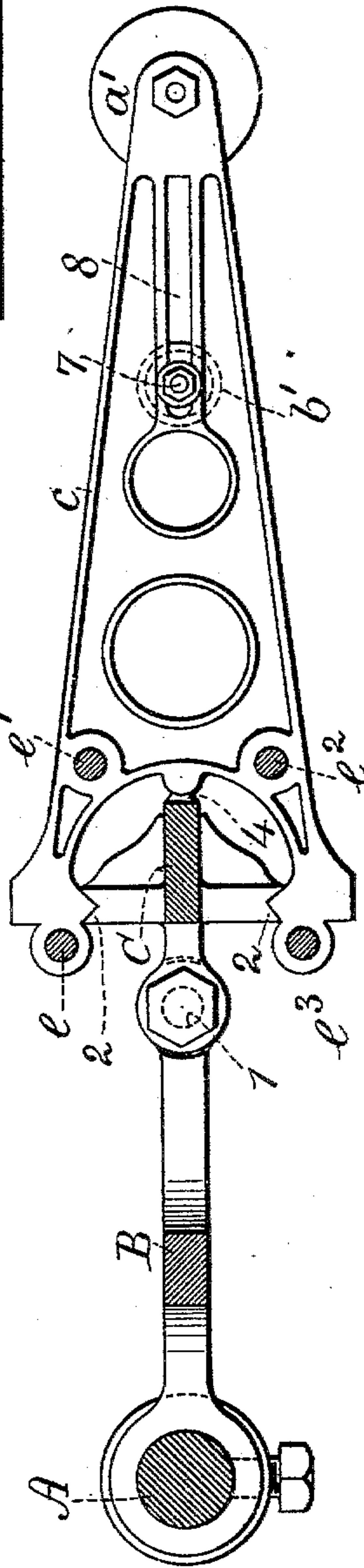
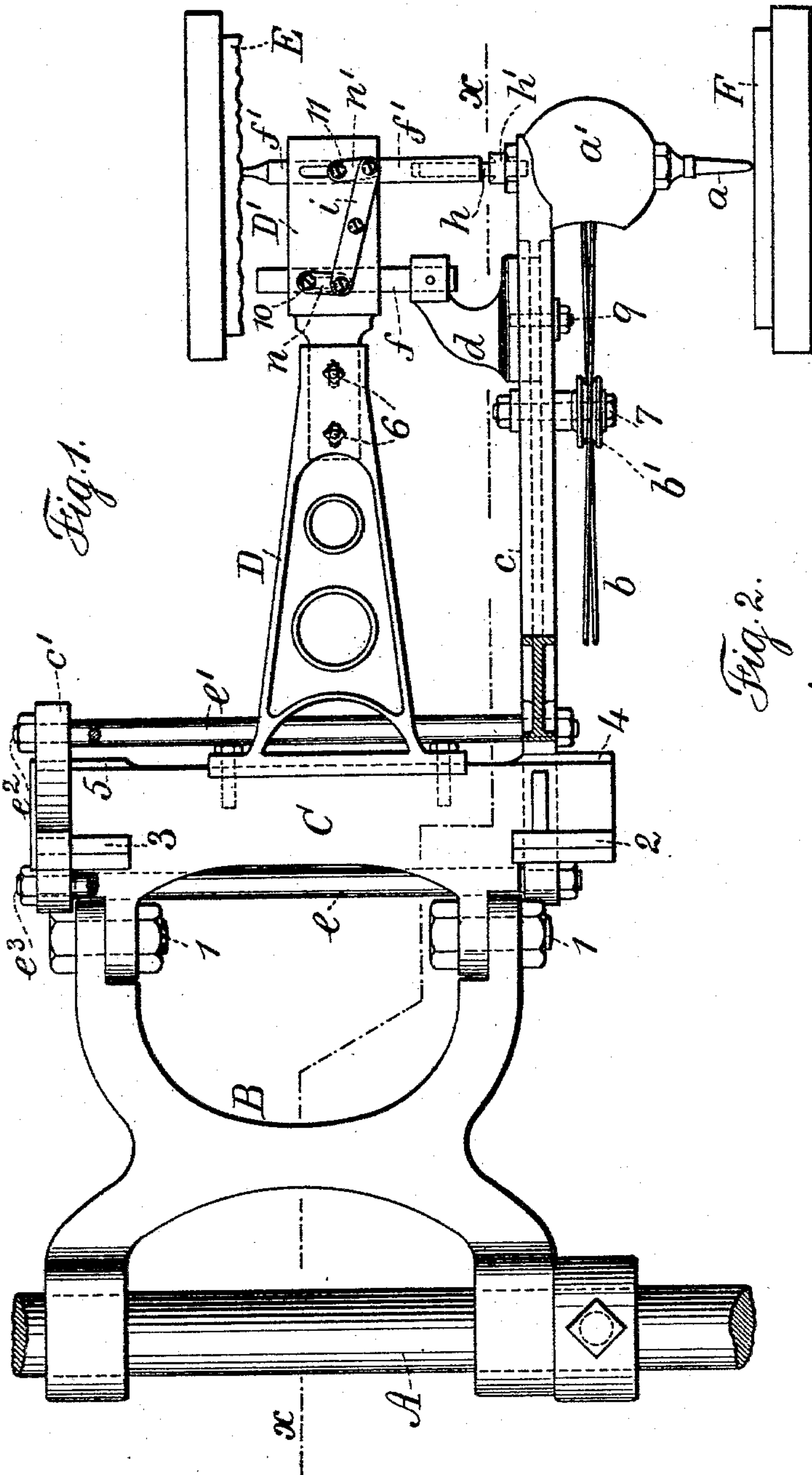


