No. 707,705. Patented Aug. 26, 1902.

T. J. LOCKWOOD.

MECHANICAL MOVEMENT.

(Application filed Dec. 4, 1901.)

(No Model.)

Fig. 1.

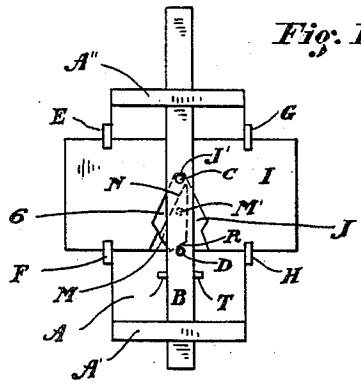
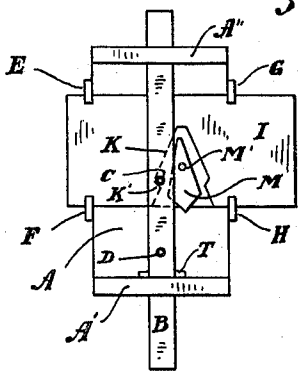


Fig. 2.



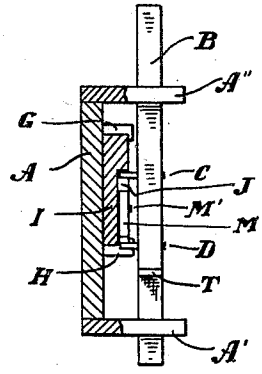


Fig. 5.

Fig. 3.

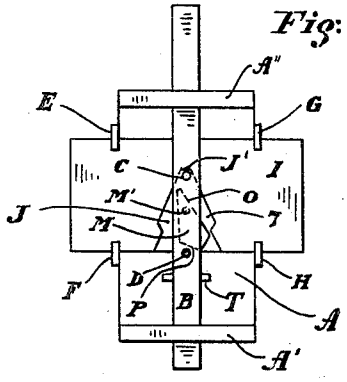
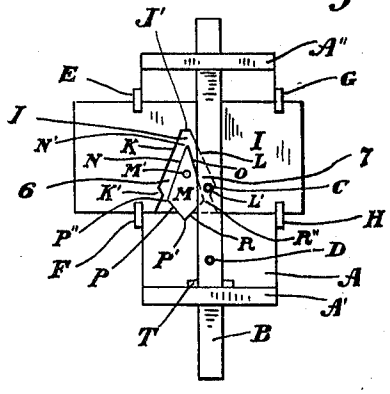


Fig. 4.



WITNESSES:

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MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 707,705, dated August 26, 1902.

Application filed December 4, 1901. Serial No. 84,608. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. LOCKWOOD, a citizen of the United States, and a resident of Muncie, county of Delaware, and State of Indiana, have invented a new and useful Mechanical Movement, of which the following is a specification.

This invention relates to a new mechanical movement which can be applied to a variety of different purposes—such, for instance, as gun-locks, valve-gearing, or the like—or any kind of a machine where it is desired to convert one motion into another motion at right angles thereto and where the movement will be intermittent and where the secondary movement will not only be at right angles to the primary movement, but will also move in both directions therefrom.

Another object of this invention is to provide a mechanical movement which is positive in its action and composed of but few parts and cheaply manufactured and which will withstand all ordinary wear and tear.

These and other objects not hereinbefore mentioned are accomplished by the construction illustrated in the accompanying drawings, wherein like letters and numbers of reference indicate corresponding parts in the several views, and in which—

Figures 1, 2, 3, and 4 are elevations of my device, showing the different movements in different positions; and Fig. 5 is a side elevation of the same, parts being in section.

In the drawings, A designates the back of the framework. Extending horizontally from the lower and upper edge of the back are guides A′ and A″. Working in these guides is a rod B. To this rod the power is applied. Extending inwardly from this rod are two pins C and C. These pins are positioned on the rod in longitudinal alinement and are spaced apart, all for a purpose to be hereinafter described.

Secured to the side edges of the back A are the brackets E, F, G, and H. Slidingly secured in these brackets is a slide or bar I. It will be noticed by referring to the drawings that the rod B and slide I are positioned at right angles to each other, so that when motion is imparted to the slide from the bar, as hereinafter described, the movement of the two parts will be at right angles to each other.

J designates a cut-out portion in the slide I. This cut-out portion is formed with two oppositely-inclined sides K and L. Each one of these sides is provided with a shoulder K′ and L′, respectively, which are located nearer the lower ends of the sides than the upper ends. These sides extend inwardly toward each other in an upwardly direction, but terminate before reaching a point, forming a short flat upper side J′ for the cut-out portion.

M designates a dog pivoted by means of a pin M′ to the slide I. This dog is pivoted to the slide within the cut-out portion J. This dog is provided with inclined sides N and O, which incline toward each other and terminate in a point N′, and the sides P and R, which incline toward each other in an opposite direction and terminate in a point P′. The meeting points of the sides N and O and R form points or shoulders P″ and R″, respectively. When the dog is in a substantially vertical position, the sides N and P of the dog will be substantially parallel with the sides K and L of the cut-out portion, as shown in Figs. 2 and 4, forming grooves 6 and 7 between the respective sides.

T designates a pin or stop on the rod B, which bears against the upper surface of the guide A′ when the rod is in its lowermost position to limit the downward movement of the rod. This stop can, however, be dispensed with, as the downward movement of the rod is prevented by other means, as hereinafter described.

In assembling the parts the pin C on the rod will be placed into either one of the grooves 6 or 7, and the pin D will be positioned on the rod so that it will bear against either the side P or R of the dog when the rod is in its uppermost position and will be free of these sides when the rod is lowered. If the pin C is in the groove 6, when the rod is raised the pin D will be bearing against the side R of the dog, as shown in Fig. 1; but if the pin C is in the groove then the pin D will be bearing against the side P of the dog, as shown in Fig. 2.

