

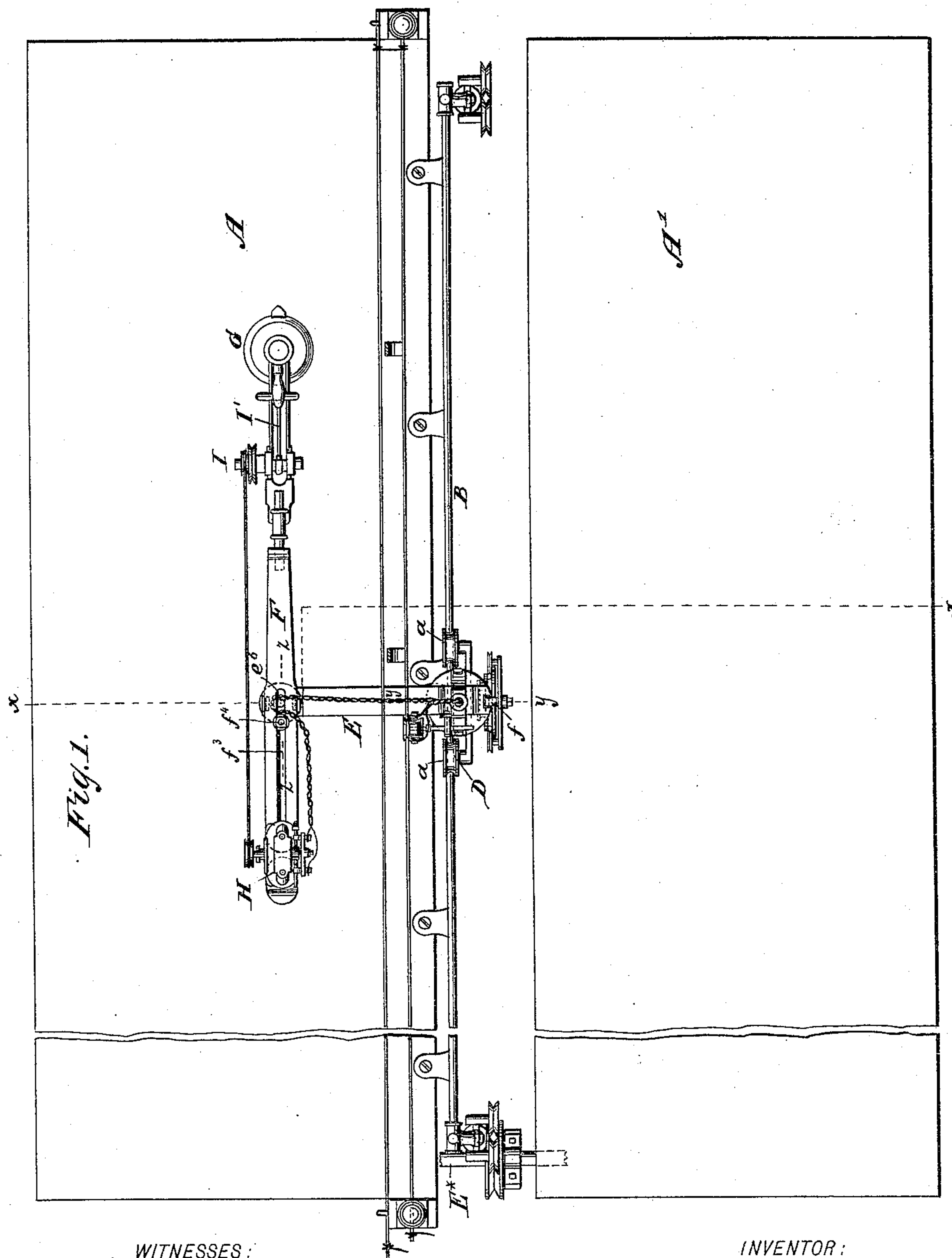
(No Model.)

4 Sheets—Sheet 1.

A. WARTH.
MECHANICAL MOVEMENT.

No. 444,285.

Patented Jan. 6, 1891.



