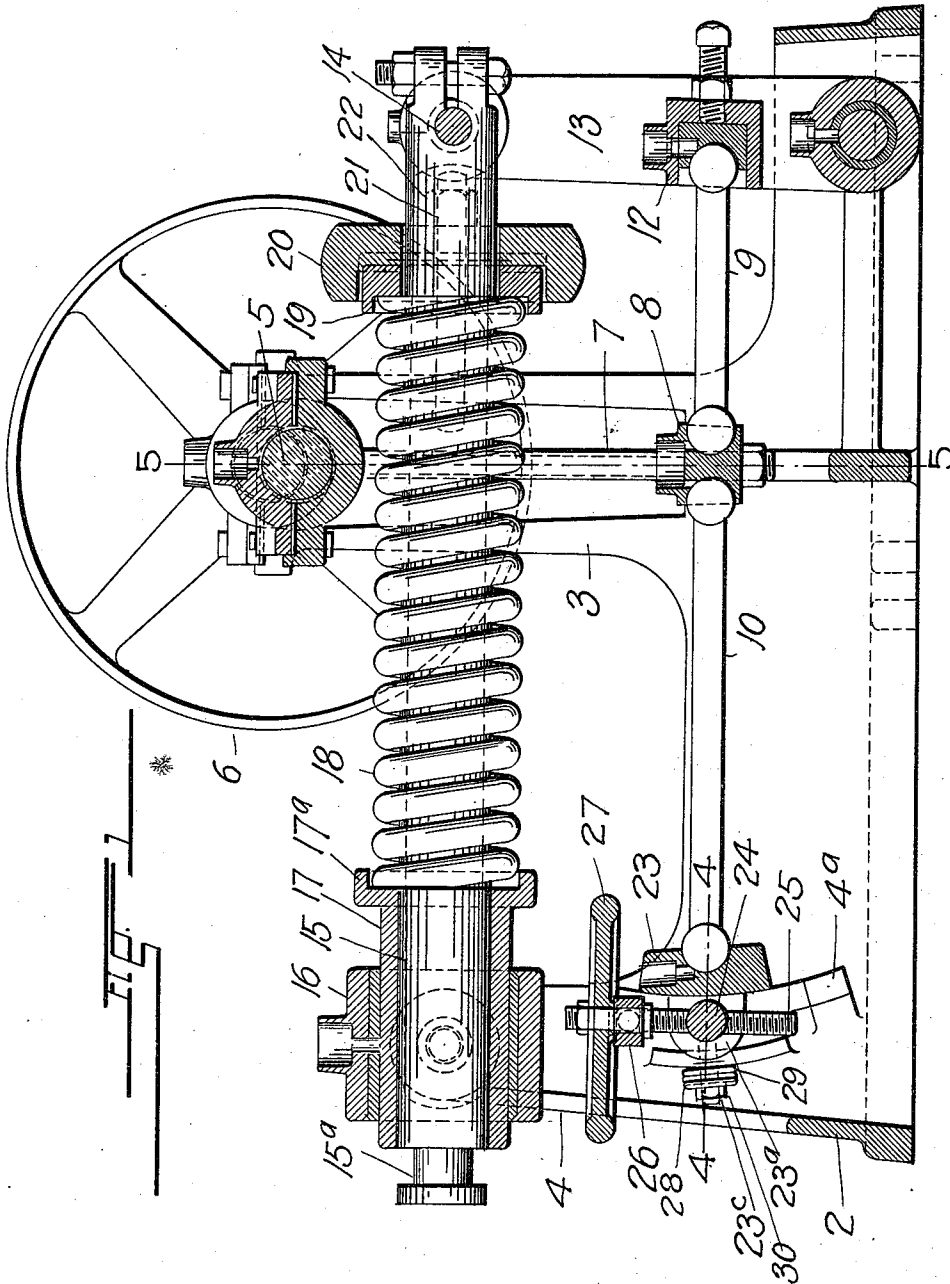


M. CHRISTMANN.
MECHANICAL MOVEMENT.
APPLICATION FILED JULY 6, 1910.

1,013,276.

Patented Jan. 2, 1912.

