A. WARTH.

Mechanical Movement.

No. 209,736. Patented Nov. 5, 1878.

Fig. 1.

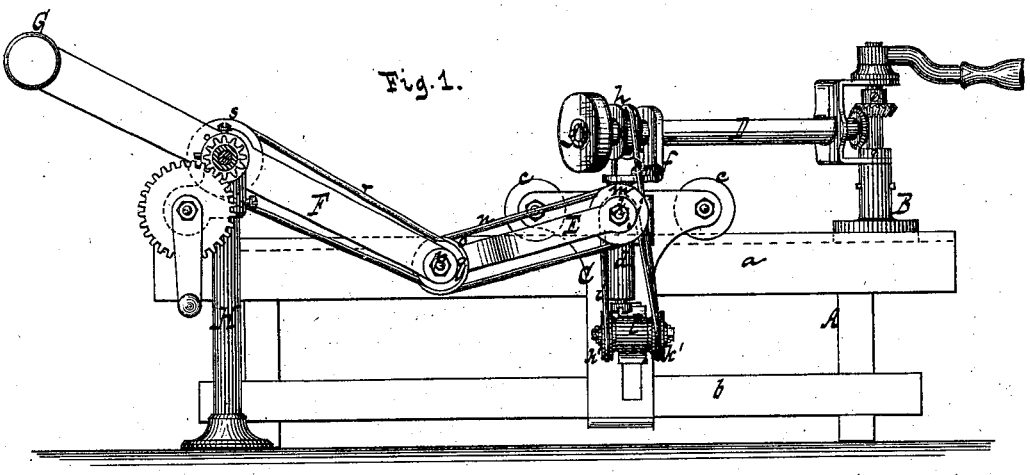


Fig. 2.

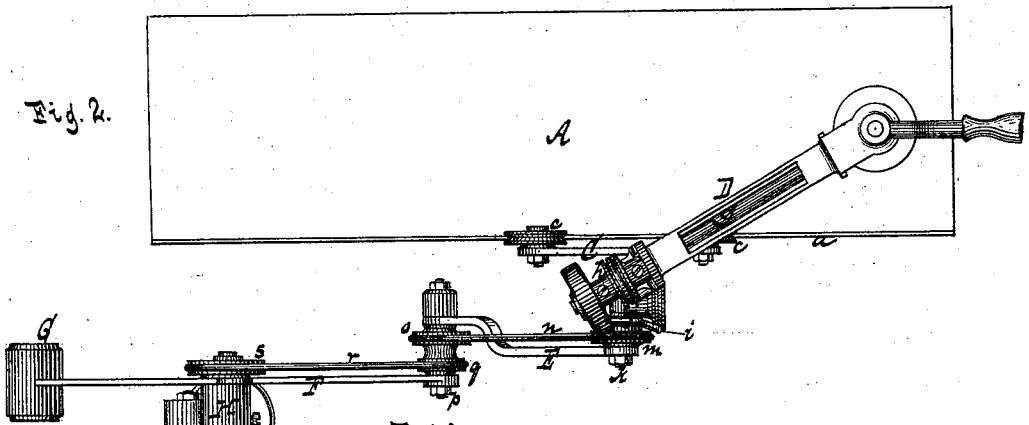
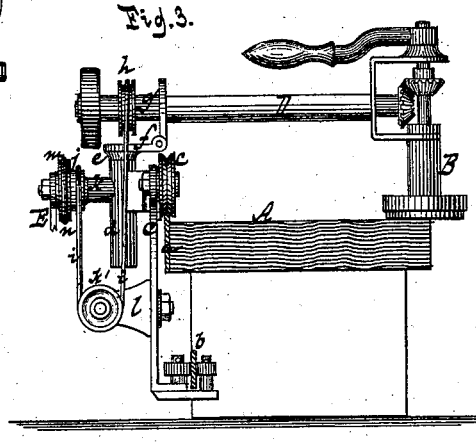


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **209,736**, dated November 5, 1878; application filed October 16, 1878.

To all whom it may concern:

Be it known that I, ALBIN WARTH, of Stapleton, in the county of Richmond and State of New York, have invented a new and useful Improvement in Mechanical Movements, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a side elevation, partly in section. Fig. 2 is a plan or top view. Fig. 3 is a transverse vertical section in the plane *x x*, Fig. 2.

Similar letters indicate corresponding parts.

This invention relates to certain improvements on that class of mechanical movements which I have described in my Patent No. 179,375, dated June 27, 1876.