WITNESSES:

Edward Wolff.
William Miller

INVENTOR:

Albin Warth.

BY Van Santvoord & Hauff

ATTORNEYS

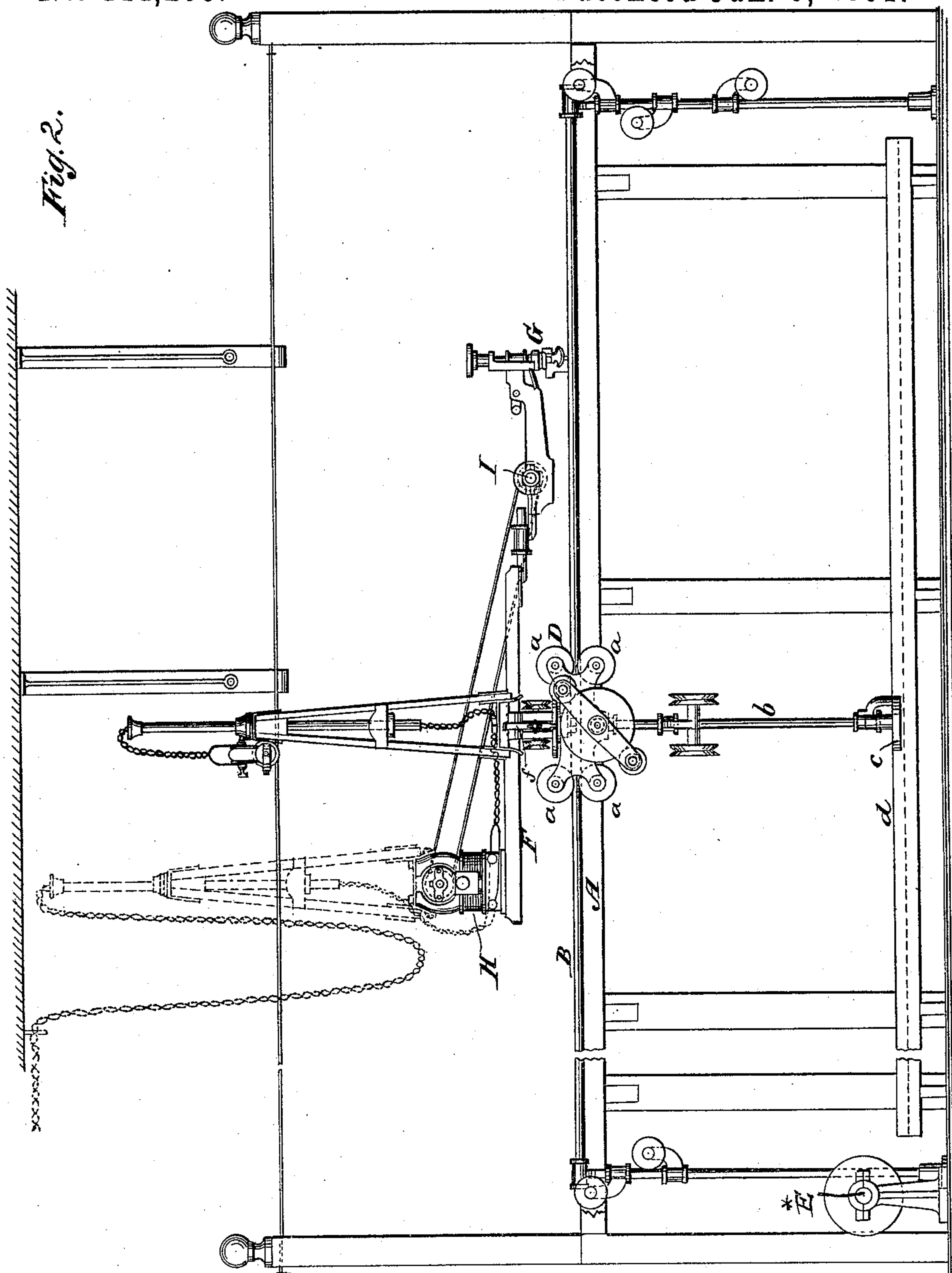
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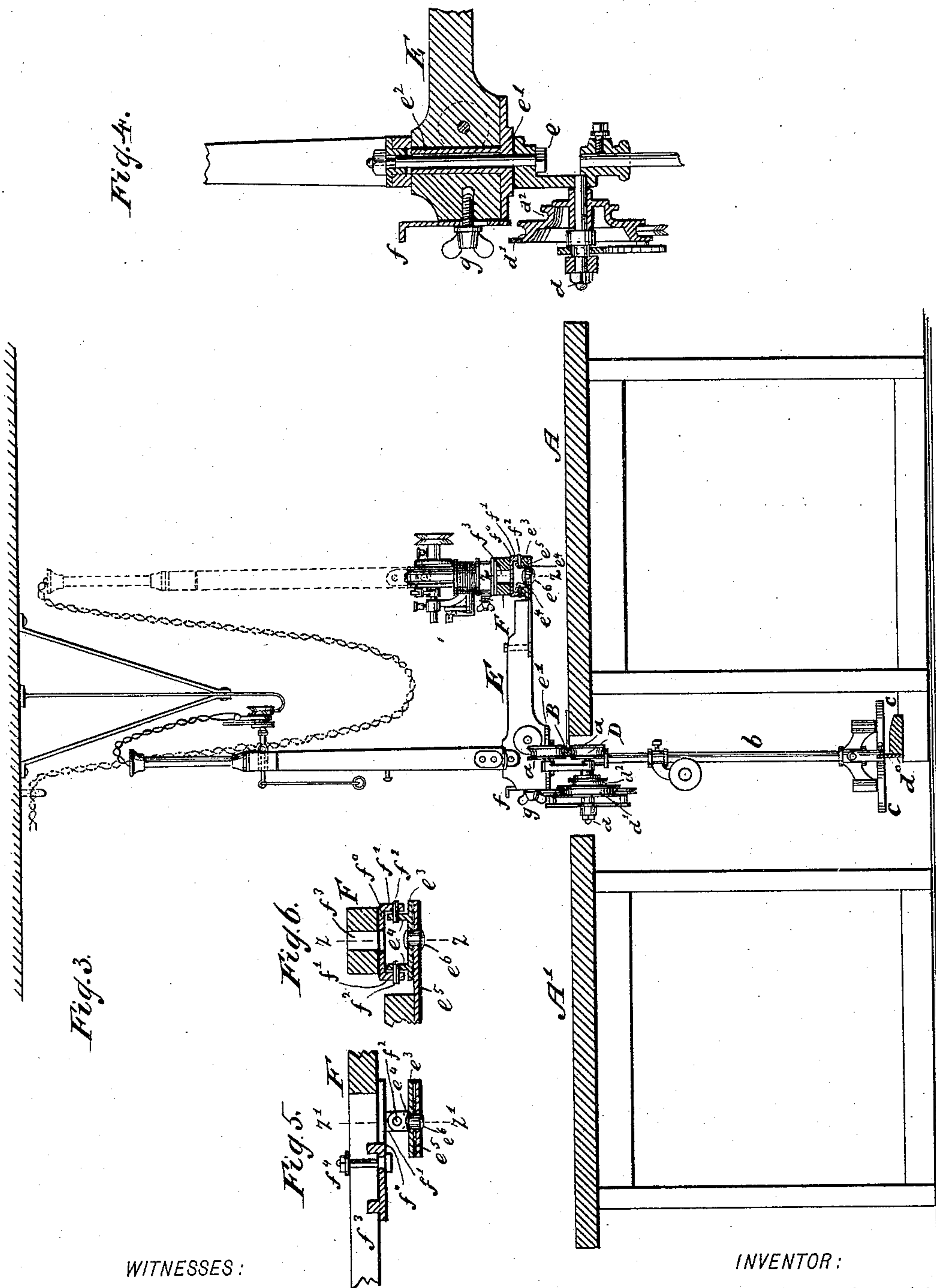
