No. 776,174. PATENTED NOV. 29, 1904.

W. H. DIXON.

RECIPROCATING MECHANICAL MOVEMENT.

APPLICATION FILED FEB. 1, 1904.

NO MODEL.

Fig. 1.

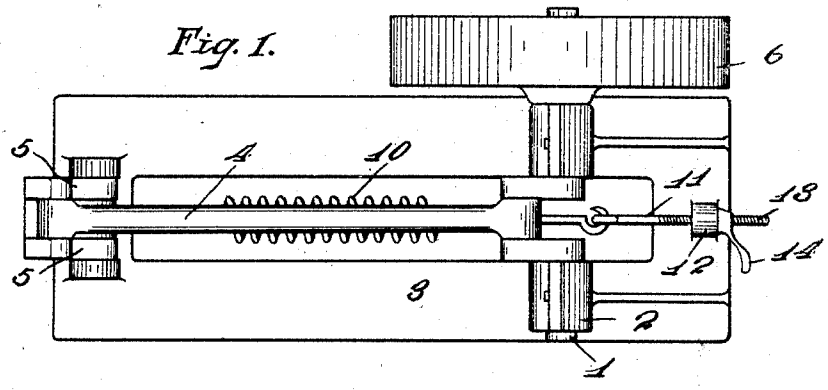


Fig. 2.

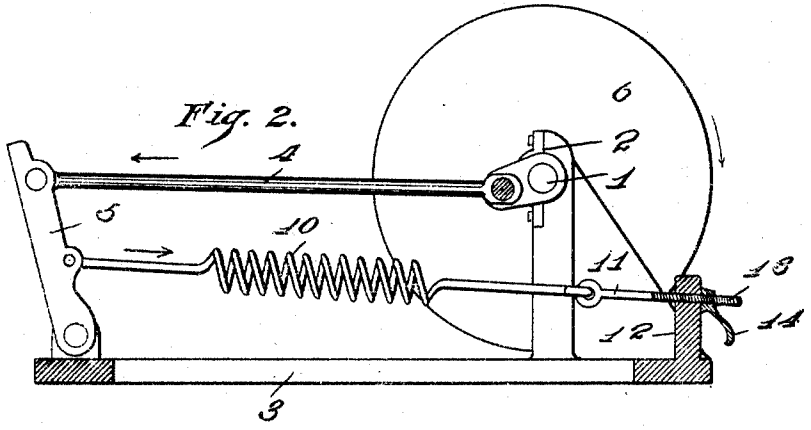


Fig. 3.

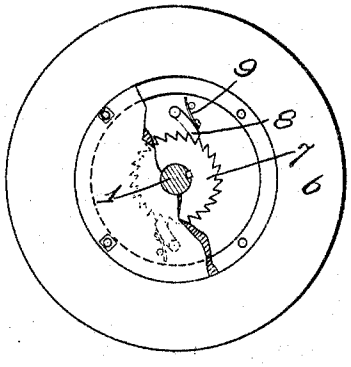
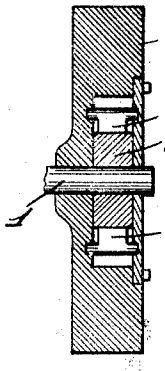


Fig. 4.



WITNESSES:

George S. Clason

F. H. Gibbs

INVENTOR.

William H. Dixon

BY

Mason, Fenwick & Lawrence

ATTORNEYS

No. 776,174. Patented November 29, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM H. DIXON, OF DENVER, COLORADO, ASSIGNOR OF THREE-EIGHTHS TO HOMER C. ECKEL, OF DENVER, COLORADO.

RECIPROCATING MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 776,174, dated November 29, 1904.

Application filed February 1, 1904. Serial No. 191,541. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DIXON, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Reciprocating Mechanical Movements; and I do hereby 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.

This invention relates to new and useful improvements in mechanical means for producing reciprocatory movement.

The invention is designed primarily for use in connection with the class of concentrating-tables commonly known as "bumping-tables," the object being to produce a relatively slow movement thereof in one direction and cause a quick return in the opposite direction.

Referring to the drawings, Figure 1 is a top plan view of the improved device. Fig. 2 is a longitudinally vertical sectional view. Fig. 3 is a side elevational view, partly in detail section, illustrating the drive-wheel hereinafter referred to; and Fig. 4 is a vertical sectional view thereof.

