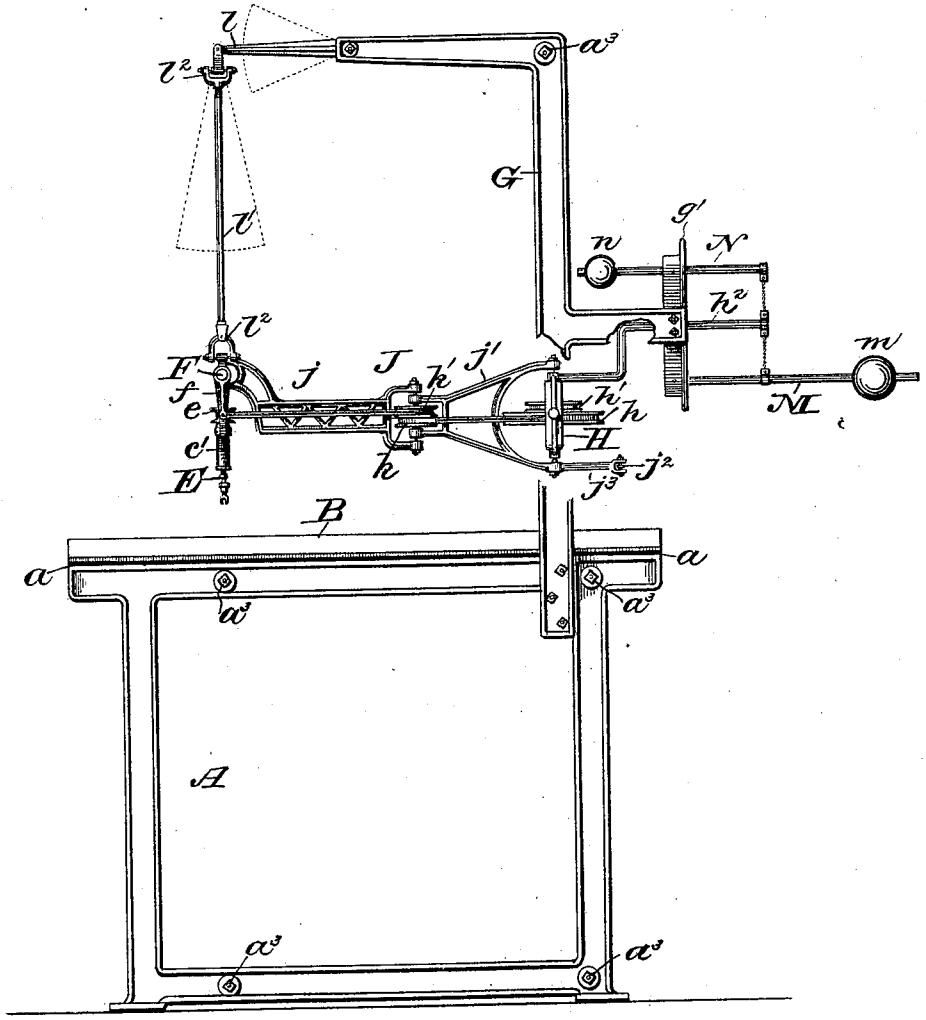
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A. D. SEAMAN.

CARVING MACHINE.

No. 588,662. Patented Aug. 24, 1897.

Fig. 1.



