

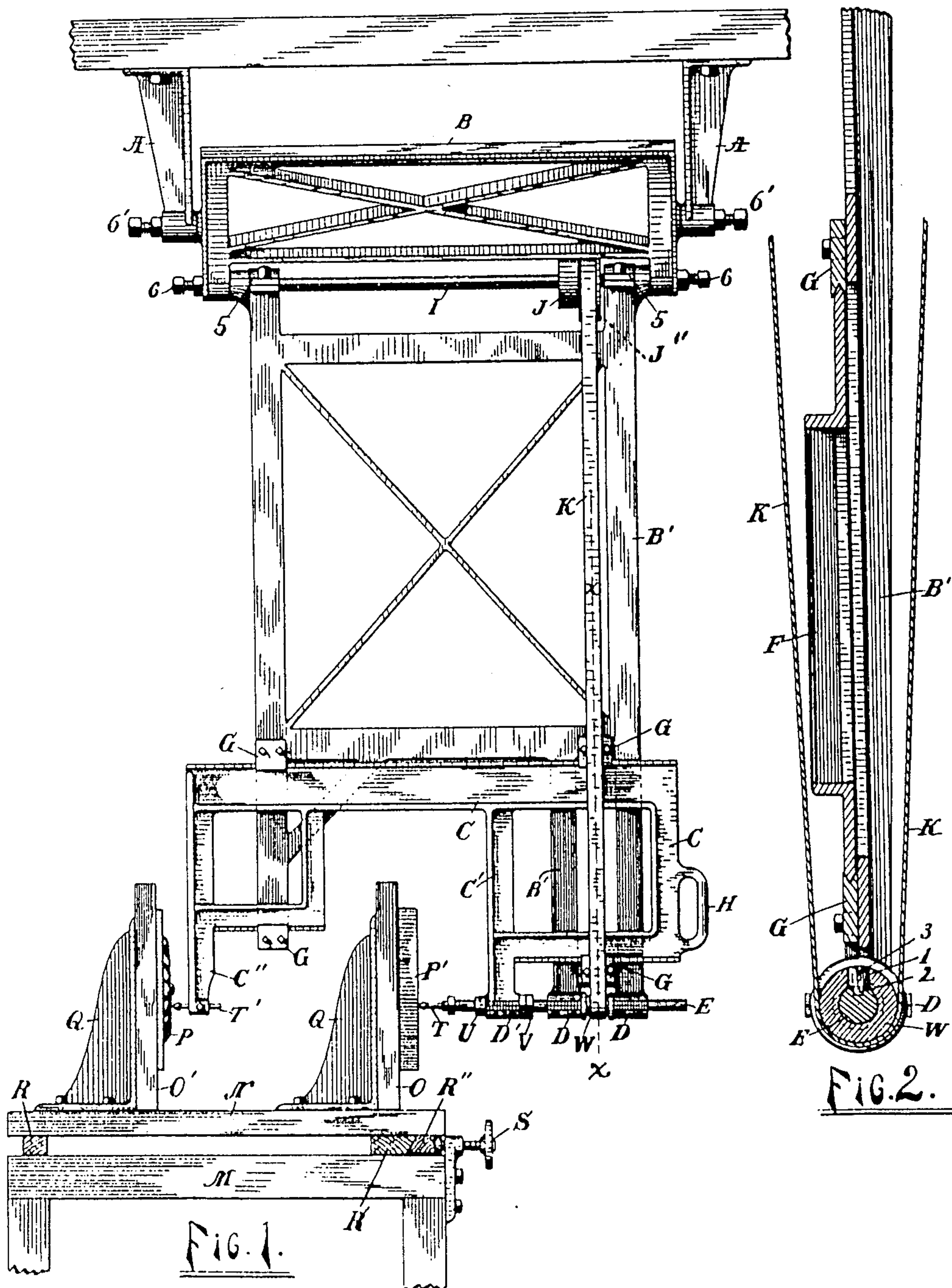
(No Model.)

2 Sheets—Sheet 1.

S. L. KING.
CARVING MACHINE.

No. 453,487.

Patented June 2, 1891.