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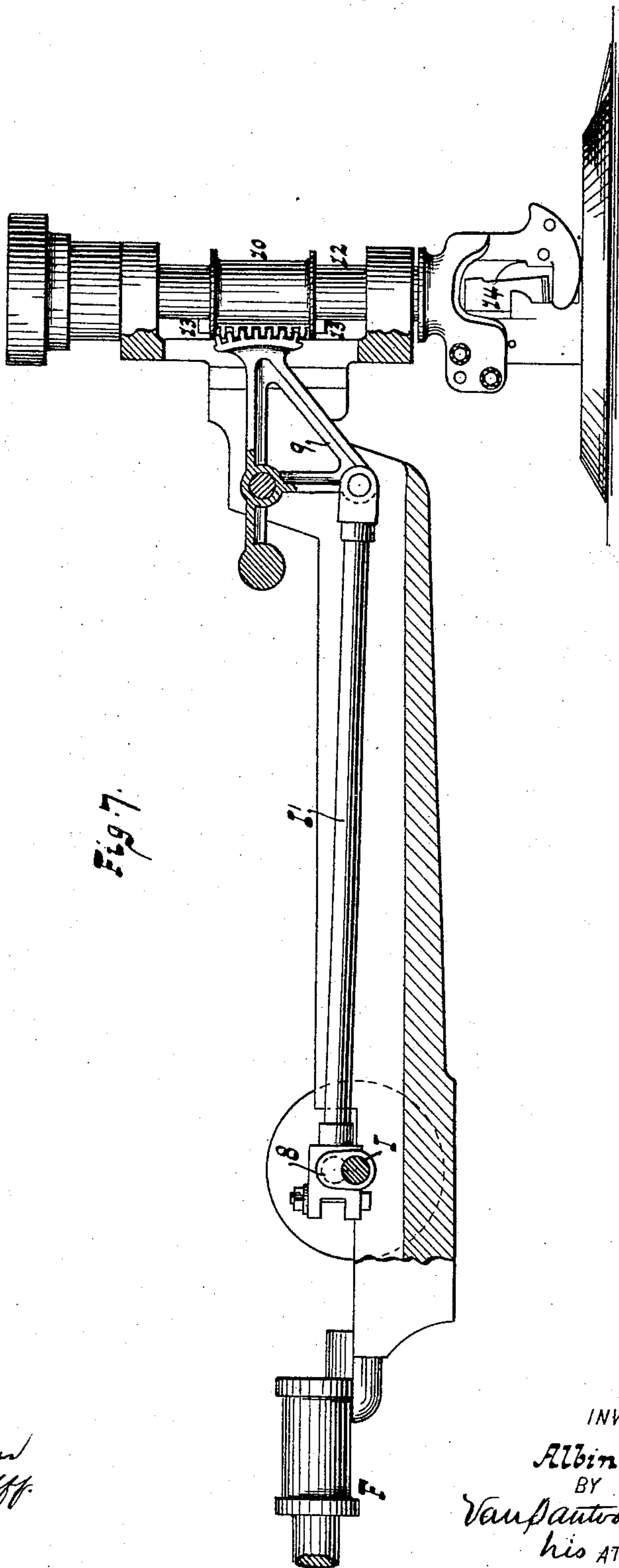