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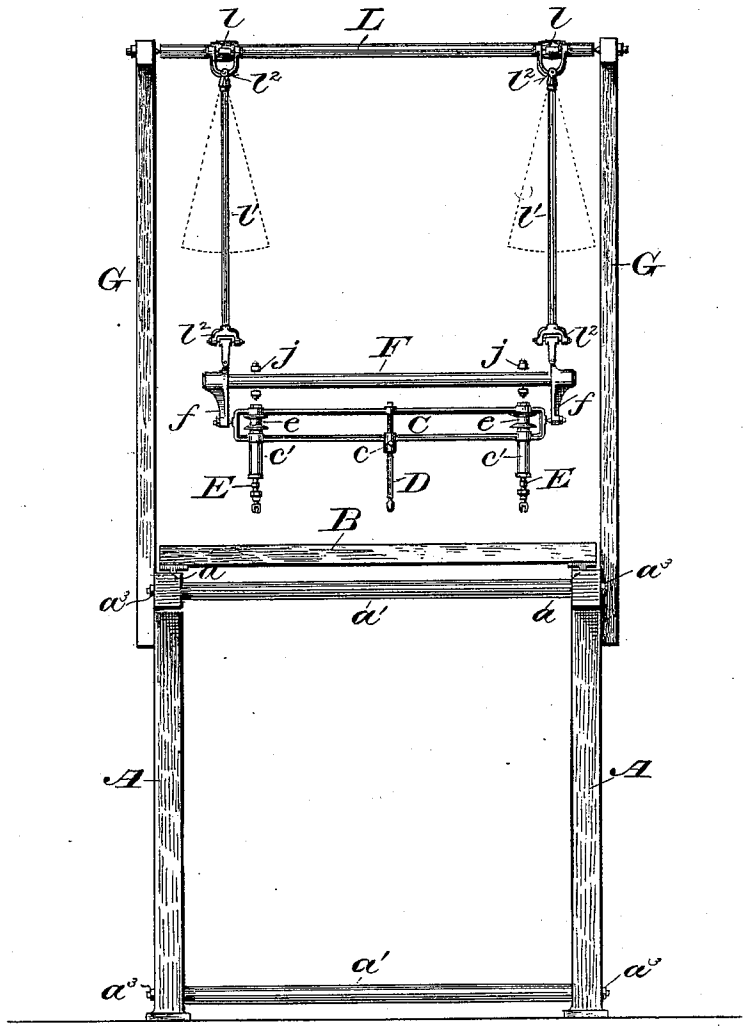
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Fig. 2.



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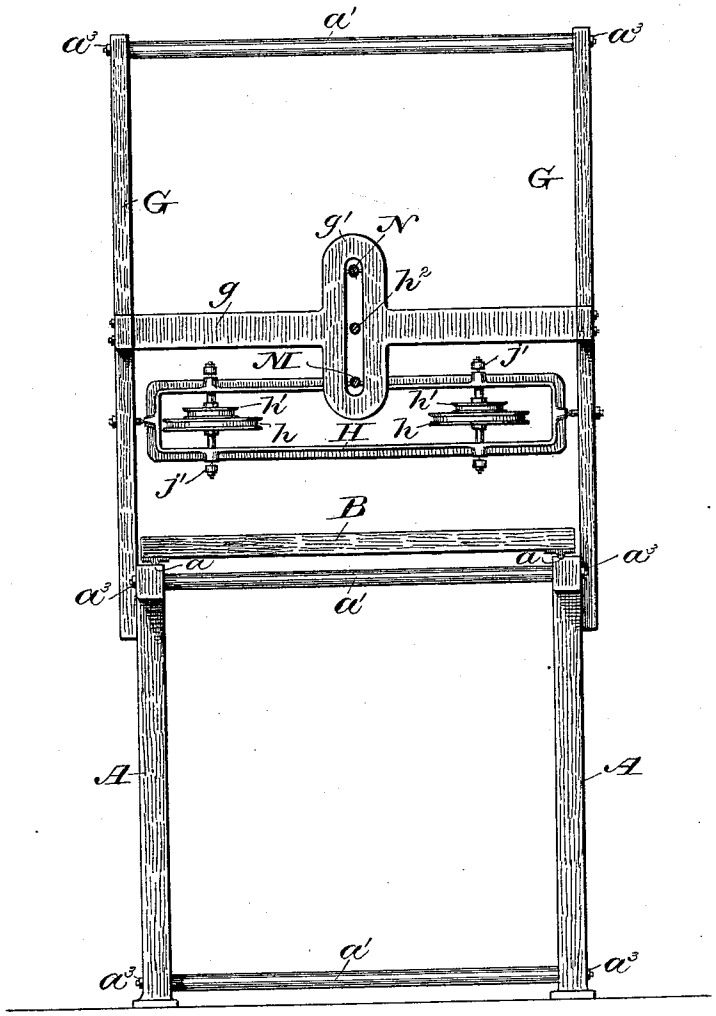
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Fig. 3.



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(No Model.)

4 Sheets—Sheet 4.

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CARVING MACHINE.

No. 588,662. Patented Aug. 24, 1897.

Fig. 4.

