

(No Model.)

F. REED.
MECHANICAL MOVEMENT.

No. 334,806.

Patented Jan. 26, 1886.

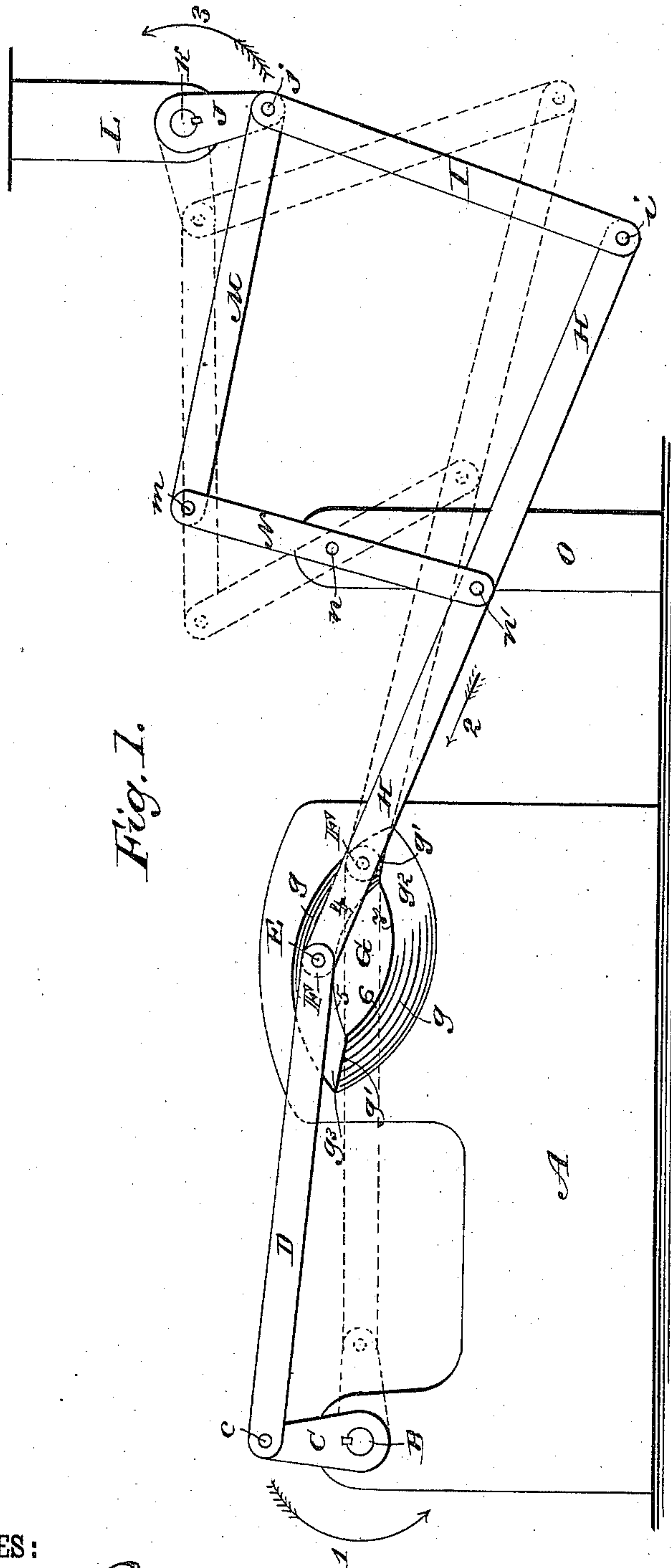


Fig. 1.

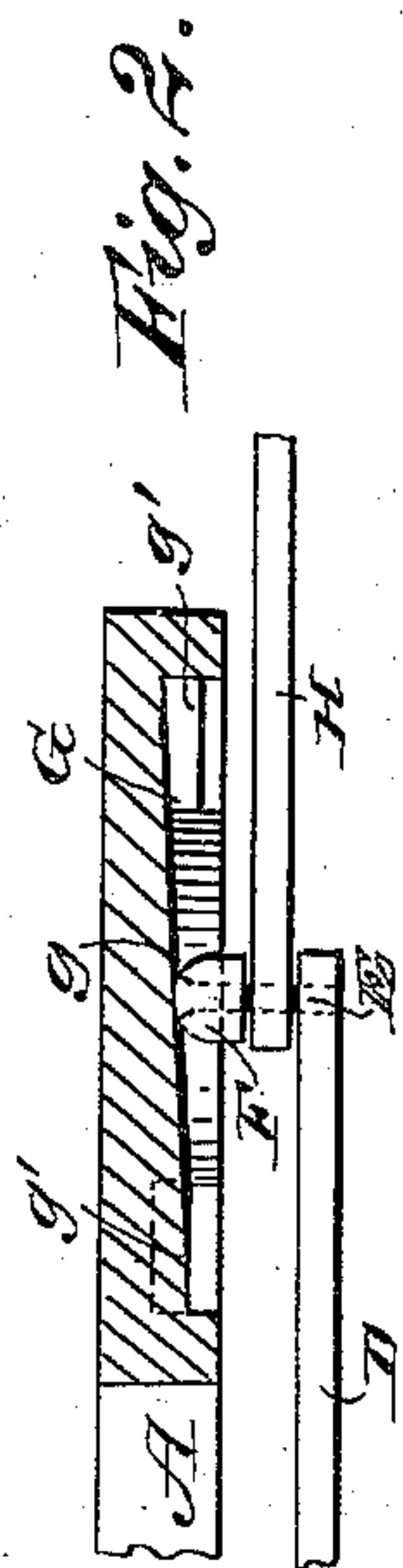


Fig. 2.

