(No Model.)

W. KOCH.

MECHANICAL MOVEMENT.

No. 379,479. Patented Mar. 13, 1888.

Fig. 2.

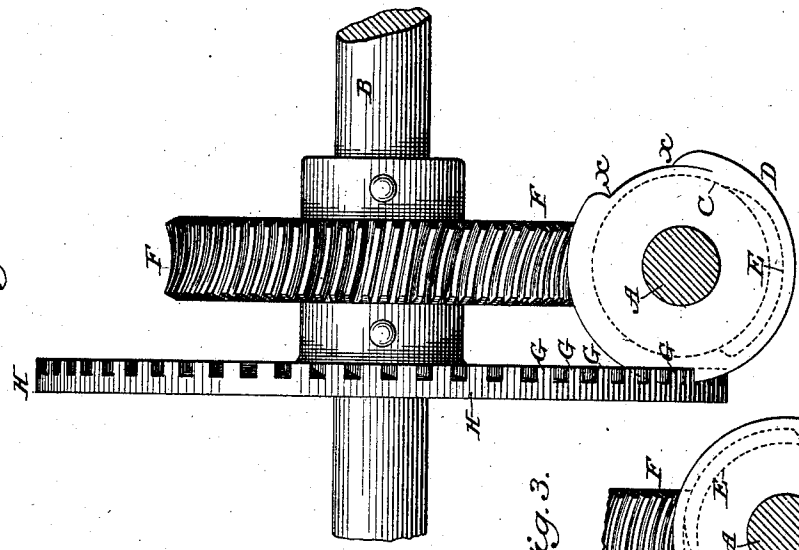


Fig. 3.

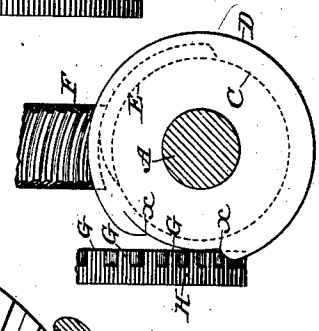
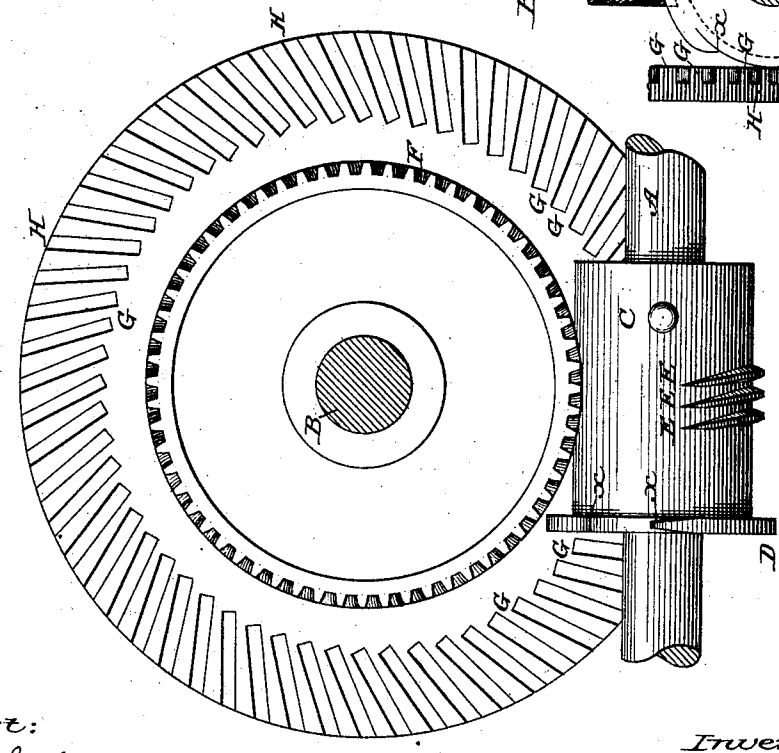


Fig. 1.



Attest:

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UNITED STATES PATENT OFFICE.

WILLIAM KOCH, OF NEW YORK, N. Y.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 379,479, dated March 13, 1888.

Application filed July 18, 1887. Serial No. 244,607. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KOCH, of the city, county, and State of New York, have invented a new and useful Improvement in Mechanical Movements for Producing and Controlling the Intermittent Rotation of a Shaft; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a side elevation, and Fig. 2 a front elevation, of my improved intermittent gear; and Fig. 3 is a detached view of the driving drum and gear similar to Fig. 2, but illustrating the parts in a different position.