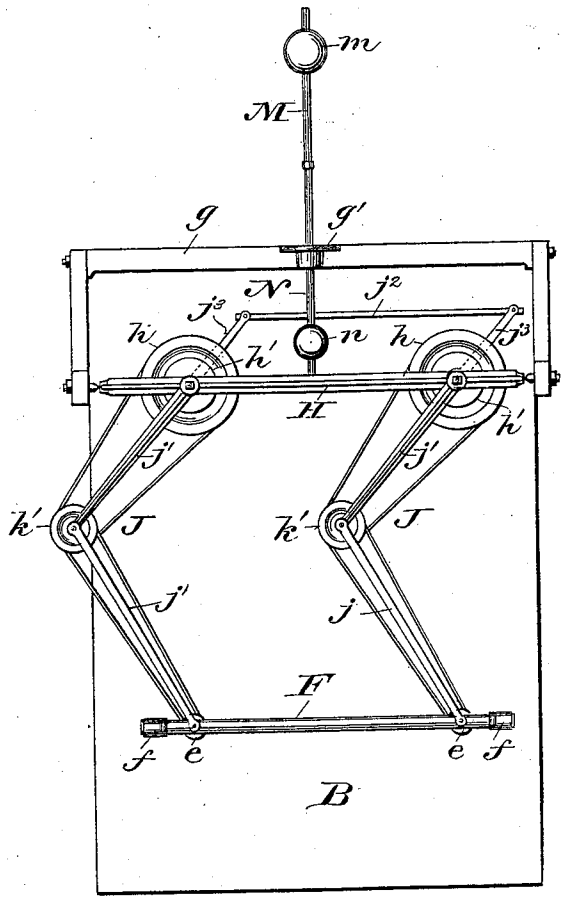
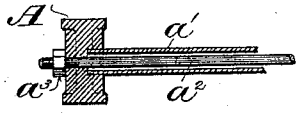


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALONZO D. SEAMAN, OF MILWAUKEE, WISCONSIN.

CARVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 588,662, dated August 24, 1897.

Application filed September 3, 1895. Serial No. 561,285. (No model.)

To all whom it may concern:

Be it known that I, ALONZO D. SEAMAN, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Carving-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The main objects of my invention are to facilitate the duplication of carvings from a model or pattern, and generally to simplify and reduce the cost of construction and improve the operation of machines for doing this class of work.

It consists in certain novel features in the construction and arrangement of the component parts of the machine shown in the accompanying drawings and hereinafter particularly described.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a side elevation of a machine embodying my improvements, a portion of the frame being broken away. Fig. 2 is a front elevation; Fig. 3, a rear elevation; Fig. 4, a plan view; and Fig. 5, a sectional detail, on an enlarged scale, of a portion of the frame.

For doing the finer grades of work with a carving-machine it is essential that the tool-carrier and its guiding connections be as light as possible, so as to avoid gouging the work by the inertia of the moving parts, that the tools be rigidly held in the proper relations to each other and to the work, so as to insure uniform and accurate work, and that the work and pattern be firmly held in place while being operated upon by the tools.

Referring to the drawings, the frame for convenience and economy is preferably made of two cast-iron side sections A A, which are formed at the top with horizontal ways a a, upon which is mounted so as to slide freely forward and backward the work-supporting bed or table B. The side sections of the frame are rigidly connected with each other by tubular cross-pieces a' a', which are let at the ends into countersunk holes in said side sections and secured therein by tie-bolts a^2, threaded at the ends and provided with nuts a^3, as shown in Fig. 5. By this means the side sections are firmly and rigidly bound together, and a light, strong, and cheap frame is produced.

C is a tool-carrier consisting of a light open metallic frame formed or provided with a holder c for a tracing-tool D and with hand-pieces and bearings c' c' for rotary cutting-tool spindles E E, which are furnished in the opening of the frame or carrier with grooved pulleys e e.

F is a cross-rod formed or provided at the ends with depending arms f f, to which the ends of the tool-carrier are pivoted in a line parallel with said cross-rod, as shown in Fig. 2.

Between two standards G G, rising on opposite sides of the frame, is pivoted in a line parallel with the cross-rod F an open frame or yoke H, as shown in Fig. 3. In this yoke are journaled vertical shafts, on each of which is mounted a larger and a smaller pulley h and h', respectively. The cross-rod F, from which the tool-carrier C is suspended, is connected with the pulley-yoke H by horizontally-disposed jointed arms J, each composed of two members j and j', forked at the ends and pivoted to each other and to the cross-rod F and yoke H in parallel vertical lines. The rear ends of the members j' are pivoted to the yoke H concentrically with the pulleys h h'. Concentric with the pivot connections between the two members of each arm are journaled therein a pair of pulleys k and k'. The front ends of the members j are bent or turned upwardly, so as to bring the pulleys e e on the cutting-tool spindles in line with the pulleys k' k', with which they are connected by belts, as shown in Figs. 1 and 4. The pulleys k are connected by belts with the pulleys h, and the pulleys h' are connected with driving-pulleys. (Not shown.)