2 SHEETS—SHEET 1.



WITNESSES:

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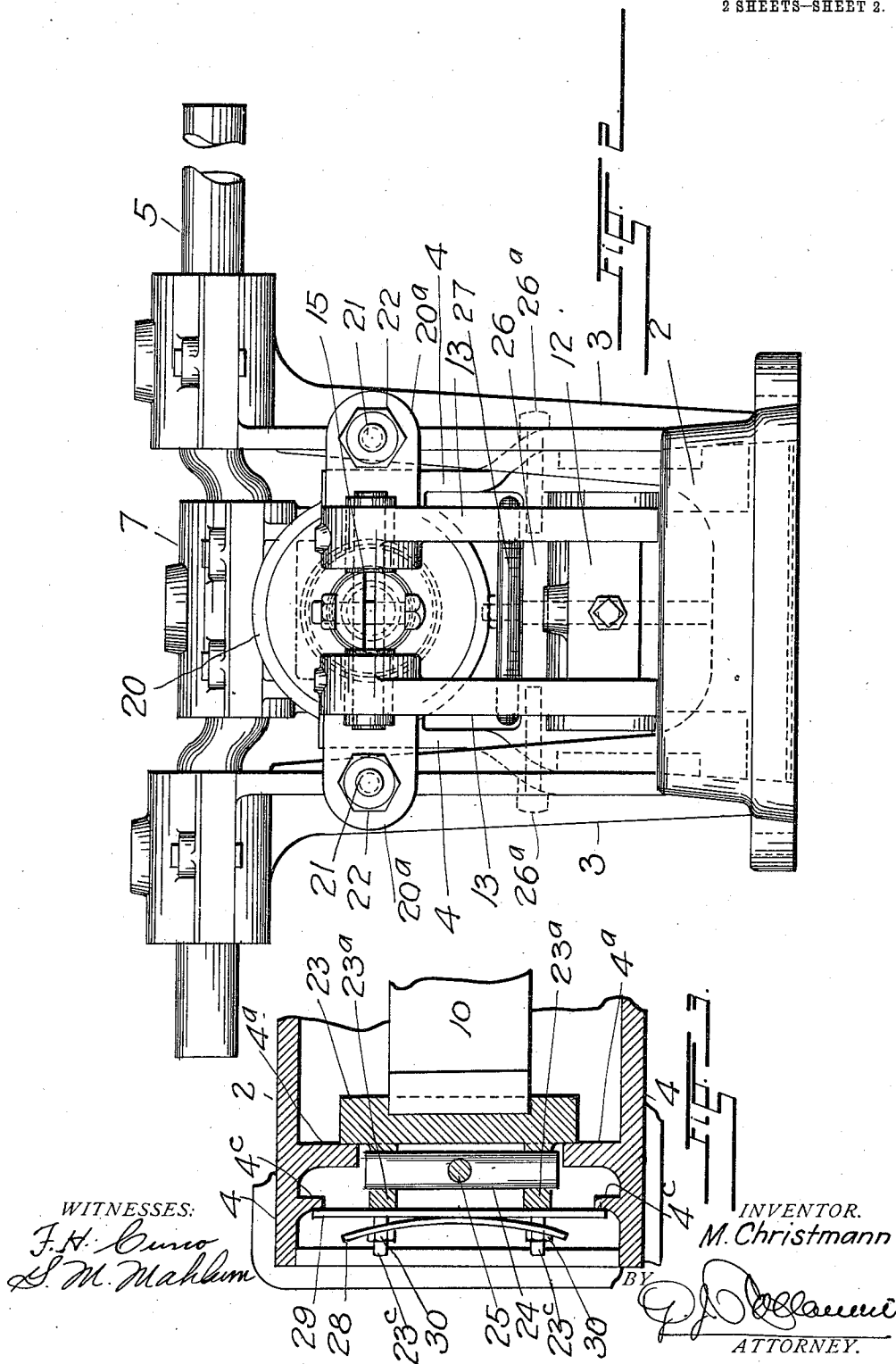
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UNITED STATES PATENT OFFICE.

MICHAEL CHRISTMANN, OF LEADVILLE, COLORADO.

MECHANICAL MOVEMENT.

1,013,276.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed July 6, 1910. Serial No. 570,576.

To all whom it may concern:

Be it known that I, MICHAEL CHRISTMANN, a citizen of the United States of America, residing at Leadville, in the county of Lake and State of Colorado, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to improvements in movements for concentrating tables, and its object resides in the provision of a mechanism in which simplicity of construction is combined with great effectiveness in use, and which by a simple manipulation may be adjusted to vary the stroke of the table with which it is connected.

I attain this object by the mechanism illustrated in the accompanying drawings, in the various views of which like parts are similarly designated and in which—

Figure 1, represents a sectional side elevation of the movement, Fig. 2, an end view of the same, Fig. 3, a section taken along the line 4—4 Fig. 1.

