

No. 743,379.

PATENTED NOV. 3, 1903.

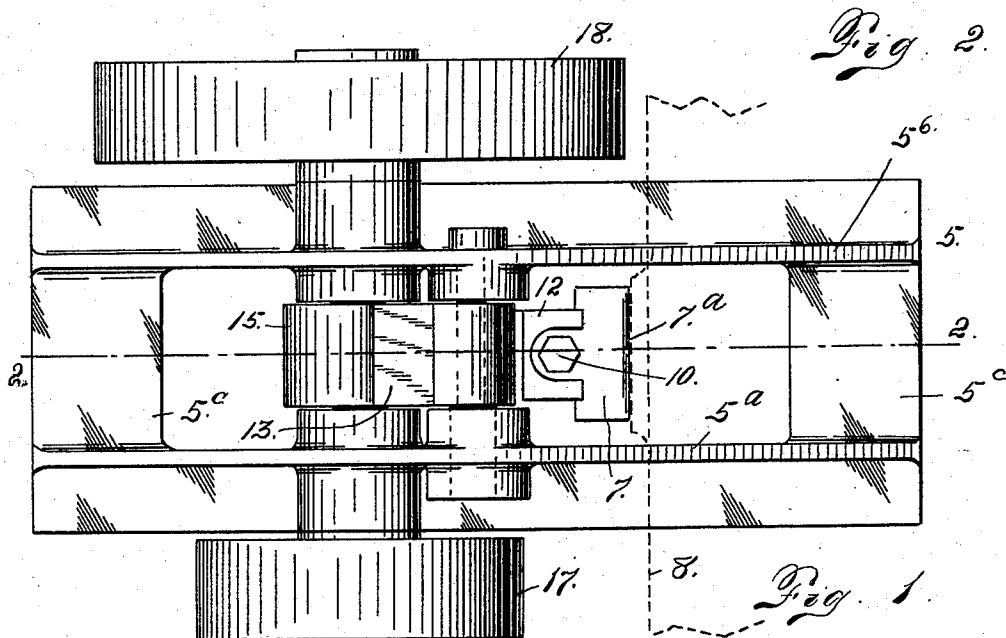
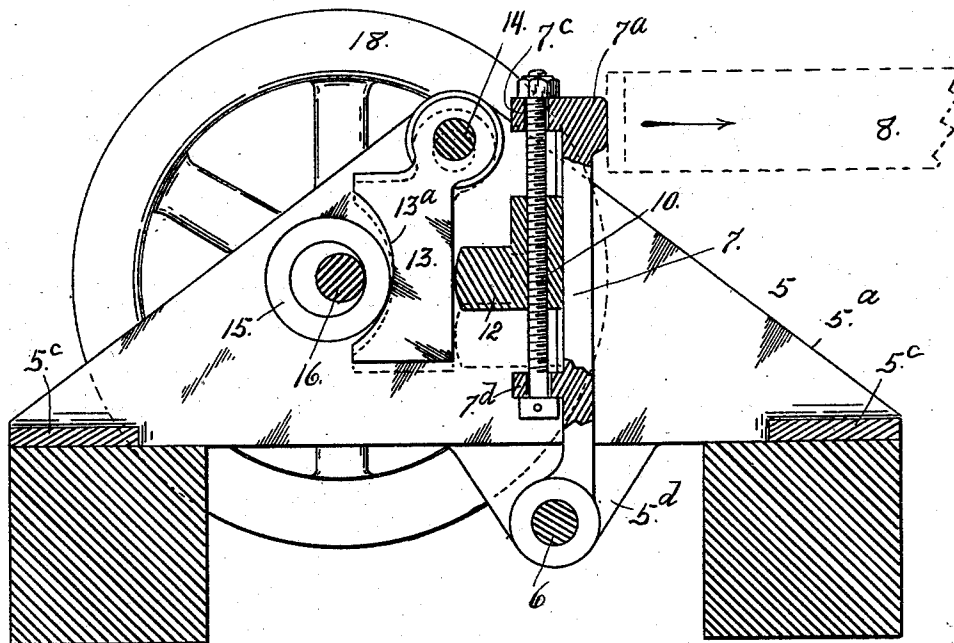
F. M. DILLON & W. G. WILSON.

MECHANICAL MOVEMENT.

APPLICATION FILED OCT. 27, 1902.

NO MODEL.

2 SHEETS—SHEET 1



Witnesses
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Denna Nelson.