(No Model.)

O. JAHNSEN & G. MEINHARDT.
CARVING MACHINE.

No. 571,566.

Patented Nov. 17, 1896.



Witnesses:
J. Staib
Chas. H. Smith

Inventors:
Otto Jahnson
Gottfried Meinhardt
per L. W. Ferrell & Son
Attys

UNITED STATES PATENT OFFICE.

OTTO JAHNSEN AND GOTTFRIED MEINHARDT, OF NEW YORK, N. Y.,
ASSIGNORS TO SAID JAHNSEN.

CARVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 571,566, dated November 17, 1896.

Application filed February 10, 1896. Serial No. 578,701. (No model.)

To all whom it may concern:

Be it known that we, OTTO JAHNSEN, a subject of the King of Denmark, and GOTTFRIED MEINHARDT, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and useful Improvement in Carving-Machines, of which the following is a specification.

Our invention relates to machines for carving ornaments in wood and analogous soft materials for decorative purposes.

Heretofore carving-machines have been employed wherein several ornaments were simultaneously carved in one machine from a pattern which had previously been carved by hand. In these machines the pattern and blocks to be carved were placed on parallel shelves one above another, and the tracing-point and carving-tools were in line and upon arms connected to a common movable support, so that all the arms could be simultaneously moved vertically and horizontally and swung in unison. These patterns were all alike, and when the opposite pattern was desired to form with the first pattern an opposite to make a pair it heretofore has been usual to carve this opposite pattern by hand and thereafter to reproduce therefrom the duplicate patterns in the aforesaid duplicating carving-machine.

Our invention relates especially to a machine for forming the opposite pattern to constitute with the one traced from a pair, so that the hand-labor heretofore employed becomes unnecessary and an opposite pattern is produced which exactly agrees in outline and in position of ornamentation with the one traced from, so that each pattern of the pair is perfect.

