(No Model.)

W. G. CHAPIN.

MECHANISM FOR HOLDING AND GUIDING CIRCULAR SAWS.

No. 261,831. Patented Aug. 1, 1882.

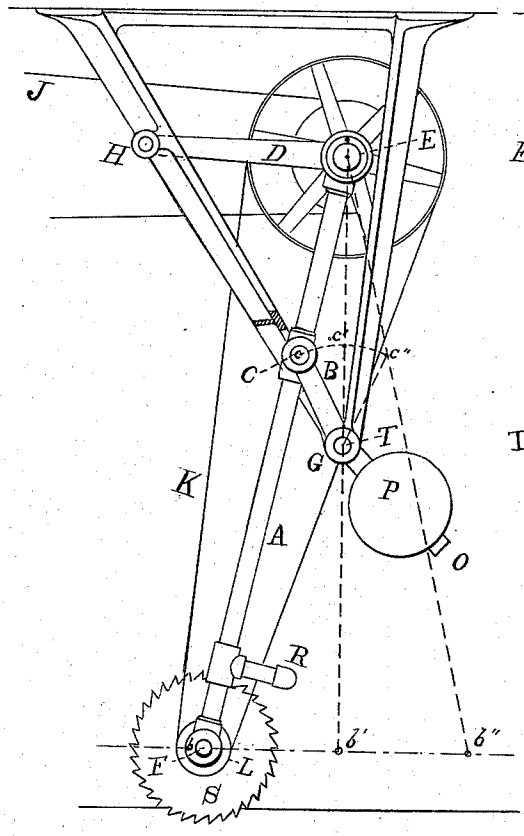


Fig. I.

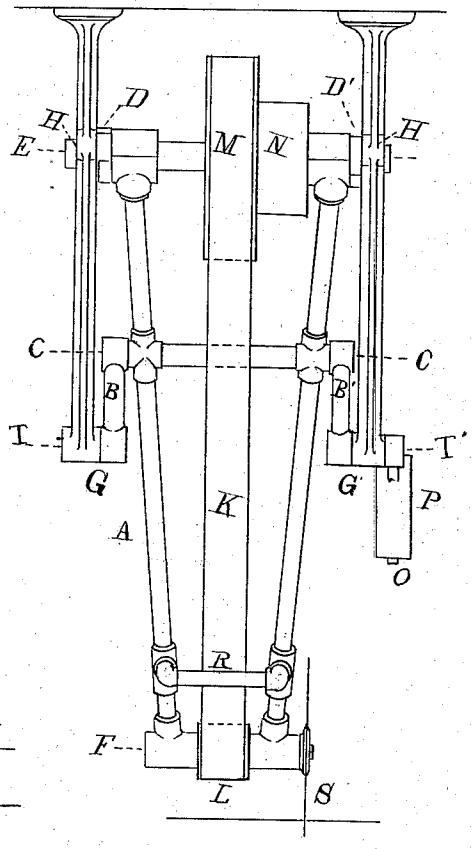


Fig. II.

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MECHANISM FOR HOLDING AND GUIDING CIRCULAR SAWS.

SPECIFICATION forming part of Letters Patent No. 261,831, dated August 1, 1882.

Application filed March 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. CHAPIN, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Mechanisms for Holding and Guiding Circular Saws, of which the following is a specification, reference being had to the accompanying drawings.

In the drawings, Figure I is a side elevation of my improved mechanism, and Fig. II is a front elevation of the same.

My invention relates to that class of cutting, milling, grinding, or polishing machines in which the material to be operated upon lies stationary and the tool oscillates or moves to and fro; and its object is to provide a means of guiding the tool in a straight line parallel with or at any desired angle to the surface of the table or bench on which the material to be operated upon is placed. In order to accomplish this object it is desirable to have the mechanism, which is above the table or bench, out of the way of the operator, and so arranged as, first, to give a motion to the tool, which will be parallel to the surface of the table or the material upon which it acts; second, to balance the suspended weight of the frame and its attachments; and, third, to counterweight the frame, so that it will tend to remain at rest and keep the tool in any required position within the limits of its motion. These results are attained by the mechanism illustrated in the accompanying drawings, and which will be hereinafter fully described.

The swinging frame A carries at one end the counter-shaft E, having on it the pulleys M and N, and at the other end of this frame is the arbor or shaft F, on which is a pulley, L, having a belt, K, passing over the pulley M or N, and which imparts motion to the tool employed, as shown in Fig. I. Between the shafts E and F, and in the same plane, the frame is supported by arms B B′, pivoted to the frame at C and to suitable supports at T, so as to permit free turning about the centers C and T. The relative positions of the frame A and the arms B B′ are such that the center-line of the pins T and T′ will lie in the same plane with the center-line of the shafts E, F, and C when that plane is perpendicular to the course to be described by the center of the shaft F. The shaft C may be made fast to the arms B B′ and have bearings in the frame A; or it may be made fast to the frame A and have bearings in the arms B B′, and the same is true in regard to the pins which support the arms B B′ at G G′. The top of the frame A is guided so as to be free to move in a vertical or nearly vertical line only.

To guide the frame A, I have shown the arms D D′ pivoted at E, and extending in nearly a horizontal direction to a point, H, where they are also pivoted. These arms form a simple and a sufficiently accurate means of guiding the frame for all practical purposes. The same results, however, may be attained by the use of other forms of guides, either slotted or otherwise; and I do not therefore limit myself to the use of the arms D D′, although they are perhaps the most simple guides to be used for that purpose.

A weight, P, is fastened to an arm, O, which is pivoted by the pin T′ to the crank arm B′. The arm O, with the weight P, may be either on the same or the opposite side of the bearing T′ as the crank-arm B′. The position of the arm O may be such as to make any required angle between the arms B B′ and the line of suspension of the weight P and arm O, so that, when the weight hangs vertically from the center T′ the frame A will be held in a position corresponding to this angle. To the lower end of the frame a handle, R, is attached, so that the operator may pull it back and forth on the work, as desired.

The length of the arms B B′ depends upon the position of the point of attachment C with respect to the points E and F, and is such as to guide the lower end, F, in a horizontal line, *b b′ b″*. The top of the frame A being guided by the arms D D′, so as to cause it to move vertically, the movement of the cranks or arms B B′ will prevent the shaft F and the tool from describing an arc upon the material, because the arms B B′ will describe an arc, *c c′ c″*, as the frame moves to and fro, which will compensate for the arc that would otherwise be described by the lower end of the frame and the tool attached thereto.

I do not confine myself to the use of two arms or cranks, B B′, as one of them may be made to serve the purpose.

I am aware that a parallel motion is not new, and I do not claim it in itself; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination of the frame A for holding a circular saw or tool, having the shaft F, supporting such saw or tool, and shaft E, supporting a driving-pulley, which shaft E is pivoted to the arm D, or suitable means to prevent its having a lateral movement, with the crank B for supporting and guiding the frame A, and support G, upon which the crank B is pivoted, substantially as described.

2. The combination of the frame A for holding a circular saw or tool, having shaft E, which shaft is pivoted to the arm D, or suitable means to prevent its having a lateral movement, and supports a driving-pulley, and shaft, F, supporting the saw or tool, with the crank B for supporting and guiding the frame A, and the arm C, supporting the weight P for counterbalancing the frame A, substantially as described.

3. The combination of the frame A, having shafts E and F, upon which said shaft F is a saw or tool, S, with one or more cranks or arms, B, pivoted to the frame between the shafts E and F to a suitable support, G, the shaft E being pivoted or suitably attached to the arm or arms D, which is also pivoted to the support H, substantially as described.

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Witnesses:
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