No. 676,537. Patented June 18, 1901.

E. GUNDLACH.

MECHANICAL MOVEMENT.

(Application filed Sept. 28, 1900.)

(No Model.) 2 Sheets—Sheet 1.

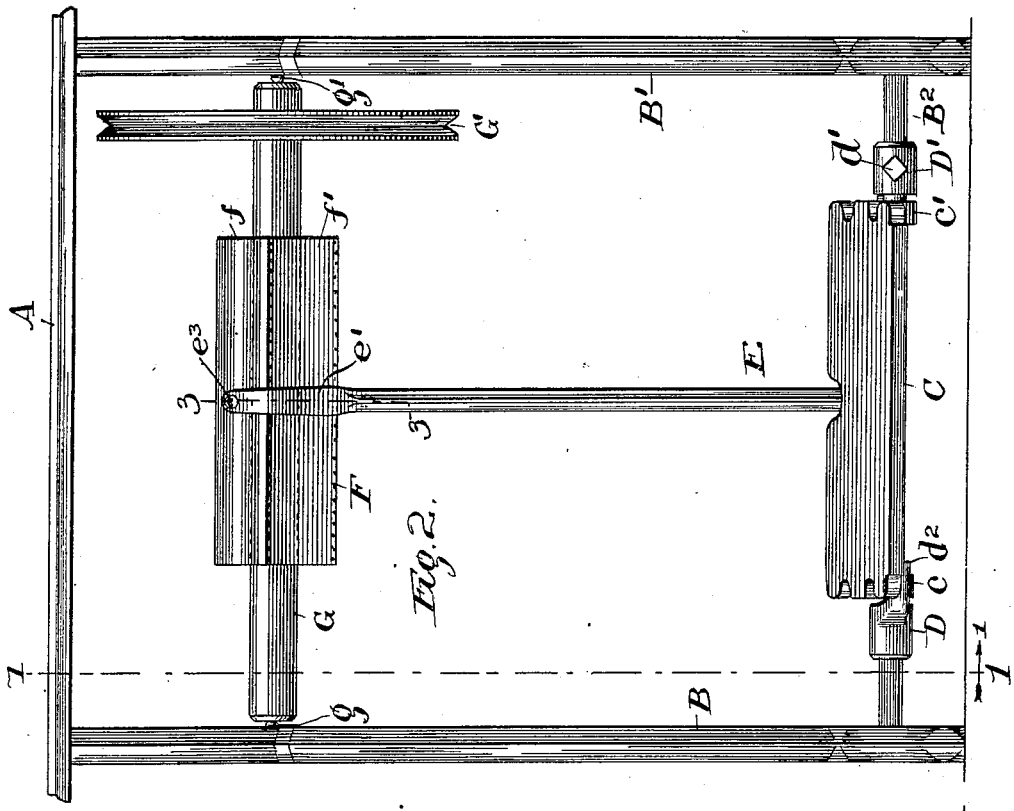

Fig. 2.

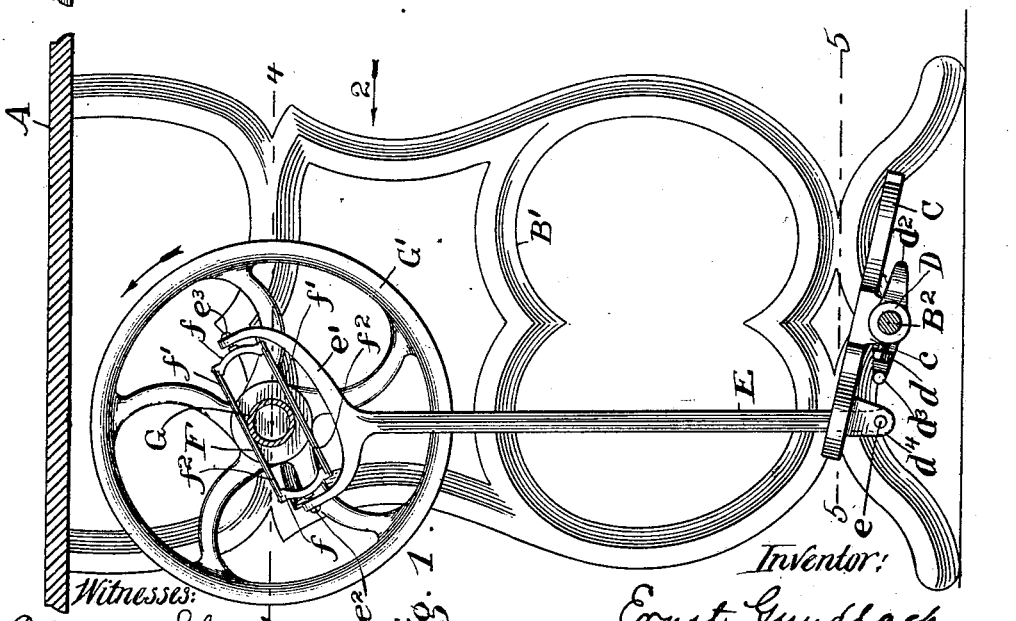

Fig. 1.