In carrying out our invention the pattern to be traced from is secured to the under side of a shelf, and the block to be carved as the opposite thereto is placed on the upper surface of a shelf within the same vertical lines, and in connection with a revolving carving-tool and means for rotating the same, such as has heretofore usually been employed, we make use of a vertically-moving arm and a bracket-frame rigidly fixed to the swinging frame and having a head and bars moving vertically therein and a centrally-pivoted

lever and links connected to said bars and lever. One of these bars is connected to the vertically-moving arm, and the upper end of the other bar is provided with a tracer to be moved around in the pattern upon the under side of the upper shelf. The bar to which the tracer is connected is in the same vertical axial line with the carving-tool, and in the operation of the mechanism, as the carving-tool is moved downward by hand, the arm carrying said tool is also moved downward and the bars and pivoted lever are actuated to move the tracer upward into the pattern, it being impossible to move the carving-tool down any farther than the tracer will enter the pattern, so that in all cases the carving-tool acts to a depth agreeing with the depth of the overhead pattern. The vertically-moving arm and fixed bracket-frame carrying the mechanism are connected to a swinging frame, so that the parts can be moved over the face of the pattern to any desired position for properly working out the pattern, so that the strip carved is made to agree with the pattern except that the one is the exact opposite of the other.

In the drawings, Figure 1 is an elevation and partial section representing our improvement, and Fig. 2 is a plan and section at xx of Fig. 1 with the bracket d and rod h removed.

The vertical member A and swinging frame B are well-known parts of the usual duplicating carving-machine and do not require further description. The frame C is pivoted by bolts 1 to the frame B and is thereby adapted to swing on said frame, while the frame B may also swing upon the member A.

The frame C comprises a vertical plate with grooved slideways 2 3 upon each side thereof and at the top and bottom and edge slideways 4 5 also at the top and bottom, and to the edge face of this frame C the bracket-frame D is secured, and said bracket-frame is provided with the head D' , adjustably connected thereto by the bolts 6.

The carving-tool a is upon a spindle having bearings in the hollow ball a' , and the same is rotated by belts b and a pulley b' in the usual manner. The frame c (shown in plan, Fig. 2) carries the hollow ball a' and

the carving-tool *a*, and the head-frame *c'* is connected to the frame *c* by the tie-rods *e e' e² e³*, and the frame *c*, as well as the head-frame *c'*, is provided with slides that engage the
 5 slideways 2 3 4 5, so as to insure a perfectly steady vertical movement to said frame *c* and the carving-tool *a*.

The pulley *b'* is adjustably secured to the frame *c* by a bolt 7, passing through a slot 8
 10 near the end of said frame. The bracket *d* is connected adjustably to the frame *c* by a bolt 9, that also passes through the slot 8, and projecting vertically from the upper end of this bracket *d* is a bar *f*, passing through the
 15 head *D'*, and another vertical bar *f'* also passes through the head *D'*, that is parallel to the bar *f*, and on the upper end of the bar *f'* is a tracing-point adapted to enter and follow the ornamental configurations of the overhead
 20 pattern *E*, connected to the under side of the upper shelf, simultaneous with the operation of the cutting-tool *a*, as the same forms in the plate *F* upon the lower shelf the opposite pattern.

25 The rocking lever *i* is centrally pivoted upon one side of the head *D'* and the ends thereof are pivotally connected to the links *n n'*, and the other ends of said links are connected by pivot-screws 10 and 11 to the vertical bars *f f'*. Said screws preferably pass
 30 through slots in the head *D'*, and it will therefore be apparent that as the bar *f* is moved down from the position shown in Fig. 1 the lever *i* will be swung and will force upward
 35 the bar *f'* and the point at its upper end into the pattern *E*.

The lower end of the vertical bar *f'* is made tubular, and a rod *h* is received therein, and integral with this rod *h* is an oil-cup device
 40 *h'*, adapted to fit in the upper end of the hollow ball *a'*, and this rod *h* is in the same vertical axial line with the carving-tool, and its action is to insure the bar *f'*, and the tracer on its upper end also being in the same axial
 45 line, the adjustment of the devices to bring these parts into axial line being effected at the bolts 6 of the bracket-frame *D* and the bolt 9 of the bracket *d*. This rod *h* and its oil-cup device *h'* maintain their position upon
 50 top of the hollow ball *a'*, and the bar *f'* in its vertical movement rises above and over this rod *h*.