L is a rock-shaft supported by the upper forwardly-projecting ends of standards G G, parallel with the cross-rod F. It is provided with two forwardly-projecting arms l l, which are connected by depending rods l' l' with the cross-rod F. The rods l' l' have universal-joint connections l^2 l^2 with the arms l l and the cross-rod F, and with said arms and the rock-shaft L constitute an equalizer by which both ends of the tool-carrier are caused to

rise and descend exactly together, thus admitting of the employment of much lighter horizontal guiding connections between the tool-carrier and the main frame.

The arms J J are connected by a cross-rod j^2, by which they are held parallel to each other. This rod is shown as pivoted to rearward extensions j^3 of the members j' of said arms, but it may be pivoted directly to the members of said arms in front of the yoke H.

The standards G G, with which the tool-carrier is connected by the guiding mechanism above described, are connected and rigidly held in place by a tubular cross-piece a' and a tie-bolt a^2, like those hereinbefore described, and by a cross-bar g, as shown in Fig. 3. The cross-bar g is formed with a yoke g', having a vertical slot or opening through which an arm h^2 projects rearwardly from the yoke H. In the lower part of the yoke g' is fulcrumed at its front end a lever M, provided with an adjustable weight m, and in the upper end of said yoke is fulcrumed at or near the middle a lever N, provided at the front end with an adjustable weight n and connected at its rear end by a chain or cord with the rear end of the arm h^2. The lever M is in like manner connected between its fulcrum and weight with said arm h^2 and acts thereon in opposition to the lever N.

By the provision and arrangement above described of two counterweights acting in opposition to each other a more sensitive and steady movement of the tool-carrier is secured than could be accomplished with a single weight.

The several pulleys through which power is communicated to the cutting-tool spindles being centered in the axial lines on which the tool-carrier C, the yoke H, and the members of guiding-arms J swing, the driving connections of the cutting-tools do not interfere with the free movement of their supporting and guiding connections.

The operation of the machine will be readily understood by those skilled in the art to which my invention pertains from the foregoing description of its construction. Although the movable supporting and guiding connections of the tools are comparatively light, they are sufficient to hold them rigidly in their proper relation to the work-table, so that any movement of the tracing-tool will be exactly followed by the cutting-tools, and they are adapted to do the heaviest kinds of roughing-work, as well as the lightest and most delicate carving.

I claim—

1. In a carving-machine the combination with a suitable frame provided with a work-supporting bed or table, of a tool-carrier provided with a tracing and one or more rotary cutting-tool holders, horizontally-disposed parallel jointed arms connecting said tool-carrier with the frame, and an equalizer consisting of a rock-shaft supported in said frame above and parallel with said tool-carrier and provided with arms which are connected by rods with said carrier at or near its ends, substantially as and for the purposes set forth.

2. In a carving-machine the combination with a suitable frame provided with a work-supporting bed or table, of a tool-carrier provided with a tracing and one or more rotary cutting-tool holders, a cross rod or bar provided with depending arms or offsets to which said carrier is pivoted, horizontally-disposed parallel jointed arms connecting said cross-rod with said frame, and an equalizer consisting of a rock-shaft supported in said frame above and parallel with said cross-rod and provided with arms which are connected therewith by depending rods having universal-joint connections with said arms and cross-rods, substantially as and for the purposes set forth.

3. In a carving-machine the combination with a suitable frame provided with a work-supporting bed or table, of a tool-carrier provided with a tracing-tool and one or more rotary cutting-tool holders and spindles each provided with a pulley, a cross-rod having depending arms to which said carrier is pivoted in a line parallel with said rod and passing approximately through the center of the pulley on each cutting-tool spindle, a yoke pivoted at the ends to said frame in a line parallel with said cross-rod, horizontally-disposed parallel arms, each composed of two parts pivoted to each other and forked at the ends, which are pivoted to said carrier and yoke respectively, the front ends being upwardly bent or offset, and horizontally-disposed pulleys journaled in pairs in line with the middle and rear pivot connections of one or more of said arms, and connected with each other and with a driving-pulley and the pulley or pulleys on the cutting-tool spindles, substantially as and for the purposes set forth.

4. In a carving-machine the combination with a suitable frame of a tool-carrier provided with a tracing-tool and one or more rotary cutting-tools, a yoke or cross-frame pivoted at the ends to the main frame parallel with the carrier, horizontally-disposed parallel jointed guiding-arms connecting said carrier and yoke, and counterbalancing mechanism consisting of two weighted levers fulcrumed to the main frame and connected with an arm on said yoke, and acting in opposite directions thereon, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ALONZO D. SEAMAN.

Witnesses:
CHAS. L. GOSS,
I. A. STEVENS.