

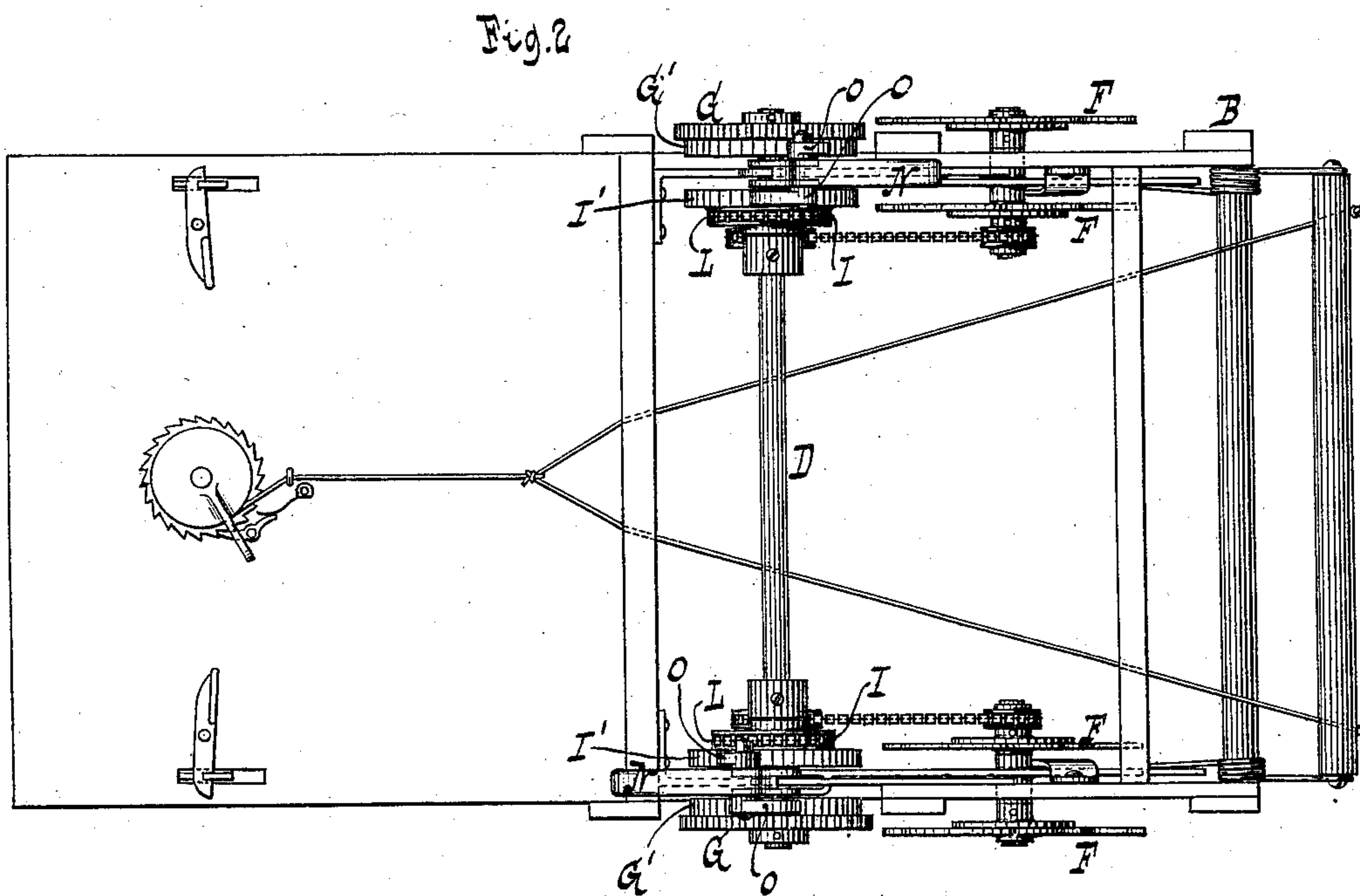
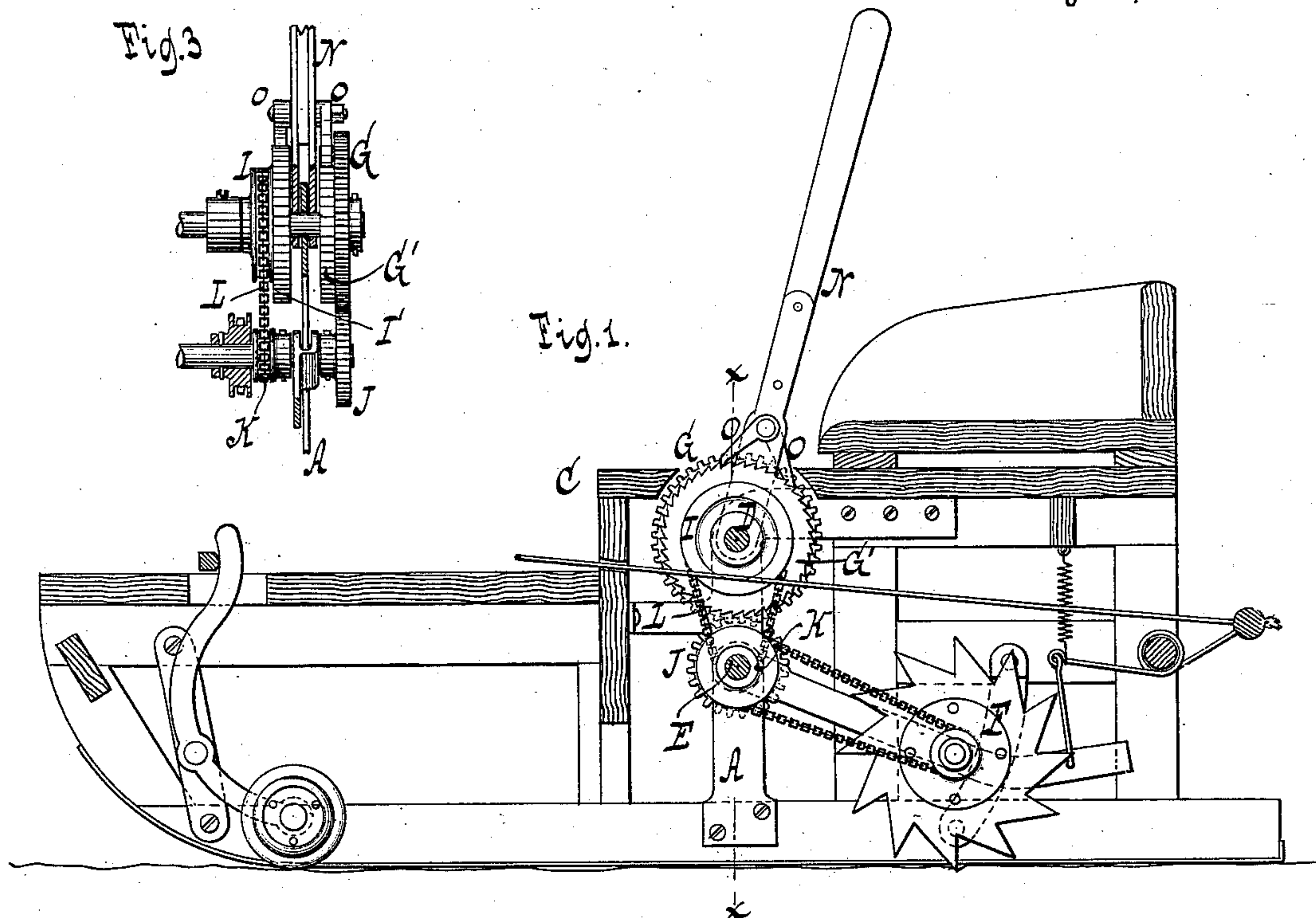
(No Model.)