Witnesses

Harry O Van Wagner
Hugh E Wilson

Inventor

Singleton L. King
By His Attorney
Edward Taggart

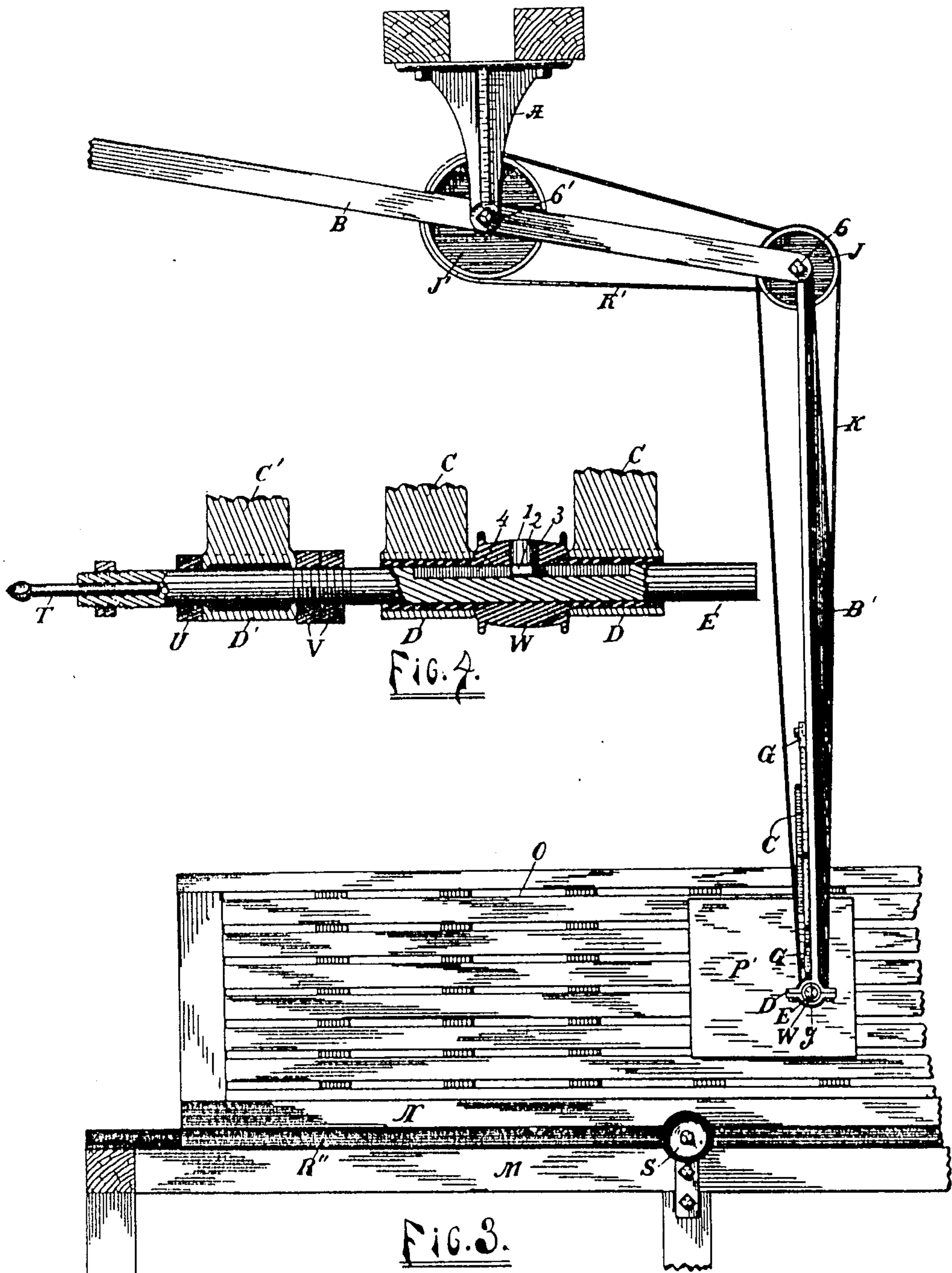
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UNITED STATES PATENT OFFICE.

SINGLETON L. KING, OF GRAND RAPIDS, MICHIGAN.

CARVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 453,487, dated June 2, 1891.

Application filed March 21, 1889. Serial No. 304,140. (No model.)

To all whom it may concern:

Be it known that I, SINGLETON L. KING, a citizen of the United States, residing at the city of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Carving-Machines, of which the following is a specification.

My invention relates to that class of carving-machines which use a rotary cutter to fashion the stock into the required shape, and is peculiarly adapted to that class of machines which use a pattern and a dummy or follower and a revolving cutter which works upon the stock, producing a copy or duplicate of the pattern; and the invention consists in the novel arrangement and construction of parts hereinafter described, and particularly pointed out in the claims, reference being had to the drawings hereto attached, in which—

Figure 1 is a front elevation of the carving-machine, showing a side view of the pattern. Fig. 2 is an enlarged vertical sectional view on line *x x* of Fig. 1. Fig. 3 is a side elevation, and Fig. 4 is a sectional view of the sliding shaft on line *y y* of Fig. 3.

Similar letters and figures refer to similar parts throughout the several views.