The downward movement of the bar *f* is caused by the hand of the operator grasping
 55 the hollow ball *a'* and moving down the frames *c c'* and the bracket *d*, this downward movement causing the carving-tool to enter the plate *F* on the lower shelf to an extent equal to the movement of the tracing-point into the
 60 overhead pattern *E*, the slideways on the frame *C* providing for this vertical movement and insuring the same being steady and without any looseness of the parts, and the pivotal connections of the frame *B* to the
 65 member *A* and the frame *C* to the frame *B* providing for the movement of the carving-

tool *a* over the entire surface of the plate to be cut in any desired direction. After the completion of the carving operation in the plate *F* the same is prepared as the opposite
 70 of the pattern *E* to be placed in the usual duplicating carving-machine in which a number of similar patterns are reproduced.

We claim as our invention—

1. The combination in a carving-machine
 75 with an overhead support for the pattern and a tracer adapted to follow the same, of a hollow ball and carving-tool and means for rotating the carving-tool in bearings in the hollow ball, a frame connected to the hollow
 80 ball and adapted to be moved in any direction, a bracket connected to said frame and a vertical bar connected to the bracket, a slideway for said vertical bar, and a vertical bar parallel thereto and on whose upper end is
 85 the aforesaid tracer and a slideway therefor, and means for coupling said vertical bars so that as the one moves down, the other will move up, and vice versa, substantially as set forth.

2. In a carving-machine, the combination
 90 with a frame *C* and a bracket-frame *D* connected therewith, of a head *D'* and bolts for adjustably connecting the same to the bracket-frame *D*, slideways in said head *D'*, parallel vertical bars *f f'* in said slideways, the
 95 one carrying a tracing-point, a rocking frame pivoted to the side of the head and links connected to the same and also to the said vertical bars *f f'*, a carving-tool in the same vertical axial line with the rod *f'*, a frame connected to the bearings of said carving-tool and a connection therefrom to the vertical bar *f'*
 100 whereby the downward or upward movement of the carving-tool by the hand of the operator effects the reverse movement of the bar *f'* and its tracing-point, substantially as set forth.

3. In a carving-machine, the vertical member *A*, the frame *B* pivoted thereto, the frame
 110 *C* and the bolts 1 for pivotally connecting the same to the frame *B*, the grooved slideways 2, 3, and edge slideways 4, 5, upon opposite sides and at the top and bottom ends of the frame *C*, the frame *c* and head-frame *c'* and
 115 the tie-rods *e e' e² e³* connecting said frames and the slides upon said frames in the slideways upon the frame *C*, the carving-tool and the hollow ball forming a bearing therewith connected to the frame *c* whereby the vertical
 120 movement of the carving-tool is caused to be even and steady and smooth, substantially as set forth.

4. In a carving-machine, the combination
 125 with the movable frames and the carving-tool carried by one of said frames, of an adjustable bracket frame and head, parallel bars and slideways therefor in said head, an adjustable connection from one bar to the frame carrying the carving-tool and means
 130 for coupling said bars to produce an opposite movement, a tracing-point on the upper end

of the other bar to enter an overhead pattern,
a rod $\frac{1}{2}$ in the case of the carving-tool and
axially in line with the carving-tool, and en-
tering an opening in the lower end of the
5 tracer-bar whereby the tracer-bar is also ax-
ially in line with the carving-tool to accu-
rately produce the opposite pattern, substan-
tially as specified.

Signed by us this 29th day of January,
A. D. 1896.

OTTO JAHNSEN.
GOTTFRIED MEINHARDT.

Witnesses:

GEO. T. PINCKNEY,
HAROLD SERRELL.