The device, as shown, consists of a crank-shaft 1, mounted in suitable bearings 2 upon the bed-frame 3, with a rod 4 connected at one end with the said crank-shaft, by means of the crank-pin thereof, and connected at its opposite end to a rockable lever 5 or to any member to which it is desired to impart reciprocatory movement, the prime object of the invention being to produce such reciprocatory movement at a predetermined speed in one direction and at a different speed when traveling in the opposite direction. I have connected to the shaft 1 a drive-wheel 6, the detail construction of which is best shown in Figs. 3 and 4, wherein a ratchet-wheel 7 is keyed to the shaft 1 or secured thereto in any convenient manner, so that the shaft and ratchet-wheel will be positively rotated in the same direction. Connected with the wheel 6 and adapted to engage with the ratchet 7 are dogs 8, held normally in position for ready engagement with said ratchet by means of the springs 9, connected with the wheel 6 and bearing upon said dogs, as best shown in Fig. 3, whereby when the wheel is rotated in the direction indicated by the arrow in Fig. 2 the dogs 8 will engage said ratchet-wheel 7 and cause the shaft 1 to rotate at a speed predetermined by the speed of the drive-wheel 6.

Assuming that the members are connected, as shown in Figs. 1 and 2, it will be evident that rotation of the drive-wheel 6, as indicated by the arrow, will through the crank-shaft 1 project the drive-rod 4 in the direction indicated by the arrow in Fig. 2 to the limit of thrust of the crank-shaft, and by means of the momentum thereby obtained carry the crank-arm of the shaft past the point of dead-center, whereupon the spring 10, connected at one end with said arm 5 and at the opposite end with the link 11, will immediately become effective for the purpose of retracting said rockable arm 5 in the same direction in which it would be carried by the crank-shaft, assuming that the crank-shaft was permitted to drive a full stroke from the drive-wheel 6; but owing to the power of the spring 10, which is now under extreme tension, the arm 5 will be almost instantly retracted to its rearmost position—that is, to the position wherein the upper end thereof is at the least distance from the shaft 1. This is rendered possible by means of the ratchet and dog connection of the said drive-wheel 6 with the shaft 1, and the shaft 1 with its ratchet connection will simply rotate for a portion of a complete revolution at a higher rate of speed under the influence of the spring 10 than the same travels under the influence of the driving-wheel.

It is evident that the spring 10 and drive-rod 4 may be connected with a rockable arm, as 5, which in turn may be connected with any suitable means or device to which it is desired to impart reciprocatory movement, or the said parts may be connected with the bumping-tables, if desired.

The spring 10 is connected at one end with

the link 11, which is mounted in the standard 12 and has a screw-threaded rear end 13 passing through said standard, upon which is held the screw-threaded arm 14 for increasing the tension of said spring 10 when desired.

Having now described and ascertained the nature of the said invention, what I claim, and desire to secure by Letters Patent, is—

1. A device for producing reciprocating movement comprising a driving member, a shaft capable of receiving movement from said driving member, a reciprocating member connected with the shaft, and means connected with the reciprocating member for driving the said member and the shaft faster at intervals than the driving member.

2. A device for producing a reciprocating movement comprising a crank-shaft, a moving member, a pitman connecting the crank-shaft with the moving member, means for imparting a predetermined movement to the crank-shaft, and means for accelerating the movement of the shaft during certain portions of its revolution.

3. In a device for producing reciprocatory movement, a crank-shaft, a rod connected with the shaft, a drive-wheel on said shaft, means for connecting said shaft with said drive-wheel to actuate said shaft at the same speed as the drive-wheel for a part of each rotation thereof, a movable member actuated by said rod, and means connected with said movable member adapted to complete the rotation of said shaft at a speed greater than the speed of its drive-wheel.

4. A device for producing a reciprocating movement comprising a crank-shaft, a rotating driving member loosely mounted on the said crank-shaft and capable of imparting movement thereto, a driven member, means connecting the driven member with the crank-shaft, and means connected with the driven member for moving it and the crank-shaft more rapidly at intervals than the driving member carried by the crank-shaft.

5. A device for producing reciprocating movement comprising a crank-shaft, a drive-wheel loosely mounted thereon, a clutch interposed between the shaft and a portion of the drive-wheel, actuating means on the said shaft, a driven member moved by said actuating means, and means connected directly with the driven member for moving it and the shaft at a greater speed than when the said shaft and member are actuated by the drive-wheel.

6. A device for producing a reciprocating movement comprising a driving-pulley, a shaft carrying the same and provided with a crank, a ratchet mechanism interposed between the shaft and the pulley, a driven member, a pitman connecting the driven member with the crank of said shaft, and a tension member connected with the driven member for accelerating the movement of the driven member and the shaft so as to cause the same to travel faster than when driven by the said pulley.

7. A device for producing reciprocating movement, comprising a rocking member, a pitman connected with the rocking member, a crank-shaft for moving the pitman, a drive-wheel mounted on the crank-shaft, a ratchet mechanism interposed between the drive-wheel and the shaft, said ratchet mechanism communicating a predetermined speed to the shaft, and the rocking member, and means connected with the rocking member for moving it at a greater speed than when it is actuated by the drive-wheel and shaft.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

WILLIAM H. DIXON.

Witnesses:
GEORGE S. CLASON,
FRED. G. FELLOWS.