The upper frame of the machine is shown by B, which may be supported by the lugs A or in any suitable manner. The frame B has an oscillating movement, turning on the ends of set-screws G' G' as journals. The upper frame is provided with a counter-balance, which in the present example is illustrated in the drawings as consisting of an extension of the said upper frame beyond its fulcrum in a direction opposite to the end which connects with and supports the lower swinging frame, and thereby serves to counteract the weight of the lower swinging frame and its attachment or to substantially perform such office. B' is another swinging frame turning on inner ends of set-screws G G as journals. These frames B and B' always swing in vertical planes. The lower extensions of frame B' are provided with journal-boxes D D for the sliding shaft E.

C is a longitudinally-sliding frame supported in the guides G G G G of the frame B'. The frame C is provided with depending

arms C' and C'', the arm C' terminating in a journal-box D' and the arm C'' bearing the pattern-dummy T'. The frame C, as shown, is provided with the hand-piece or handle H for the convenience of the operator in giving the longitudinal motion to the frame.

The shaft E is provided with a longitudinal slot 4, adapted to receive the tongue 2 of the pin 1. This pin 1 passes through one side of the sleeved pulley W and attaches the pulley W to the shaft E. A set-screw 3 is used to hold the pin in position. The function of the pin 1, screw 3, and slot 4 is to attach the pulley W to the shaft E, so that the revolution of the pulley revolves the shaft and at the same time allows for a longitudinal movement of the shaft E within the sleeves.

V is a double nut on the shaft E, designed in connection with the nut U', to secure the shaft in any desired position with reference to the frame C and to so attach this shaft to the frame C that the shaft and cutting-tool can be moved to and from the stock by moving the frame C.

The stock (shown in the drawings by P') is attached by suitable clamps to the support O. The pattern P is held by suitable clamps to the support O'.

Q Q are brackets or braces attached to the table-top N and serve merely as supports for O and O'.

The table-top N is supported on the cross-pieces R R', which cross-pieces are supported by the table-frame M. Attached to the table-top is the strip R'', which strip is clasped between the screw-adjusting bolt S and the strip R'. This construction allows for a longitudinal adjustment of the table-top and parts connected thereto.

The shaft I turns in the journal-boxes 5 5, on which are rigidly fixed the pulleys J and J''. The revolution of the cutter T is received through the bolts K and K' over the pulleys J, J', and J''. The power is supplied to the pulley J' by any suitable mechanism.

By referring to Fig. 1 it will be observed that as the cutter T and follower or dummy T' are both connected with and supported by the horizontally-sliding frame C they necessarily move therewith in a right line horizontally. The cutter and dummy are supported by separate arms of the frame C, as shown,

but are in the same direct line and are capable of moving together or in unison in a horizontal plane and at right angles to the parallel supports O O', which are placed opposite to each other, as shown, one of said supports being adapted to carry the stock to be operated upon, while the other supports or carries the pattern. These supports O O', as shown, are rigidly connected or attached to the table-top N by means of the brackets or braces Q Q, secured thereto. It will be observed that the supports O O' are rigidly connected with each other through the brackets Q Q and table-top N, and are consequently movable together longitudinally or horizontally when the table-top N is adjusted by means of the bolt or screw S, as hereinbefore described.

The rotary journal-shaft I is journaled in the swinging frame B' in line with the axis of the independent pivots 6, on which said frame turns.

It will be observed that the upper swinging frame B carries a drive-pulley J' and the lower frame B' carries two pulleys J and J'', one pulley being connected by a belt to the pulley on the upper frame and the other by a pulley on the shaft of the cutting-tool. Both frames B and B' swing on pivots independent of the pulley-shafts, and the upper frame is provided with a counter-balance, as before described, to counterbalance the weight of the lower swinging frame and its attachments.

The frame B, being pivoted at 6' 6', allows for a free vertical motion, while the pivoted frame B' and the sliding frame C allow a free lateral motion at their lower ends, so that the cutter can be readily carried over the stock. By placing the stock upright the chips produced by the revolving cutter drop freely from the stock, leaving the developing figure always in plain view of the operator.

The machine may be used as a free-hand machine, in which case the pattern and dummy would perform no function.

Having thus described my invention, what I claim to have invented, and desire to secure by Letters Patent, is—

1. In a carving-machine, the combination of an upper pivoted frame adapted to impart vertical motion and a lower frame pivoted to said upper frame, swinging in vertical planes and adapted to give free lateral swinging motion, the horizontally-sliding frame mounted in guides across the lower end portion of the lower pivoted frame and having a journal-box, a cutter-shaft journaled in said journal-box and moving lengthwise in unison with the sliding frame, and the cutter-head supported by the cutter-shaft, substantially as described.