Inventors
F. M. Dillon and W. G. Wilson.
 By *[Signature]*

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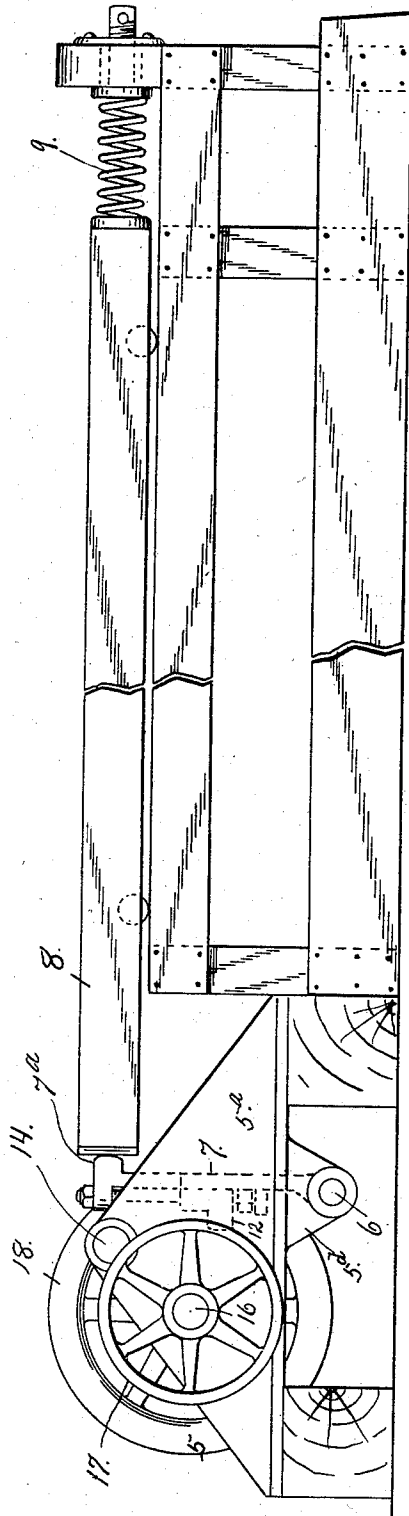


Fig. 3.

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UNITED STATES PATENT OFFICE.

FREDERICK M. DILLON AND WYLIE G. WILSON, OF DENVER, COLORADO.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 743,379, dated November 3, 1903.

Application filed October 27, 1902. Serial No. 129,043. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK M. DILLON, a citizen of the United States of America, and WYLIE G. WILSON, a subject of the King of Great Britain, both residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Mechanical Movements; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in mechanical movements, and is more especially intended for imparting a vibratory action to concentrating-tables, and it will be described in that connection in this specification.

Our object is to provide a device of this class which shall be comparatively simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a top or plan view of our improved construction. Fig. 2 is a section taken on the line 2-2, Fig. 1. Fig. 3 is a side elevation of the device shown in connection with a concentrating-table.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a suitable cast-iron frame provided with two upwardly-projecting side parts 5^a, connected at their ends by transverse parts 5^c. The parts 5^a are provided intermediate the parts 5^c with depending lugs 5^d, connected by a shaft 6, which forms the fulcrum for an upright lever 7, whose lower extremity engages the said shaft. The upper extremity of this lever engages the forward end of the concentrating-table 8 or other part to be vibrated. The movement of the lever imparts the rearward movement to the concentrating-table, while a spring 9, suitably located, imparts the return or forward

movement, and its tension holds the head end of the table against the adjacent part 7^a of the lever. This lever is provided with forwardly-projecting lugs 7^c and 7^d, in which an adjusting-screw 10 is journaled. These lugs are separated, and between them is located an abutment or distance-piece 12, which is threaded on the screw and vertically movable when the latter is turned. The abutment has a flat surface and closely engages the adjacent part of the lever 7, which is of corresponding shape, whereby the abutment is prevented from turning with the screw and is made to travel up and down thereon, according to the direction of rotation.

In front of the abutment and engaging the same is a swinging or oscillating block or lever 13, whose upper extremity is loosely mounted on an eccentric collar formed on a shaft 14. The front surface of this block 13 is curved, as shown at 13^a, to engage an eccentric bearing or cam 15, formed on an operating-shaft 16, one extremity of which is provided with a pulley 17, while the other extremity is provided with a fly-wheel 18.

In the operation of the apparatus power is applied to rotate the shaft 16, and the eccentric 15, acting on the block 13, actuates the latter, which in turn engages the abutment 12 and actuates the lever 7, whose upper extremity moves rearwardly or in the direction of the arrow in Fig. 2, whereby the concentrating-table is forced against the spring 9, which in turn imparts the forward movement to the table, the lever, the abutment, and the block 13, whereby the latter is held in contact with the eccentric collar 15 of the shaft 16. In this way a constant vibration is imparted to the table or other apparatus to be actuated.

