions thereof, makes a cut across the corresponding portion of material. When the tracer, as it is fed in toward the center, has passed over the several patterns, the reproduction of each on its corresponding portion of material will be completed. It will be noted that as the face-plates F' F' rotate a certain time must be given the tracer to ride out of depressions and over elevations in the pattern, and that during this time there is a tendency to crowd the tracer and tool in the direction of the revolution. It is also evident that if the tracer or tool is so crowded beyond a certain point the pattern or material will begin to exert a downward pressure and the machine will be cramped and injured and the material destroyed. It is further evident that such must be the result when

in reproduction of a large object a marked depression or elevation occurs near the center when the cutter and tracer are working on a short circle. By attaching the work and patterns eccentrically to the plates this difficulty is removed and the machine made practical for any kind of work. It is also evident that the reproducing capacity of the machine is greatly increased, since any number of patterns or portion of material may be attached to the face-plates, limited only by the area thereof. I also find it unnecessary to use any device for intermittent feed or intermittent rotation of face-plate or "kick out," as used in the Long machine.

By depressing the plane of axes of tracer and tool with reference to plane of axes of the face-plate I adapt the machine to reproduce objects having rectangular or slightly-overhanging projections, which could not be reproduced on a machine in which the axes of the tools and tracer were parallel to the axes of the face-plates.

I claim as my invention, and desire to secure by Letters Patent, in a carving-machine—

1. The combination of a series of rotating face-plates adapted to carry eccentrically attached thereto the patterns to be reproduced and material to be carved, and a tracer and cutting-tool, the axes of which are parallel to each other and oblique to the faces of the face-plates and in plane depressed with reference to the plane of the axes of the face-plates, all substantially as described, and for the purposes specified.

2. A series of rotating face-plates respectively provided with a series of eccentrically-placed groups of attaching devices, by which the objects to be reproduced and the material to be carved are secured eccentrically to the respective faces thereof, each group of attaching devices being so placed with reference to a group upon each of the other face-plates that the objects and material secured thereby to the faces of the respective face-plates will be held in corresponding positions thereon, all substantially as set forth, and for the purposes specified.

3. The combination of a series of rotating face-plates, a tool-carrier bar adapted to receive a tilting motion, and a series of tool-carriers adapted to carry, respectively, a tracer and rotating cutting-tool, the axes of which are parallel to each other and oblique to the faces of the face-plates and in a plane depressed with reference to the plane of the axes of the face-plates, all substantially as set forth, and for the purposes specified.

FREDERICK SNOW.

Witnesses:

BENJAMIN PHILLIPS,
ALONZO H. WHITTEN.