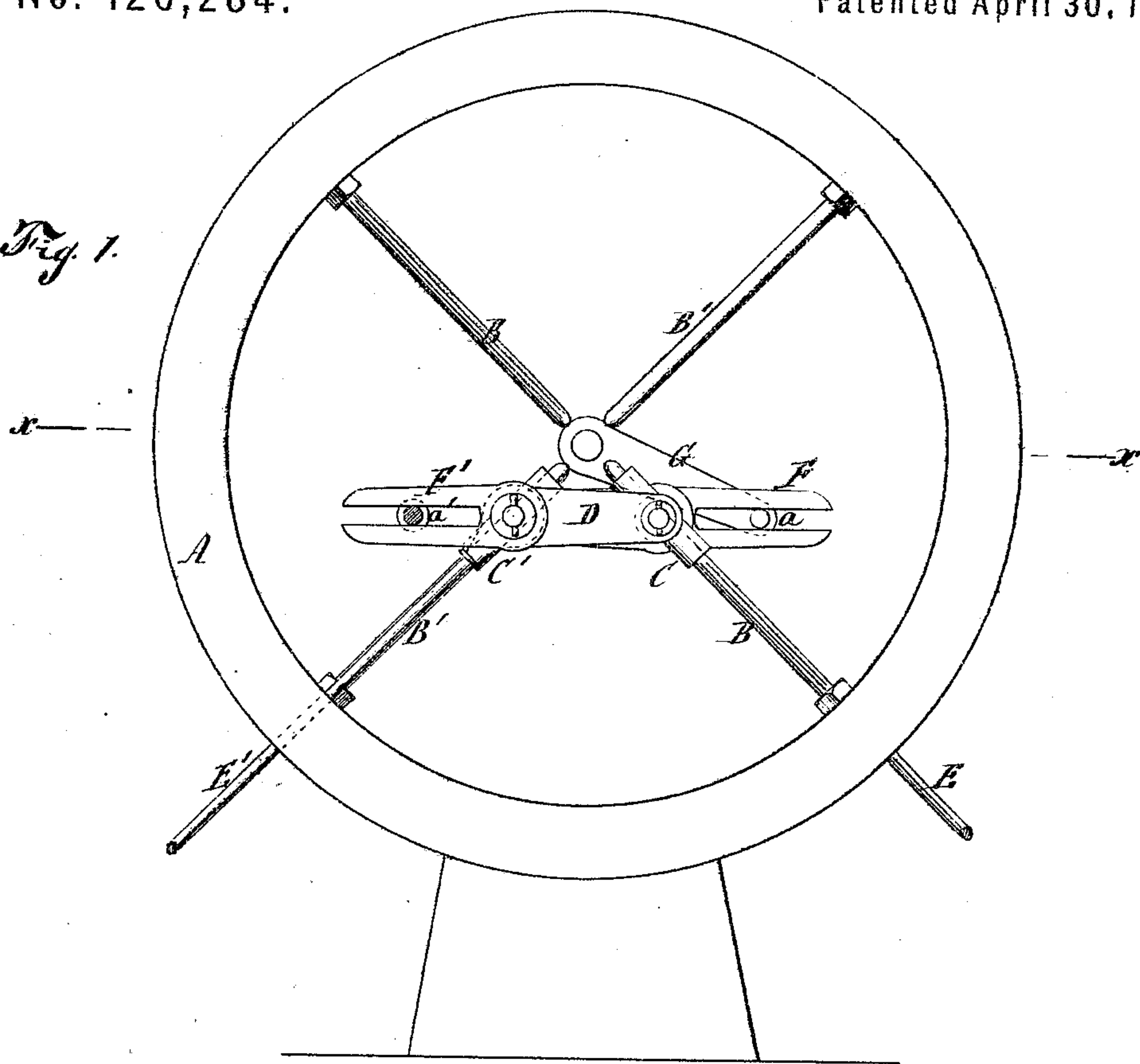
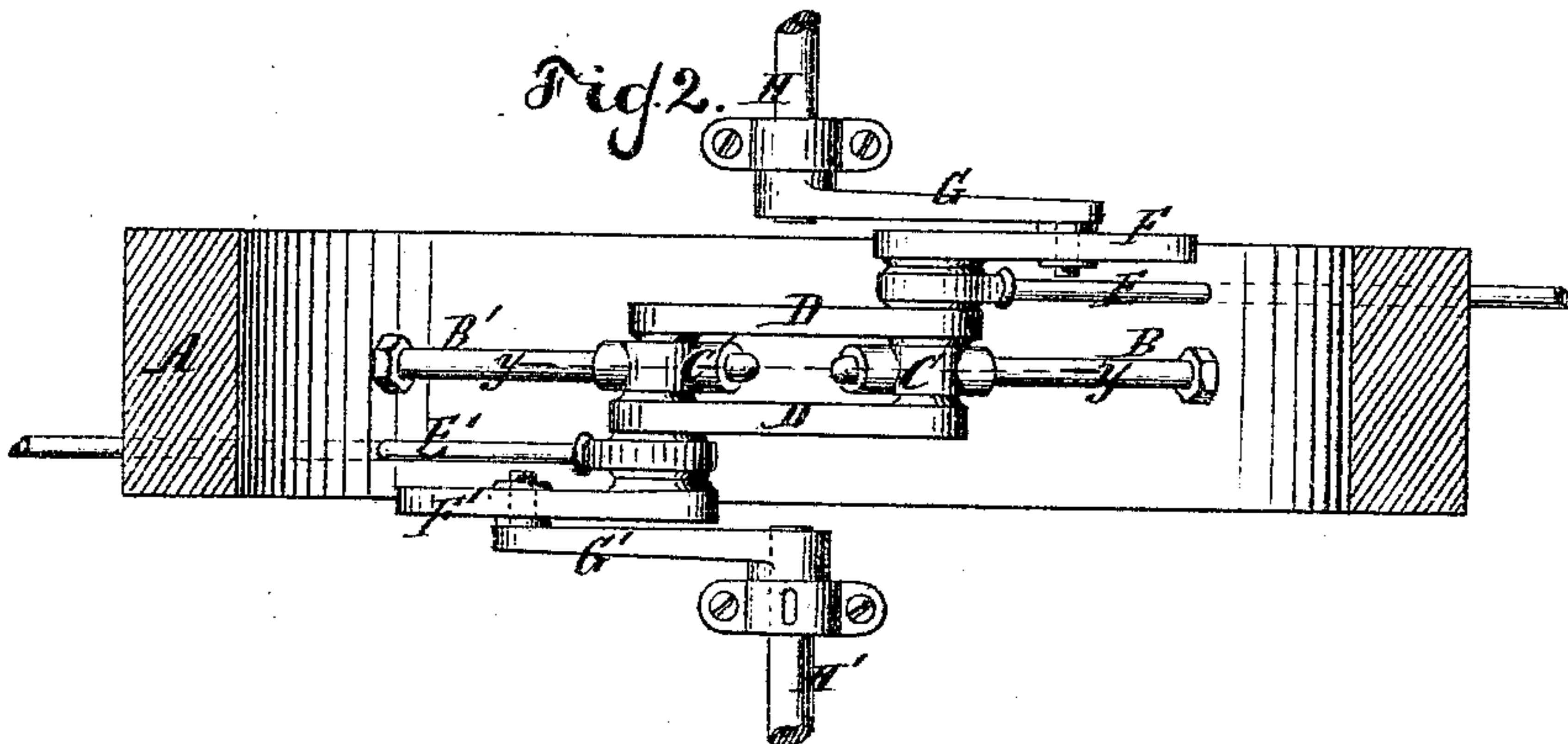


