(No Model.)

J. F. CRAWFORD.

DEVICE FOR CONVERTING MOTION.

No. 303,989. Patented Aug. 26, 1884.

Fig. 1.

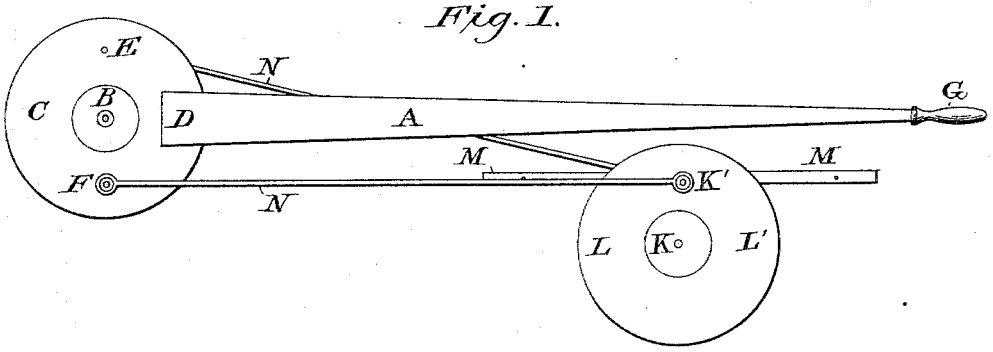
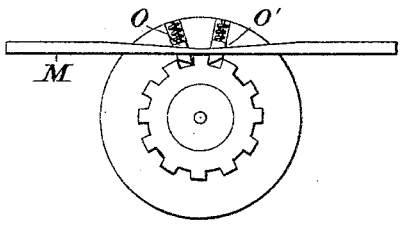


Fig. 2.



Witnesses,
M. E. Slater
D. M. Slater

Inventor.
J. F. Crawford

UNITED STATES PATENT OFFICE.

JOSEPH F. CRAWFORD, OF ELMIRA, NEW YORK, ASSIGNOR TO THE CRAWFORD MOTOR COMPANY, OF SAME PLACE.

DEVICE FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 303,989, dated August 26, 1884.

Application filed December 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. CRAWFORD, of the city of Elmira, county of Chemung, and State of New York, have invented a new and useful device for transferring rectilinear and reciprocating motion into rotary motion without the use of a crank, of which the following is a specification.

I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire machine. Fig. 2 is a sectional view of a pawl-holder.

Similar letters refer to similar parts described in this specification.

A represents a lever.

B is the fulcrum.

C, D, E, and F is the lever-head, to which A is firmly attached.

G is the point to which the power is applied.

K represents a gear between two pawl-holders.

L represents one of the pawl-holders, and L′ its fellow upon the opposite side of the gear.

K′ represents the attachment of connecting-rods to L and L′.

N N represent the connecting-rods.

O O′ represent the pawls in the inside of L and L′, and M the shifter. The lever A, with its head C, D, E, and F, is mounted upon a shaft at B, which becomes a fulcrum, the resistance being applied at the points E and F or at C and D, or at any point of a line of a circle concentric with the fulcrum B. The resistance must be applied at an equal distance from the fulcrum B. By the application of the power at the point G, E and F will be carried in opposite directions from a line running perpendicular through F, B, and E.

L and L′ are pawl-holders placed upon the same shaft, facing each other, and having flanges so adjusted as to extend over and completely incase the gear that works between them.

K′ is the points of connection between the main lever and L and L′.

N N are the pitman-rods, the end of one being attached at F and the other at E, while the other ends are attached to L and L′ at the points K′, when the lever A is vibrated, E and F moving in opposite directions by means of N N. L and L′ are also carried in opposite directions at the same time by the action of the lever A.

O and O′ are the pawls in the inside of L and L′, and K the gear into which they mesh.

It will be seen when, by the action of the lever A, E is carried forward, the pawl O, meshing into K in the inside of L′ will carry K forward with it. The same result will be seen as between F and K′ and L and K. The pawls O and O′ are so adjusted that by throwing one in gear and the other out of gear in L and L′ a forward or backward movement is given to the pinion K. The slide M passes through O and O′, and being made in the form of a double inclined plane, with the small ends together, when M is pushed to the left O, will be held up and O′ drop down, and when carried to the right O′ will be carried up and O drop down into its working position. By this arrangement the application of power at G will transmit the motion from the piston of a cylinder from the hand or any other rectilinear and reciprocating motion without the use of a crank.

The lever may be constructed in any proportion to give an increase of power.

Having described my invention, what I desire to secure by Letters Patent is—

1. The combination of cog-gear K between two pawl-holders, with their pawls meshing into it, as shown, and for the purposes set forth.

2. Two pitmen attached at opposite sides of the fulcrum of a lever, and connected with the pawl-holders upon the same side of the shaft upon which they are mounted, for the purpose of transferring rectilinear and reciprocating motion into rotary motion, as described.

3. Two pawl-holders, arranged as shown in L and L′, and forming an incasement of the gear K, in a device for transferring rectilinear and reciprocating motion into rotary motion, as described.

4. The slide M, in combination with the pawls O and O′, as and for the purposes set forth.

JOSEPH F. CRAWFORD.

Witnesses:

M. E. SLATER,

D. M. SLATER.