Referring to the drawings by numerical reference characters, the numeral 2 designates the supporting frame for the operating parts of the mechanism, including two sets of parallel standards 3 and 4. Mounted in journal boxes on the standards 3, is an eccentric shaft 5 which carries at one of its extremities, a pulley 6, which may be connected with any suitable motor to impart a rotatory motion to the shaft. A pitman 7, which depends from the eccentric portion of the shaft 5, carries at its lower extremity, a block 8 which is formed at opposite sides, with seats for the extremities of two links 9 and 10 of dissimilar lengths which together form a toggle joint. The shorter one, 9, of the toggle-parts engages at its opposite extremity, with an abutment 12 arranged between two rocker-levers 13, which at their lower ends, are mounted on the frame to move conjointly about a horizontal axis. The opposite, upper extremities of the levers 13, are by means of a transverse pin 14, pivotally connected with a thrust-bar 15 which is horizontally slidably mounted in a bearing 16 applied between the standards 4 at the front end of the frame 2. The bar 15 which is of circular cross-section, is formed at its extremity with a circumferential groove 15^a to connect with a keeper or other suitable fastening device on a concentrator table, and its sliding connection with

the bearing 16, is established through the instrumentality of a surrounding sleeve 17 which at its inner extremity is provided with a recessed head 17^a for the reception of the end of a spring 18 which is coiled around the central portion of the bar 15. The opposite extremity of the spring 18 engages an equalizing collar 19, which is movably disposed within a recess of an abutment block 20 which has a central opening through which the thrust-bar moves and which is adjustably supported upon bolts 21 which project parallelly from webs on the adjacent standards 3, through ears 20^a formed integral at opposite sides of the block. Nuts 22 screwed onto the protruding ends of the bolts, serve to adjust the position of the abutment 20 on the bar. The outer end of the sleeve 17 which loosely surrounds the thrust-bar, is flush with the adjacent inner shoulder formed by the groove 15^a so that, when the bar is connected with a keeper on a concentrator table, the thrust of the spring will, to a great extent, be directly communicated to the latter, independent of the bar 15. The foremost extremity of the long toggle-member 10, occupies a seat in an abutment block 23 disposed between the standards 4 in engagement with the working faces of two arcuate shoulders 4^a which are formed integral upon the inner surfaces of said standards. The block 23 is provided with forwardly projecting, apertured lugs 23^a which carry between them, a rod 24 which has a transverse, central, threaded opening to receive a vertically disposed adjusting screw 25 which carries at its upper extremity, a handwheel 27 and which is rotatably held against longitudinal movement, in a transverse bar 26 pivotally secured between the standards by means of pivot-bolts 26^a shown in Fig. 2 of the drawings. The lugs 23^a are provided with threaded studs 23^c which extend through alined openings in the extremities of two leaf springs 28 and 29, one of which engages shoulders 4^c formed on the standards in concentric relation to the above mentioned shoulders 4^a, while the other spring, which is curved, as shown in Fig. 3 of the drawings, is engaged by nuts 30 screwed on the protruding ends of the studs 23^c. These nuts are designed to be tightened together against spring 28 as shown in Fig. 3, which spring is thus forced to exert its pressure against the central portion of spring 29,

the ends of the latter spring being caused to bear directly against the adjacent faces of the lugs, 4^c, thereby holding the block 23 in adjusted position.

- 5 The above described construction provides a simple and effective means for varying the stroke of the thrust-bar 15 by changing the position of the foremost end of the toggle-member 10 relative to the horizontal plane
10 in which its opposite end engages the extremity of the pitman 7.

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

- 15 The combination of a supporting frame; an eccentric shaft mounted therein; a pitman connected with the eccentric portion of said shaft; a rocker lever fulcrumed at its lower end and provided intermediate its
20 ends with a seat; a bearing on said frame; a sleeve slidable in said bearing; a thrust-

bar slidable in said sleeve and having one end thereof connected with the upper end of said lever, and its other end arranged for connection with a reciprocatory element en- 25 gaged by an end of said sleeve; an abutment adjustable on said frame in the direction of the axis of the thrust-bar; a spring coiled around the latter between said abutment and said sleeve; a toggle abutment on the frame; 30 and a pair of toggle members having their inner ends engaging said pitman at opposite sides, the outer end of one of said members engaging said toggle abutment, and the outer end of the other engaging said seat. 35

In testimony whereof I have affixed my signature in presence of two witnesses.

MICHAEL CHRISTMANN.

Witnesses:

G. J. ROLLANDET,
A. H. VADEEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."