(No Model.) 2 Sheets—Sheet 1.

E. WESTON.

ELECTRO MAGNETIC MOTOR.

No. 283,546. Patented Aug. 21, 1883.

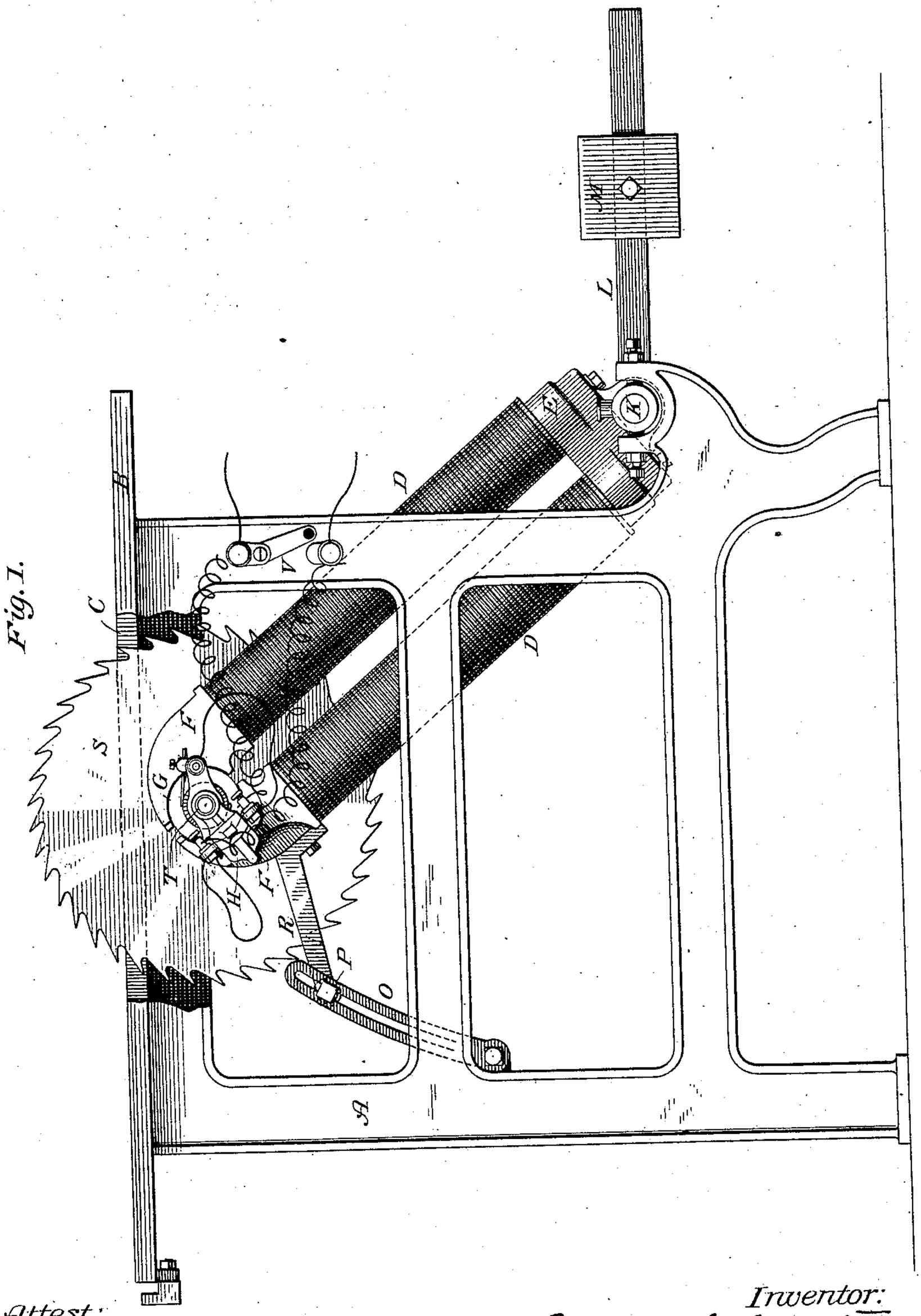

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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