This invention is an improvement upon the mechanical movement described in my Letters Patent of the United States No. 315,639, dated April 14, 1885, for producing an intermittent movement of a rotating shaft and positively locking the same during the intervals of rest; and it has for its object to simplify the device and avoid multiplicity of gear-wheels therein.

It consists in the combination, with the drum carrying the interrupted locking-flange and the section of a worm, and with the worm-wheel driven by the sectional worm, of a face-wheel revolving with said worm-wheel about a common axis, and whose face is brought into proximity to the flange on the drum and provided with cogs, between which the flange will enter and revolve after each movement of the worm-wheel, all as hereinafter fully described.

In the accompanying drawings, A represents the continuously-rotating driving-shaft of a quilting-machine such as is described in my United States Patent No. 271,475, dated January 30, 1883; B, the counter-shaft which operates the sliding carriage of said quilting-machine, and which requires to be driven intermittently to produce an intermittent movement of the carriage. As the mechanism by which the shaft is connected to the carriage forms no part of the present invention, a description thereof is omitted.

C is a drum fixed upon the driving-shaft A, to revolve with it. This drum is encircled at one end by a flange, D, a portion of whose periphery is cut away, as shown at *x x*, to form a gap therein, and carries also upon its perimeter one or more spirally-disposed cogs or sections of a worm, E E. (See Fig. 1 and dotted lines, Figs. 2 and 3.) The counter-shaft B is mounted at a right angle to the shaft A, and the sectional worm gears into a counterpart worm-wheel, F, fixed to said shaft B, so that the rotation of the main shaft A is made by means of said interrupted worm-gear to produce an intermittent movement of the shaft B. The encircling flange D upon the drum C is made to engage a series of cogs, G G, fixed or formed upon the face of a wheel, H, mounted likewise upon the shaft B, to revolve with it in front of the drum and its flange, as illustrated in the drawings.

Since the sectional worm E E is necessarily located in a longitudinal plane radial to the shaft B, the flange D is necessarily carried to the one side or the other of said plane, and the cogs G G upon the face of the wheel H are therefore formed each at an angle inclined from a radial line, as illustrated in Fig. 1, so as to be parallel with the sides of the flange D when brought opposite thereto in the revolution of the wheel.

The gap *x x* in the flange D of the drum is so located with reference to the sectional worm upon said drum as that at the moment the worm engages the wheel F the gap *x x* of the flange is in register with the cogs of the wheel H, to permit the latter to pass by the flange, while so soon as the worm passes out of engagement with the wheel F the flange D enters an interval between the cogs on the wheel H. Hence the wheel H and the shaft B become positively locked by the flange D the instant the movement of the wheel F ceases, and will remain thus locked during the continuous rotation of the driving-shaft A until the sectional worm is ready to again move said shaft B by engaging the wheel F.

By a nice adjustment of the parts, as described, the momentum which may be imparted to the shaft B and its connections while it is geared to the sectional worm E E is instantly arrested at the moment the movement needs to be checked by the interlocking at that instant of the interrupted flange D with the wheel H on said shaft. Hence the travel of the carriage connected to the shaft B is promptly arrested and is positively prevented at given intervals

in a simple effective manner, so that exact designs having sharp angles may be readily and accurately produced by the lines of stitches formed in the quilting-machine.

I claim as my invention—

1. The combination of a driving-shaft, a sectional worm upon a drum having a radial interrupted flange, both rotating with said shaft, a counter-shaft, a worm-wheel fixed thereon and engaged by said sectional worm, and a face-wheel fixed to the same counter-shaft to be engaged by said interrupted flange, substantially in the manner and for the purpose herein set forth.

2. In mechanism for producing an intermittent motion, the combination, with a worm-wheel and a face-wheel connected to revolve in unison therewith about a common axis, of a drum provided with a sectional worm geared to the worm-wheel, and having a radial interrupted flange formed to revolve with said drum about a second axis and to engage the face-wheel, substantially in the manner and for the purpose herein set forth.

3. The combination, with a sectional worm and a worm-wheel engaged thereby, of a wheel mounted upon the axis of the worm-wheel to revolve therewith, and having cogs formed upon its face each at an angle with a line extending radially from said axis, and an interrupted flange mounted upon the axis of the worm to revolve therewith at one side of the worm-wheel and engage said cogs, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM KOCH.

Witnesses:
A. N. JESBERA,
M. E. FINLEY.