My present improvement consists in the combination, with a working machine, of a swivel-arm, which forms the bearings for the shaft transmitting motion to said working machine a vertical shaft which connects with the swivel-arm by a bracket, a table which supports the work to be acted on by the working-machine, a carriage which supports the bearing of the vertical shaft, guide-rails for said carriage, which are secured to the work-supporting table, two jointed arms which swing in vertical planes, and suitable belts and pulleys for transmitting motion from the driving-shaft to the working machine, so that in moving the working machine over the table the jointed arms swing up and down between the carriage and the fixed standard which supports the driving-shaft, and thereby considerable room is saved, while the working machine can be freely moved over a comparatively long distance in either direction.

In the drawing, the letter A designates a table, which is intended to support the work to be acted upon by the working machine B. In the example shown in the drawing this machine carries a grinding-disk, such as may be used for finishing piano-tops, grinding marble slabs, or for performing other work of a similar nature; but other devices may be substituted for the grinding mechanism—such, for instance, as a mechanism for engraving, sawing, or cutting any material.

On one side of the table A are secured two rails, *a b*, one above and the other below, for supporting a carriage, C, which is provided with wheels *c*, so that it can be easily pushed along on said rails in either direction. On the back of this carriage is firmly secured a bracket, *d*, which forms the bearing for a vertical shaft, *e*, and on the upper end of this shaft is firmly secured a jointed bracket, *f*, from which extends an arm, D, that carries the working machine B. The joint in the bracket *f* allows the arm D to swing up and down, so that the working machine can be raised from or depressed upon the table A, or the work supported by said table; but in some cases said bracket may be made rigid. Moreover, by means of the vertical shaft *e* the arm D is adapted to swivel in a horizontal plane, so that the working machine can be moved over the table in a segmental path.

The swivel-arm D forms the bearings for a shaft, *g*, which serves to transmit motion to the grinding-disk or other device carried by the working machine, and on which is mounted a pulley, *h*, which connects by a belt, *i*, with a pulley, *j*. This belt is carried down under guide-pulleys *k'*, mounted on a horizontal shaft, which has its bearing in a standard, *l*, extending from the back of the carriage C, and the pulley *j* is mounted on a stud, *k*, which extends from the bracket *d*, that forms the bearing of the vertical shaft *e*. The pulley *j* is firmly connected to another pulley, *m*, from which extends a belt, *n*, over a pulley, *o*, which turns loosely on a stud, *p*, and to which is firmly connected another pulley, *q*, from which extends a belt, *r*, over a pulley, *s*, mounted on the driving-shaft *t*.

The pulleys *j* and *m* turn loosely on the stud *k*, and this stud is connected with the stud *p* by an arm, E, that swings freely on both said studs.

The stud *p* is firmly secured in the end of an arm, F, which swings freely on the driving-shaft *t*, and which carries a weight, G, for the purpose of balancing the weight of the pulleys *o q*, stud *p*, and arm E.

The driving-shaft *t* has its bearing in the top of a standard, H, which rises from the floor.

From this description it will be seen that by the combined action of the swivel-arm D, the carriage C, and the joint-arms E F, the working machine can be freely and easily

moved over the table in either direction, and during the motions of the working machine the arms E F swing in vertical planes in the space between the table A and the standard H, which supports the bearing of the driving-shaft.

If the arms E F swing in horizontal planes, much extra room is required, and if it is considered that in many cases these arms have to be made from eight to ten feet long, it will be seen that by my present improvement a great advantage is gained over the device described in my Patent No. 179,375.

Another advantage of my present device consists in the fact that the rails for the carriage are secured to the side of the table A.

I distinctly disclaim in this application everything shown and described in the above-named patent.

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

1. The combination, with a working machine, B, of a swivel-arm, which forms the bearings for the shaft transmitting motion to said working machine, a vertical shaft which connects with the swivel-arm by a bracket, a table which supports the work to be acted on by the working machine, a carriage which supports the bearing of the vertical shaft, guide-rails for said carriage, which are secured to the side of the work-supporting table, two jointed arms which swing in vertical planes, and suitable belts and pulleys for transmitting motion from the driving-shaft to the working machine, all constructed and adapted to operate substantially as and for the purpose set forth.

2. The combination, with the swivel-arm D, working machine B, table A, carriage C, and vertical shaft *e*, of a jointed bracket, *f*, to allow the working machine to move toward and from the surface of the table, substantially as described.

In testimony that I claim the foregoing I hereunto set my hand and seal this 10th day of October, 1878.

ALBIN WARTH. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.