Witnesses:
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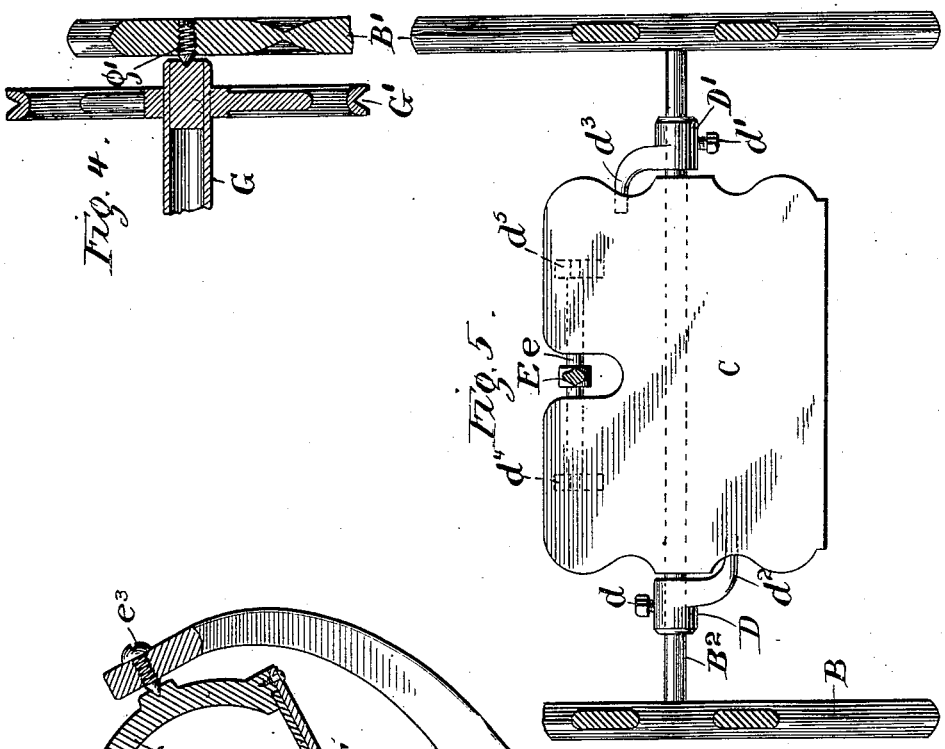

Fig. 4.

Fig. 5.

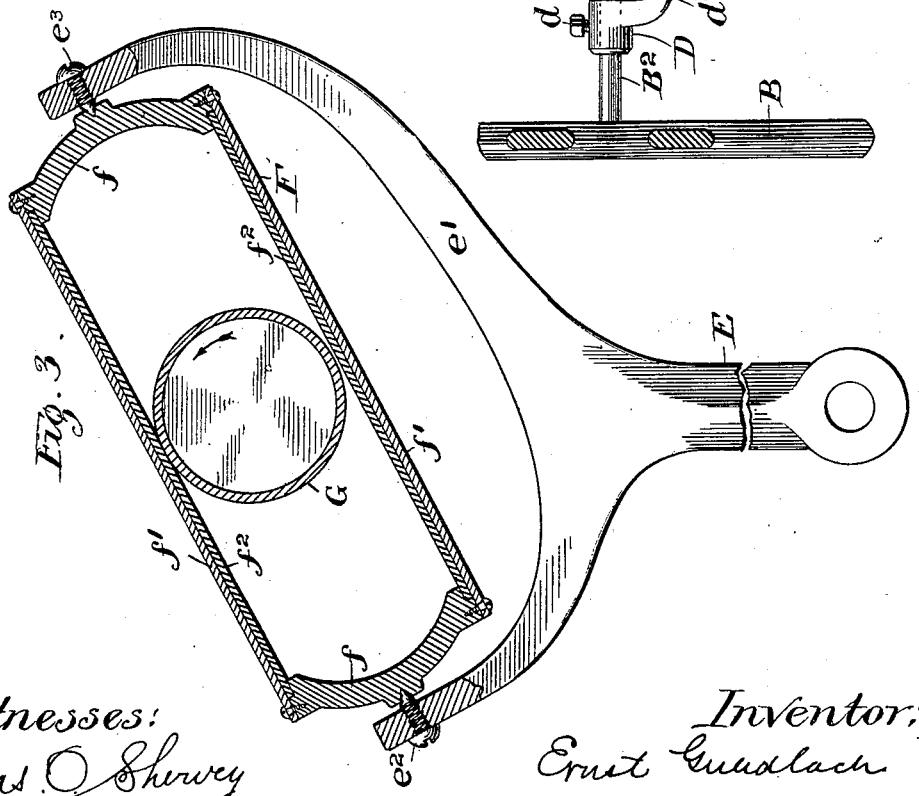

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

ERNST GUNDLACH, OF WESTERN SPRINGS, ILLINOIS.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 676,537, dated June 18, 1901.