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FREDERICK REED, OF SOLOMON CITY, KANSAS.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 334,806, dated January 26, 1886.

Application filed June 26, 1885. Serial No. 469,813. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK REED, of Solomon City, in the county of Dickinson and State of Kansas, have invented a new and Improved Mechanical Movement, of which the following is a full, clear, and exact description.

My invention has for its object to provide a simple, inexpensive, and efficient mechanical movement, by means of which motion may be transmitted from one crank to another, or from a reciprocating bar to a rotating crank, or from a crank to a reciprocating bar, and so that dead-centers will be avoided.

The invention consists in particular constructions and combinations of parts of the mechanical movement, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation of my improved mechanical movement, and Fig. 2 is a detail plan view with the oval or elliptical cam in section.

The letter A indicates any suitable base or bed-frame, in which is journaled a shaft, B, to which is fixed a crank, C, which in this instance is the prime mover.

To a wrist-pin, *c*, of crank C is pivoted one end of a bar, D, the other end of which is pivoted to the pin E, which carries the loose anti-friction round-headed roller F, which runs in the oval or elliptical cam-groove G, formed in the base A, or it may be in a block or plate attached to the base. This cam-groove G consists of two segmental grooves, *g g*, united at the ends at opposite points, *g' g'*, and the base of each half portion *g* of the groove rises gradually in the direction of movement of the roller F in the groove, so that the half-grooves *g* have high parts *g² g³*, which terminate in abrupt shoulders at the points *g' g'*, and prevent backward movement of the roller F when it reaches each extreme of movement, and thus compel the roller to travel always in one direction through the cam-groove.

On the pin E of roller F also is pivoted one end of a bar, H, to the opposite end of which is pivoted, at *i*, the lower end of a bar, I, the opposite end of which is pivoted to the wrist-

pin *j* of a crank, J, fixed to a shaft, K, which is journaled in hangers L, said shaft K being the driven shaft, which may be geared by pulleys or belts—or directly by toothed wheels—with the machinery of any kind to be operated.

On the wrist-pin *j* of crank J also is pivoted one end of a bar, M, the other end of which is pivoted, at *m*, to a rock-bar, N, which is centrally pivoted, at *n*, to an upright or post, O, and the other or lower end of bar N is pivoted, at *n'*, to the bar H, and, as shown, nearly at the center of bar H.

The operation is as follows: We will suppose the parts to be in the positions indicated by the dotted lines in Fig. 1, and the crank C turning in the direction of arrow 1, the bar H moving in the direction of arrow 2, the crank J turning in direction of arrow 3, and the roller F having just passed from the high base portion *g²* of the cam-groove. If, now, the crank C be turned, the roller F will ride along the inner edge, 4, of the upper part, *g*, of the cam-groove, and in so doing will give a downward swing or impulse to the joint at *i*, between rods H I, and thus draw the crank J past its left-hand dead-center on a horizontal line as the rod N rocks on its pivot *n*, and as the roller runs down along the inclined edge 5 of the upper part, *g*, of the cam-groove the crank J will be swung past its lower vertical center, and as the roller F passes from the high portion *g³* of the upper cam-groove it will move along the lower portion, *g*, of the groove and over the inclined edges 6 7 of the cam-groove, to swing the rod I so the crank J will be carried past its outer horizontal and its upper vertical centers, and the roller F will come at the shoulder *g²* into the dotted position shown. The movements of the roller F in the elliptical cam-groove G, in connection with the pivoted bars H I M N, will impart a continuous rotary motion to the crank J, and dead-centers will be avoided.

It is evident that the bar D may be connected with a guided rod or bar, so that a reciprocating motion of said guided bar would transmit a rotary motion to the crank and shaft J K, or vice versa. A rotary motion of said crank and shaft would transmit a reciprocating motion from the bar D. Should the rock-

bar N be placed nearer the bar I, it would be shorter than is shown, and longer if moved farther from bar I; but the proportions shown are satisfactory to insure good results.

5 The movement may be operated by any preferred motive power.

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

10 1. A mechanical movement comprising a bar, D, a roller or pin, F, an elliptical cam-groove, G, in which the roller runs, a bar, H, pivoted to the bar D, pivoted bars I M, rock-bar N, and a cranked shaft, J K, all constructed and combined for operation substantially
15 as herein set forth.

2. A mechanical movement comprising a bar, D, a roller or pin, F, an elliptical cam-groove, G, having opposite side parts, $g\ g$, inclined to form the high portions $g^2\ g^3$ at opposite ends or parts of the groove, which has stop-shoulders $g'\ g'$, a bar, H, pivoted to bar D, pivoted bars I M, a rock-bar, N, and a cranked shaft, J K, all constructed and combined for operation substantially as herein set
20
25 forth.

FREDERICK REED.

Witnesses:

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