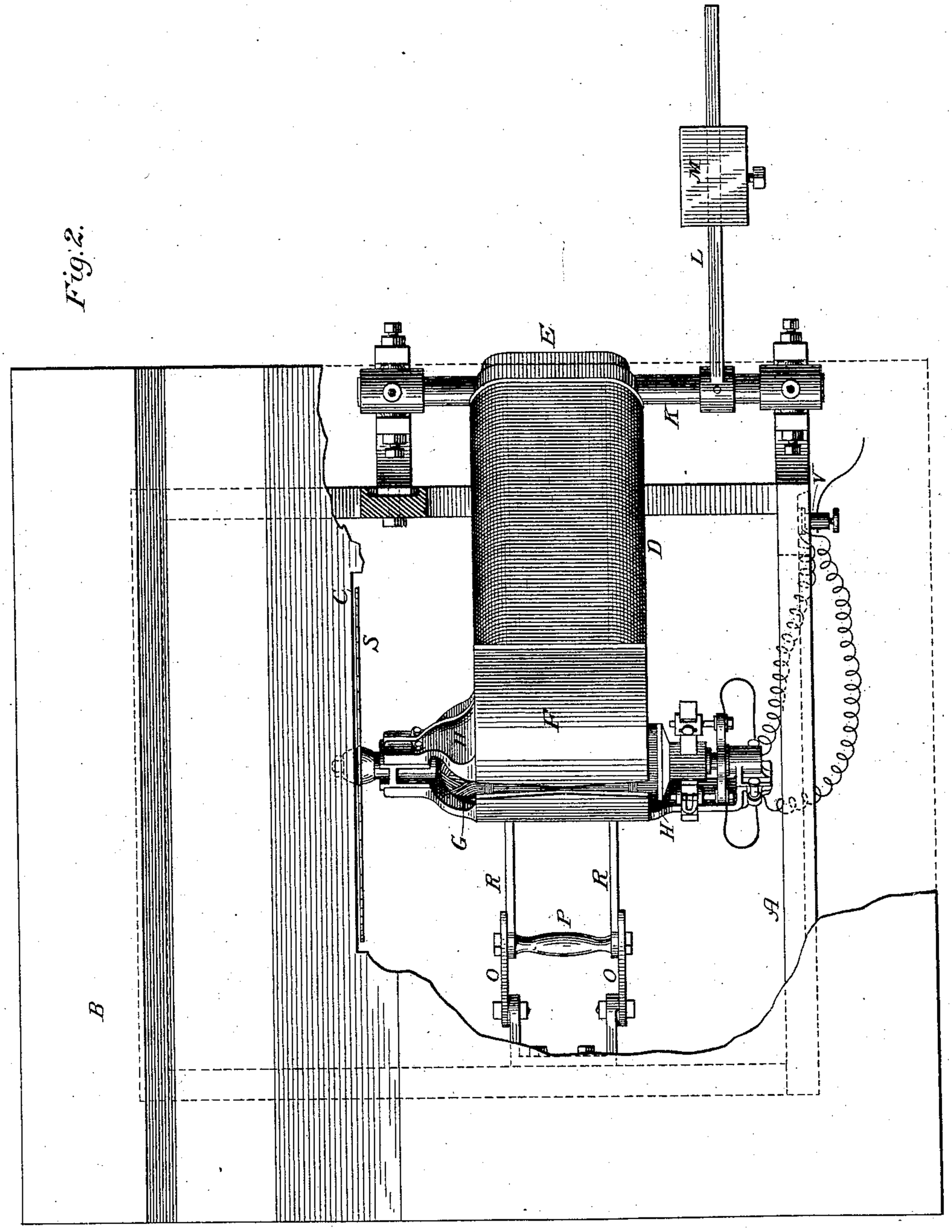
Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD WESTON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

ELECTRO-MAGNETIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 283,546, dated August 21, 1883.