Fig. 7.

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his ATTORNEYS

UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 444,285, dated January 6, 1891.

Application filed September 4, 1890. Serial No. 363,884. (No model.)

To all whom it may concern:

Be it known that I, ALBIN WARTH, a citizen of the United States, residing at Stapleton, in the county of Richmond and State of New York, have invented new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to certain improvements in that class of mechanical movements which I have described in Letters Patent No. 390,926, granted to me October 9, 1888, and the object of which is to impart motion to a tool or implement which while in action has to be moved from one place to another—such, for instance, as a polishing or grinding wheel for polishing large panes of glass or a cutter for cutting out garments.

The improvements which form the subject-matter of this present application for a patent are pointed out in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 represents a plan or top view. Fig. 2 is a side elevation. Fig. 3 is a transverse vertical section in the plane $x x$, Fig. 1. Fig. 4 is a partial vertical section on a larger scale than the previous figures, the plane of section being indicated by the line $y y$, Fig. 1. Fig. 5 is a section in the plane $z z$, Figs. 1 and 6. Fig. 6 is a section in the plane $z' z'$, Fig. 5. Fig. 7 is a sectional view of a cutting-tool such as may be used in connection with my invention on a larger scale than the previous figures.

In the drawings, the letters A A' designate two tables which are intended to support the work to be operated upon. Between these tables is situated a rail B, which may be secured to one of the tables or to the floor or walls, as circumstances may require. This rail forms the guide for carriage D, which may be provided with two or more wheels $a a$, fitting the rail B, and which may be sustained on the rail in an upright position by any suitable means. In the example illustrated in the drawings the carriage is provided with a downwardly-extending arm b , which carries two wheels $c c$, Figs. 2 and 3, and these wheels are brought to act upon the opposite sides of

a flat rail d^o , which runs parallel with the rail B. By these means the carriage D is free to move from one end of the rail B to the other, it is always kept in an upright position, and it leaves the entire surface of the table or tables free for the adjustment of the work.

From the carriage D extends an arm E, approximately at right angles to the rail B. This arm, which I shall hereinafter designate as the "supporting-arm," is fastened to the carriage by means of a screw-bolt e . (Best seen in Fig. 4.) This screw-bolt extends through a bracket e' , which is provided with a tubular projection e^2 , and in order to retain said arm at right angles to the rail B a latch f is provided, which is secured to the inner end of the arm by a set-screw g . When the latch is raised, the supporting-arm E can be adjusted at any desired angle to the rail, and when the nut of the screw-bolt e is released the supporting-arm can swivel on the tubular projection e^2 . This movement is of advantage for certain manipulations. In the example represented in the drawings the supporting-arm E extends at right angles to the rail B over the table A, and its outer end serves to support the balance-arm F. The connection with the supporting-arm E is effected by a plate e^5 and a bracket e^3 , which is provided with lugs e^4 , Figs. 3, 5, and 6, and by a plate f^o , which is secured to the balance-arm and provided with lugs f' , which straddle the lugs e^4 and are connected to the same by pivots f^2 . In the balance-arm is formed a slot f^3 , through which extends a screw-bolt f^4 , so that it can be moved in the direction of its length upon the plate f and adjusted in the required position by tightening the nut of the screw-bolt f^4 . The plate e^5 and the bracket e^3 are connected by a pivot e^6 , so that the balance-arm F can be turned in a horizontal plane on this pivot e^6 , while it is free to swing in a vertical plane on the pivots $f^2 f^2$.

On one end of the balance-arm is secured the tool G and on its opposite end is fastened a motor H, such as an electromotor or a pneumatic motor, from which motion is imparted to a shaft I, which is mounted in the

balance-arm and from which motion is transmitted to the tool G. In the example shown in the drawings this tool is a cutting-tool for cutting out garments, such as shown and
 5 described in Letters Patent No. 380,962 and 380,963, granted to me April 10, 1888, and a reciprocating motion is imparted to this tool from the shaft I by means of a pitman I'. (See Figs. 1 and 7.) This pitman engages a
 10 crank 8, formed on the shaft I, and it connects with a bell-crank lever 9, which engages a sleeve 10, fitted upon a pillar 12 and engaging lugs 13, which project from the shank of the cutter 14. A tool may, how-
 15 ever, be used which requires a revolving motion and the means for transmitting such motion to the tool from the shaft I will readily suggest themselves to any ordinary machinist.

It will be readily seen from the description
 20 that the motor II forms a balance to the tool G, and by adjusting the balance-arm in the direction of its length by means of the slot f^3 and screw-bolt f^4 the pressure exerted by the tool upon the table or upon the work
 25 over which it moves can be adjusted. At the same time by connecting the balance-arm F to the inner end of the supporting-arm E, I am enabled to move the tool over a table of considerable width with a comparatively short
 30 balance-arm, and when the tool is being moved over the table that end of the balance-arm which supports the motor does not swing beyond the edge of the table A, so that it will not interfere with the work of persons
 35 engaged near the said table. Furthermore, by connecting the supporting-arm E to the traveling carriage D, I am enabled to move my tool over every part of the table. According to the nature of the work, the car-
 40 riage D may be held stationary, or, in other words, the supporting-arm E may be secured to a stationary part and made to extend over the table, while the balance-arm F, which carries the motor II and the tool G, is con-
 45 nected to the supporting-arm in the manner above described.