Application filed September 28, 1900. Serial No. 31,358. (No model.)

To all whom it may concern:

Be it known that I, ERNST GUNDLACH, a citizen of the United States of America, residing at Western Springs, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

My invention relates to certain improvements in mechanical movements, directed especially to producing a device for converting reciprocating into rotary motion. It is intended to obviate many of the disadvantages incident to the ordinary crank-and-pitman device for this purpose.

To such end the invention consists in certain novel characteristics, the preferred specific embodiment of which will be fully set forth in this specification and the essential portions thereof defined in the claims at the end of the same.

The preferred construction is illustrated in the drawings, in which—

Figure 1 is a vertical transverse section in line 1 1 of Fig. 2 looking in the direction of the arrow 1. Fig. 2 is a front elevation of the same. Fig. 3 is a detail vertical transverse section in line 3 3 of Fig. 2. Fig. 4 is a detail horizontal section in line 4 4 of Fig. 1, and Fig. 5 is another detail horizontal section in line 5 5 of said Fig. 1.

Referring to the drawings, A is intended to represent an ordinary table supported upon legs B B′, connected at the bottom by a cross-bar B^2 in the manner of an ordinary sewing-machine table, the same having been selected merely as a convenient means of illustrating the invention. A treadle C is pivoted upon the cross-bar in the ordinary manner by means of depending brackets *c c′*, and its oscillation is limited by means of adjustable collars D D′, secured by means of set-screws *d d′* on the cross-bar and having curved fingers d^2 d^3 projecting upon opposite sides of the cross-bar and beneath the treadle to limit the downward movement on the respective sides of the pivotal axis. On the under side of the treadle, opposite the side occupied by the operator, are two depending brackets d^4 d^5, in which is journaled a short rod *e*, secured to the lower end of a pitman E, the upper end of which is forked to form an oblique yoke *e′*, between the arms of which is supported a friction-box F, preferably composed of rigid end pieces *f*, connected by sides *f′*, also preferably rigid and bearing upon their inner faces an elastic covering f^2, preferably of leather and also preferably clamped between the sides *f′* and the end pieces. The leather is preferably cemented to the said sides *f′*. The friction-box is pivoted between the arms of the yoke by means of pivot-screws e^2 e^3 and so arranged that the sides of the box may be oblique to the pitman and preferably be disposed at an angle between forty-five and ninety degrees to the same, the angle which I now consider best being about sixty degrees. Through this box extends a preferably hollow roller G, journaled in the legs of the frame at *g g′* and bearing a pulley G′ as a means of transmitting rotary motion to any desired work.

Taking the parts in the position shown in Fig. 3 the pitman is on the downward stroke, drawing the upper side of the box down upon the roller and rotating it in the direction of the arrow shown within said roller. The movement of the treadle is so limited that when the roller reaches the end of the box the movement of the pitman is reversed and pushes the under side of the box upward against the roller, the latter continuing its rotation in the same direction. The angle of the box to the pitman is such as to prevent the slipping of the roller on the inner sides of the box. It is best to use a box of considerable width, as clearly shown in Fig. 2, so as to get a contact of proportionate extent and increased friction between the roller and the box.

The pivotal connection between the pitman and the box insures an even pressure along the frictional surfaces and also provides an easy and convenient way of removing the box from the yoke of the pitman when it is desired to take the mechanism apart. It is of course obvious that a series of devices of this sort may be arranged side by side, if desired, and their strokes be made either to coincide or to work in opposite directions, and it is thought unnecessary to describe any such construction.

My invention is in certain respects independent of the specific mechanism employed,

and for that reason I do not limit myself thereto, except as set forth in the following claims.

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

1. The combination with a reciprocating pitman and a rotatable shaft, of a friction-roller upon the shaft and a friction-box surrounding the roller and adapted to rotate the same, said box being pivoted to the pitman upon an axis transverse to that of the shaft and having inner frictional sides disposed at angles to the line of movement of the pitman between forty-five and ninety degrees; substantially as described.

2. The combination with the reciprocating pitman, E, having the oblique yoke, *e'*, at one end, of the frictional box, F, pivoted to the pitman obliquely in the said yoke and the roller, G, within the box and adapted to be rotated by frictional contact with the sides thereof; substantially as described.

3. The combination with the reciprocating pitman, E, having the oblique yoke, *e'*, of the friction-box, F, pivoted in said yoke, oblique to the pitman and composed of the end pieces, *f*, *f*, the sides, *f'*, *f'*, faced upon the inside with a suitable friction material and the roller, G, extending through the box and adapted to be rotated by frictional engagement with the inner faces thereof; substantially as described.

In witness whereof I have hereunto set my hand at Western Springs, in the county of Cook and State of Illinois, this 22d day of September, A. D. 1900.

ERNST GUNDLACH.

Witnesses:

KARL GUNDLACH,

W. H. BEATTYS.