Application filed March 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WESTON, a subject of the Queen of Great Britain, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Electro-Magnetic Motors, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

My invention relates to devices for utilizing power transmitted by electric currents for purposes of sawing, grooving, or cutting timber and such material, the invention being applicable to those instruments that consist in general of a bench or table through which the saw or similar instrument driven by belts or gears projects. My object is mainly to utilize the power of an electro-magnetic motor directly for driving or operating such tools by dispensing with the gears or belts, and for this purpose I fix the tool directly to the shaft of an electro-magnetic motor, the motor itself being so constructed that it may be combined and used with a bench or table similar to those now in use. I also mount or support the motor in such manner that its position with reference to the bench or table may be readily shifted or adjusted. The tools which are fixed to the shaft may be of several kinds—such, for example, as are adapted for sawing, grooving, or cutting—and the motor may be run in any of the ways known or used for the electrical transmission of power.

My invention is shown in the accompanying drawings as applied to or combined with an ordinary circular saw, Figure 1 being a side view, and Fig. 2 a plan view, of the apparatus, portions of the supporting-frame in each case being cut away to exhibit the construction of the working parts.

A is the supporting-frame, B the table or bench, and C a slot in the latter through which the saw works.

D D are parallel cores bolted to a cross-piece, E, and formed with pole-pieces F F, between which is mounted an armature, G. The shaft T of said armature is journaled in supports H, which may form part of or be clamped to one or both pole-pieces F F, the construction in this respect being similar to that of other machines shown and described in numerous patents granted to me. On the shaft T is clamped or fixed, in the usual manner, a circular saw-blade, S, in position to project through the slot C.

The construction of the motor, it will be seen, is such as to specially adapt it for this purpose, the shape of the field-magnets being such as to permit the armature-shaft being brought in close proximity with the under side of the bench through which the saw works.

The cross-piece E is fixed to a shaft, K, that is mounted in bearings in the rear of the frame A, the motor by this arrangement being free to swing bodily toward or from the bench. An arm, L, fixed to shaft K, carries an adjustable counterpoise, M, that balances the weight of the motor.

Provision is made for shifting or adjusting the position of the motor, that shown being a common expedient in instruments of this kind, and consisting of slotted plates O O, a bar, P, with clamping-nuts or similar devices that fix the bar at any desired point in the slots, and arms R R, extending from the under pole-piece, F, to the bar P. Conductors from the binding-posts of the motor are brought to a switch, V, in a convenient place on the frame or bench.

The construction described permits the ready and easy adjustment of the saw with reference to the table or bench, the motor and its shaft being raised or lowered by means of the adjusting devices according to the thickness of the timber that is to be sawed.

Many advantages result from the construction and arrangement of the devices which I have described. The complicated gearing ordinarily used in conjunction with tools of this description is dispensed with, the power of the motor being applied directly, while the necessary adjustment is attained without difficulty or the employment of other than the most ordinary forms of mechanism. While the construction shown is the most practicable and simple, it is evident that the motor and saw may be made adjustable with reference to the bench in other ways, it being within the scope of my invention to move the motor bodily toward or from the bench.

With regard to the motor it may be stated that though the form shown is believed to be the best adapted to the purpose from the special

necessities of the case, it may be in some respects varied in mechanical construction and design.

Without, therefore, restricting myself to any special form of motor in combination with the other elements named, nor to the precise arrangement of parts composing said combination,

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

1. The combination of an electro-magnetic motor, a cutting or similar tool fixed directly to the shaft, a bench or table, and means for shifting or adjusting the position of the motor with reference to the bench, as set forth.

2. The combination, with a bench or table, of an electro-magnetic motor mounted or supported in a manner to be moved or adjusted toward or from said bench, and a cutting or similar tool fixed to the shaft of the motor and projecting through the bench, as set forth.

3. The combination, with a bench or table, of an electro-magnetic motor mounted or supported in a manner to swing toward or from the said bench, and means for retaining the motor in proper position for use, as set forth.

4. The combination, with a bench or table, of the magnets D D, cross-piece E, shaft K, the armature mounted between said magnets, the saw or cutting-tool fixed to the armature-shaft, and means for adjusting the position of the magnets with reference to the bench, as described.

In testimony whereof I have hereunto set my hand this 12th day of March, 1883.

EDWARD WESTON.

Witnesses:
HENRY A. BECKMEYER,
L. V. E. INNES.