A shaft E* may be provided, which is connected to the carriage D by belts, as fully described in an application for a patent filed
 50 by me September 4, 1890, Serial No. 363,882, so that in case the motor II becomes inoperative the tool can be operated by any suitable power capable of imparting motion to the shaft E.

55 I do not herein claim anything claimed in my applications for patents, Serial Nos. 363,882 and 363,883, bearing even dates with this.

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

60 1. The combination of a fixed guide or rail B, a traveling carriage D, fitted on said guide, a supporting-arm E, secured to and traveling with the carriage, a balance-arm F, secured to the supporting-arm E and free to
 65 swing both in a horizontal and a vertical plane, a tool G, attached to the balance-arm

on one side of its fulcrum, a motor II, secured to said balance-arm on the opposite side of its fulcrum, and suitable means for connecting the tool with the motor.

2. The combination of a fixed guide or rail B, a traveling carriage D, fitted on said guide, the bracket e' , with its tubular projection e^2 , secured to said carriage, the supporting-arm E, fitted on the tubular projection e^2 and retained in position by a screw-bolt e , the latch f , the balance-arm F, secured to the supporting-arm E and free to swing both in a horizontal and in a vertical plane, a tool attached to the balance-arm on one side of its fulcrum, a motor II, secured to said balance-arm on the opposite side of its fulcrum, and suitable means for connecting the tool with the motor.

3. The combination of a fixed guide or rail B, a traveling carriage D, fitted on said guide, a supporting-arm E, secured to and traveling with the carriage, the swiveling bracket e^3 , carried by the supporting-arm, the balance-arm F, the plate f , secured to the balance-arm and connected to the bracket e^3 by pivots f^2 , a tool attached to the balance-arm on one side of its fulcrum, a motor II, secured to said balance-arm on the opposite side of its fulcrum, and suitable means for connecting the tool with the motor.

4. The combination of a supporting-arm E, a balance-arm F, connected to the free end of the supporting-arm and free to swing in a horizontal and in a vertical plane, a tool attached to the balance-arm on one side of its fulcrum, a motor secured to said balance-arm on the opposite side of its fulcrum, and suitable means for connecting the tool with the motor.

5. The combination of a supporting-arm E, a balance-arm F, connected to the free end of the supporting-arm and free to swing both in a horizontal and in a vertical plane, means, substantially as described, for adjusting the balance-arm in the direction of its length, a tool attached to the balance-arm on one side of its fulcrum, a motor secured to said balance-arm on the opposite side of its fulcrum, and suitable means for connecting the tool with the motor.

6. The combination of a bracket e' , the supporting-arm E, attached to said bracket and constructed to swing on the same, the balance-arm F, connected to the free end of the supporting-arm and free to swing both in a horizontal and in a vertical plane, a tool attached to the balance-arm on one side of its fulcrum, a motor secured to said balance-arm on the opposite side of its fulcrum, and suitable means for connecting the tool with the motor.

7. The combination of a fixed guide or rail B, a traveling carriage fitted on said guide, a supporting-arm E, secured to and traveling with the carriage, balance-arm F, secured to the supporting-arm and free to swing both

in a horizontal and a vertical plane, a tool G, attached to the balance-arm, and means, substantially as described, for imparting motion to the tool.

- 5 8. The combination, with the supporting-arm E, of a balance-arm F, secured to said supporting-arm and free to swing both in a horizontal and in a vertical plane, a tool secured to the balance-arm, and a motor sup-

ported by the balance-arm and geared with the tool, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBIN WARTH.

Witnesses:

WM. C. HAUFF,

E. F. KASTENHUBER.