L. GOODALL.  
Improvement in Mechanical Movement.  
No. 126,284. Patented April 30, 1872.

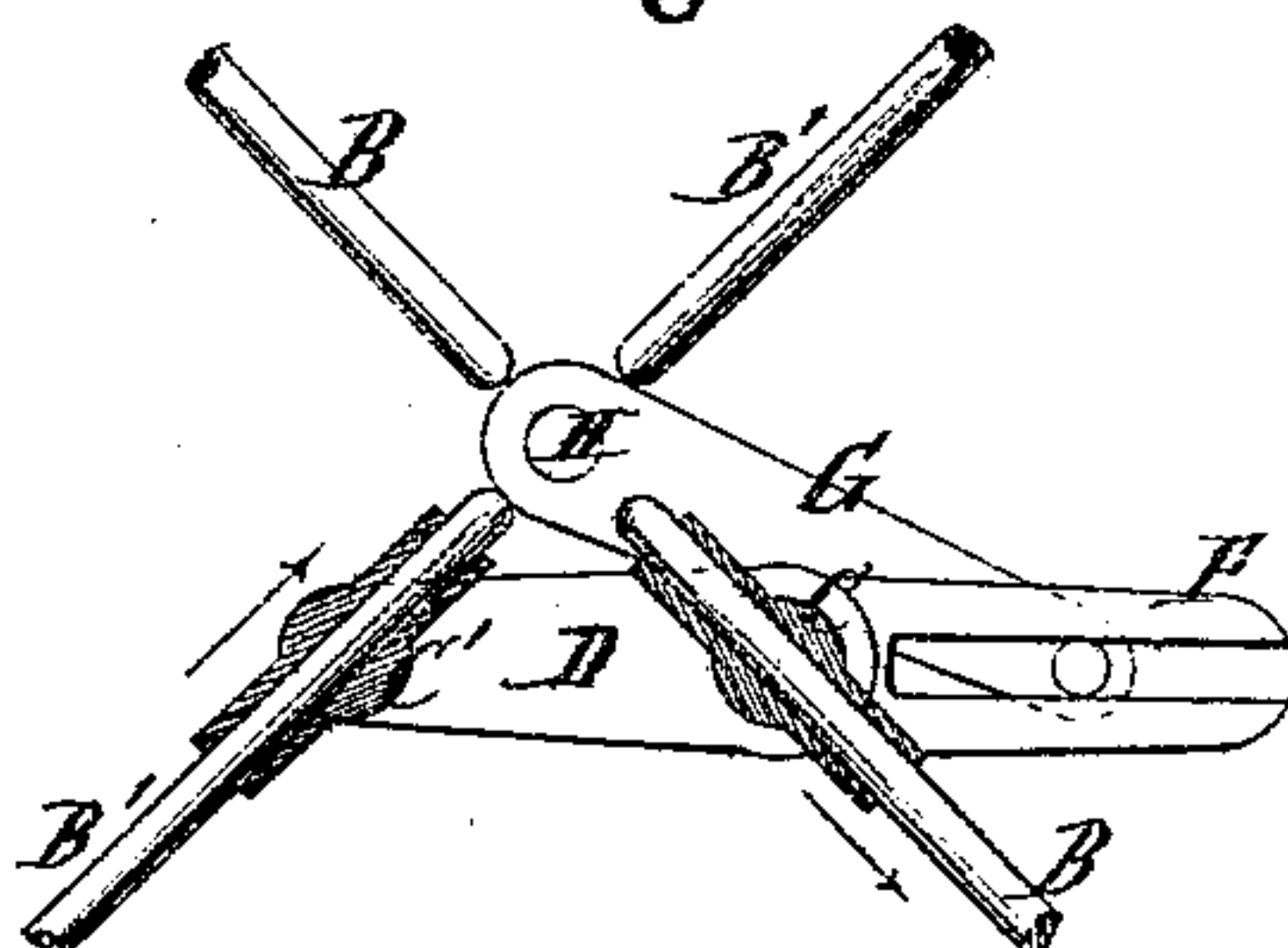
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses.