2. In a carving-machine, the combination of an upper frame pivoted to oscillate in a vertical plane, a laterally-swinging frame pivoted to the upper frame and rising and falling therewith and provided at its lower end with a journal-box, a horizontally-sliding

frame mounted in bearings across the lower end portion of the lower swinging frame and provided with a journal-box, and a cutter-shaft journaled in the box on the horizontally-sliding frame, moving therewith and sliding and rotating in the box of the lower swinging frame, substantially as described.

3. In a carving-machine, the combination of a laterally-swinging and rising-and-falling frame B', a horizontally-sliding frame C, mounted in bearings across the lower end of the swinging frame and provided with a journal-box D', a cutter-shaft E, journaled in said box and moving lengthwise with the horizontally-sliding frame, a cutter on the shaft, a table-frame M, a sliding table-top N thereupon, a pattern P, moving horizontally with the table-top, and a dummy or follower T, carried by the horizontally-sliding frame and moving lengthwise in unison with the sliding frame and the cutter-shaft, substantially as described.

4. The combination, with a table-frame, of a horizontally-sliding table-top having two rigidly-attached supports O O', which respectively carry the pattern and the work and both moving in unison with the table-top, and a clamp for clamping the table-top stationary on the table-frame, substantially as described.

5. In a carving-machine, the combination of the supports, an independent pivot 6 in each support, a swinging frame B', turning on said independent pivots, and a rotary journal-shaft I, journaled in the swinging frame in line with the axis of the independent pivots, substantially as described.

6. In a carving-machine, the combination of two vertically-swinging frames, the upper frame carrying a drive-pulley and the lower frame carrying two pulleys, one pulley connected by a belt to the pulley on the upper frame and the other pulley connected with a pulley on the shaft of the cutting-tool, each of said frames swinging on pivots independent of the pulley-shafts, substantially as described.

7. In a carving-machine, the combination, with the swinging frame having a journal-box, of a horizontally-sliding frame extending across the swinging frame and having a revolving cutter-carrying shaft lengthwise movable in the box of said swinging frame, substantially as described.

8. In a carving-machine, the combination, with a swinging frame B', having journal-box D, of a pulley W, having a sleeve journaled in said box, a sliding frame C, having a cutter-shaft E extending through the sleeve and pulley and provided with a longitudinal groove 4, and a pin 1, engaging the groove, substantially as described.

9. In a carving-machine, the combination of a swinging frame, a cutter-bearing shaft arranged to slide in bearings in the swinging frame to move the cutter toward and from the stock, a follower moving in a line with the

cutter and adapted to follow a pattern, and a frame supporting the cutter-shaft and follower, substantially as described.

10. In a carving-machine, the combination
5 of a swinging supporting-frame and a sliding shaft carrying a revolving cutter and adapted to move longitudinally in its bearings within the frame to move the cutter toward and from the stock, for the purpose described.

10 11. In a carving-machine, the combination of a longitudinally-moving shaft carrying the cutting-tool, two vertically-swinging frames, one of said frames carrying a drive-pulley and the other frame carrying a cutting-tool, a
15 shaft upon which such cutting-tool is mounted, a pulley on said shaft, suitable belting communicating between the tool-shaft and the shaft carrying the driving-pulley, two parallel supports, as O O', one carrying the
20 stock and one carrying the pattern, a cutting-tool, as T, and dummy, as T', all substantially as described.

12. In a carving-machine, the combination
25 of two vertically-swinging frames, the upper frame carrying a drive-pulley and provided with a counter-balance for counterbalancing the weight of the lower swinging frame and its attachments, the lower frame carrying two pulleys, one pulley connected by a belt to the
30 pulley on the upper frame and the other pulley connected with a pulley on the shaft of

the cutting-tool, a cutting-tool and a dummy arranged to be moved in one and the same direct line on separate arms, said tool and dummy moved together simultaneously, and
35 two parallel supports, as O O', placed opposite each other, one of said supports adapted to carry the stock to be operated upon and the other to carry the pattern, substantially as described.

13. In a carving-machine, the combination
40 of two vertically-moving frames, one frame receiving the power from any suitable mechanism and provided with a drive-pulley and a counter-balance for counterbalancing its
45 weight, the other frame carrying a pulley conveying the power to the revolving cutter, suitable pulley and belt connections between said cutter-pulley and the pulley receiving the power, a cutter T and dummy T', adapted to
50 move substantially horizontally, and two parallel supports, as O O', one adapted to support the pattern and one the stock to be operated upon, said parallel supports rigidly attached to move longitudinally, substantially
55 as described.

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

SINGLETON L. KING. [L. S.]

Witnesses:

ARTHUR C. DENISON,
HARRY P. VAN WAGNER.