Assuming that the parts are in the position

shown in Fig. 1, when the rod B is lowered the pin C will travel down the groove 6. When traveling down this groove, the pin will bear against the side N of the dog. When the rod has reached the limit of its downward movement, the slide will be forced to the right into the position shown in Fig. 2 and the pin C will be resting against the shoulder K′ on the side of the cut-out portion. When the pin strikes against this shoulder, the downward movement of the rod will be stopped, and for that reason the pin or stop can be dispensed with, if thought desirable. If the rod is now raised, the pin C will travel upwardly through the groove 6, and the pin will bear against the side K of the cut-out portion, returning the slide to its initial position, as shown in Fig. 3. The pin D, however, when the rod is being raised will strike against the side of the dog, reversing the position of the same, so that when the rod is again lowered the pin C will travel down the groove 7 and bear against the side O of the dog, moving the slide to the left into position shown in Fig. 4, when the pin C will bear against the shoulder L′, again limiting the downward movement of the rod. Now when the rod is again raised it will travel upwardly through the groove 7 and the pin C will bear against the side L of the cut-out portion, return the slide once more to its initial position, and at the same time the pin D will strike against the side R of the dog, once more reversing the position of the same, so at the next downward movement of the rod the slide will again travel to the right, as before described. By this construction it will be seen that at each downward movement of the rod the slide will be moved to either the right or the left, and that the movement will be determined by the position of the dog, and that the position of the dog will be reversed at each upward movement of the rod, and that this upward movement will bring back the slide to its initial position.

If the initial movement commences when the rod is in its lowermost position, as shown in either Figs. 2 or 4, and assuming that the initial movement commences when the parts are in the position shown in Fig. 2, the first upward movement of the rod will move the slide to the left and the parts will assume the position shown in Fig. 4. When the parts are thus started with the rod in its lowermost position, one upward movement and one downward movement will cause the slide to move in one direction only and that this movement will be divided into two intermittent motions—one motion when the rod rises and the next motion when the rod lowers. The next upward-and-downward movement of the rod will move the slide in the opposite direction and also divide this movement into two parts.

Whether the initial position of the parts is to have the rod raised or lowered at every upward movement, the position of the dog will be changed, and the operation is the same except that by changing the initial position I obtain two movements for the slide, so that the device can be used for a great variety of purposes without in the least changing the functions of the various parts.

By providing the horizontal top side J′ for the cut-out portion I provide a stop for the pin C to strike against to limit the upward movement of the rod. By not having the two side portions K and L meet at a point and by providing the top portion J′, I form a sufficient space so that the pin C cannot become wedged in between the two side portions.

I am aware that many minor changes can be made in the construction and arrangement of parts without in the least departing from the nature and principles of my invention.

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

1. In a mechanical movement, the combination with a support, of a movable reciprocating member to which power is adapted to be applied, a second movable member arranged at right angles to the first-mentioned movable member, the second movable member being provided with a cut-out portion having sides converging toward each other at their inner ends, a dog pivoted within the cut-out portion, the inner side portions of the dog and the sides of the cut-out portion forming oppositely-extending grooves, the inner end of the dog being adapted to close either one of the grooves according to the position of the dog, a pin carried by the first movable member adapted to work in either one of the grooves, and means carried by the first movable member for reversing the position of the dog at each full reciprocation of the same.

2. In a mechanical movement, the combination with a support, of a movable reciprocating member to which power is adapted to be applied, a second movable member arranged at right angles to the first-mentioned movable member, the second movable member being provided with a cut-out portion having sides converging toward each other at their inner ends, the inner ends being spaced apart forming an end for the cut-out portion, a dog pivoted within the cut-out portion, the inner side portion of the dog and sides of the cut-out portion forming oppositely-extending grooves, the inner end of the dog being adapted to close either one of the grooves according to the position of the dog, a pin carried by the first movable member adapted to work in either one of the grooves, the pin adapted to strike against the end of the cut-out portion when the first movable member is in one position thereby limiting the movement of the same, and means carried by the first movable member for reversing the position of the dog at each full reciprocation of the same.

3. In a mechanical movement, the combination with a support, of a movable reciprocating member to which power is adapted to be applied, a second movable member ar-

ranged at right angles to the first-mentioned movable member, the second movable member being provided with a cut-out portion having sides converging toward each other at their inner ends, shoulders on the sides located adjacent the open ends of the same, a dog pivoted within the cut-out portion, the upper side portions of the dog and sides of the cut-out portion forming oppositely-extending grooves, the inner end of the dog being adapted to close either one of the grooves according to the position of the dog, a pin carried by the first movable member adapted to work in either one of the grooves, the pin adapted to strike against either one of the shoulders when the first movable member is in one position thereby limiting the movement of the same and means carried by the first movable member for reversing the position of the dog at each full reciprocation of the same.

4. In a mechanical movement, the combination with a support, of a movable reciprocating member to which power is adapted to be applied, a second movable member arranged at right angles to the first-mentioned movable member, the second movable member being provided with a cut-out portion having sides converging toward each other at their inner ends, a dog pivoted within the cut-out portion, the inner side portions of the dog and sides of the cut-out portion forming oppositely-extending grooves, the inner end of the dog being adapted to close either one of the grooves according to the position of the dog, the outer side portions of the dog converging in opposite directions from the inner side portions of the dog, a pin carried by the first movable member adapted to work in either one of the grooves, and a second pin carried by the first movable member adapted to bear against each outer side of the dog alternately at each full reciprocation of the first movable member.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS J. LOCKWOOD.

Witnesses:

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WM. DU VAL BROWN.