The length of the vibratory stroke or movement is regulated by adjusting the parts 12 and 13. If the part 12 is moved upwardly on the screw, the length of its stroke is shortened, while if this part moves downwardly the opposite result is obtained and the stroke is lengthened. By turning the shaft 14 the block 13 may have its vertical and longitudinal position changed to a limited extent, whereby the stroke is varied by reason of the curved face 13^a, which is engaged by the eccentric 15.

Having thus described our invention, what we claim is—

1. In a mechanical movement, the combination with a suitable frame, of a lever fulcrumed thereon and engaging the part to be vibrated, an operating-shaft provided with a cam, and means interposed between the lever and the cam of the shaft for actuating the lever, said means comprising another lever, and an abutment adjustable on the first-named lever and interposed between the fulcrum-points of the two levers, the arrangement being such that as the abutment is moved in either direction it approaches one fulcrum-point and recedes from the other fulcrum-point.

2. The combination with a suitable frame, and a part to be vibrated, the latter being spring-actuated in one direction, of a lever fulcrumed on the frame and arranged when actuated to force the said part against its spring, a swinging block located in front of the lever and arranged, when moved, to actuate the lever, an operating-shaft, an eccentric thereon which engages the block, said block and the lever normally occupying positions substantially parallel, the fulcrum-point of the lever and the center of movement of the block, being remote from each other, and an abutment mounted on the lever and longitudinally movable between the said points, the abutment forming a bearing for the block.

3. In a mechanical movement, the combination with a concentrating-table spring-actuated in one direction, of a lever arranged when actuated to move the table against the spring, an abutment mounted on the lever and longitudinally movable, an operating-shaft provided with an eccentric, and means interposed between the eccentric and the abutment for actuating the lever, and means comprising another lever bearing against the abutment which is located between the fulcrum-points of the two levers, whereby as the abutment is moved toward the fulcrum-point of one lever, it recedes from the corresponding point of the other lever.

4. The combination with a suitable frame, of a lever fulcrumed thereon, a screw journaled on the lever, an abutment threaded on the screw and adjustable by turning the latter, and suitable operating means for acting on the abutment to operate the lever, comprising a second lever bearing against the abutment which occupies a position between the fulcrum-points of the two levers, the arrangement being such that when the abutment is moved it approaches one fulcrum-point as it recedes from the other corresponding point, and an operating-shaft having an eccentric engaging the second lever.

5. The combination with an operating-shaft

provided with an eccentric, and a part to be vibrated, of an actuating-block having a curved face engaged by the eccentric of the shaft, said block being mounted on an eccentric for purposes of adjustment, and suitable means interposed between the said block and the part to be vibrated, comprising a lever and an abutment longitudinally movable thereon, the abutment being located between the center of movement of the block and the fulcrum of the lever, one of these points being on each side of the abutment, and the arrangement being such that as the abutment is moved on its lever, it approaches one of said points while it recedes from the other point.

6. The combination with an operating-shaft provided with an eccentric and a part to be vibrated, of a lever suitably fulcrumed, a screw journaled on the lever, an abutment threaded on the screw, and an oscillating block interposed between the abutment and the eccentric on the shaft, the said block being adjustable and having a curved face engaged by the eccentric, the abutment being located between the center of oscillation of the block and the fulcrum-point of the lever, the arrangement being such that as the abutment is moved on the screw, it recedes from one of said points and approaches the other.

7. The combination with a suitable frame and a spring-held part to be vibrated, of two levers one of which actuates the part to be vibrated, suitable means for actuating the other lever, one of said levers having its fulcrum at one extremity and the other lever having its fulcrum at its opposite extremity, and an adjustable distance-piece interposed between the two levers and between their fulcrums whereby the movement of the distance-piece causes it to recede from the fulcrum of one lever as it approaches the fulcrum of the other lever.

8. In a mechanical movement, the combination of two levers one of which is fulcrumed at one extremity, the other of which is fulcrumed at the opposite extremity, and an adjustable distance-piece interposed between the two levers located intermediate their fulcrums and movable lengthwise of the levers, whereby as the abutment recedes from the fulcrum of one lever it approaches the fulcrum of the other lever, and suitable means for actuating one of the levers whereby motion is communicated to the other lever through the distance-piece.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK M. DILLON.
WYLIE G. WILSON.

Witnesses:

DENA NELSON,
A. J. O'BRIEN.