Ernst Bilhuber.

C. Wahlers.

Inventor.

Lewis Goodall

Per Hartwood & Hauff  
Attors

# UNITED STATES PATENT OFFICE.

LEWIS GOODALL, OF DEERING, NEW HAMPSHIRE.

## IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. 126,284, dated April 30, 1872.

*To all whom it may concern:*

Be it known that I, LEWIS GOODALL, of Deering, in the county of Hillsborough and State of New Hampshire, have invented a new and Improved Mechanical Movement; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a front view of my invention. Fig. 2 is a horizontal section of the same in the line *x x*, Fig. 1. Fig. 3 is a vertical section of the same in the plane *y y*, Fig. 2.

Similar letters indicate corresponding parts. This invention relates to a device for converting reciprocating rectilinear motion into continuous rotary motion, and it is particularly intended to serve as a substitute for an ordinary crank. My invention consists of two cross-heads, which move on guides set at right angles toward each other, and each of which receives a reciprocating motion by means of a steam-cylinder or other motor, in combination with links which connect the two cross-heads, and to which are secured slotted arms catching over the wrist-pins of two cranks mounted on the ends of shafts, to which a continuous rotary motion is to be imparted in such a manner that the full power of each steam-cylinder or other motor is transmitted in a direct line to the appropriate cross-head, thereby dispensing with connecting-rods, and avoiding the loss of power due to the lateral pressure produced by such connecting-rods.

In the drawing, the letter A designates a ring, from the inner surface of which project guide-rods B B', which are placed at right angles toward each other, and which radiate toward the center of the ring A. On these guide-rods are fitted cross-heads C C', which

are connected to each other by links D, and each of which receives a reciprocating motion on its guide-rod by means of a steam-cylinder or other motor connecting with its cross-head by a rod, E or E'. If the motor employed in imparting motion to the cross-heads is a double-cylinder steam-engine the rods E E' form the piston-rods of said cylinders. The guide-rods B B' do not extend clear across the ring A, but they are made in sections, each section terminating at a certain distance from the center of the ring, so as to leave room for the passage of the cross-heads. From the link D extend slotted arms F F', the slots of which are intended to catch over the wrist-pins *a a'* of cranks G G', which are mounted on the ends of shafts H H', to which a continuous rotary motion is to be imparted. (See Fig. 2.)

The motion of the piston-rods E E' is so timed that the cross-heads C C' alternately travel across the center of the ring A, each of the cross-heads being in a central position just at the time the other has reached one of the ends of its stroke; and since the power of the steam-cylinders (or other motor) is transmitted in a direct line to the cross-heads, no power is lost, and the reciprocating rectilinear motion of the cross-heads is converted into a continuous rotary motion of the shafts H H'.

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

The cross-heads C C', moving on radial guides B B' set at right angles toward each other, in combination with links D connecting said cross-heads and carrying two slotted arms F F', all constructed and operating substantially in the manner herein shown and described.

This specification signed by me this 9th day of February, 1872.

LEWIS GOODALL.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.