C. BERNHARD.

DEVICE FOR CONVERTING MOTION.

No. 298,160.

Patented May 6, 1884.



Witnesses
Otto Hufeland
William Miller

Inventor
Charles Bernhard
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UNITED STATES PATENT OFFICE

CHARLES BERNHARD, OF NEW YORK, N. Y.

DEVICE FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 298,160, dated May 6, 1884.

Application filed March 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BERNHARD, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to means for converting oscillating motion into rotary motion; and it consists in the novel features of construction hereinafter described, whereby the desired purpose is accomplished in a superior manner.

In the accompanying drawings, Figure 1 is a sectional side view of my movement, showing it applied to a sled for operating propelling devices. Fig. 2 is a plan or top view thereof. Fig. 3 is a partial section taken approximately on the line *x x*, Fig. 1.

Similar letters indicate corresponding parts.

The letter *A* designates standards, in which are mounted two shafts, *D E*, one of which, *D*, constitutes a driving-shaft, and the other, *E*, a main shaft for performing the required work, as for operating the propelling-wheels *F*. The driving-shaft *D* carries two cog-wheels, *G*—one at each end—and two chain-wheels, *I*—one adjacent to each of the cog-wheels—while the main shaft *E* carries two cog-wheels, *J*, gearing with the cog-wheels of the driving-shaft, and two chain-wheels, *K*, connecting with the chain-wheels of the driving-shaft by means of chains *L*. The cog-wheels *G J* of both shafts and the chain-wheels *K* of the main shaft are fixed, the wheels *I* of the driving-shaft being loose, and to both cog-wheels of the driving-shaft is secured a ratchet-wheel, *G'*, while to both chain-wheels of the same shaft is secured a ratchet-wheel, *I'*, these ratchet-wheels being on the opposed sides of adjacent cog-wheels and chain-wheels, and in reverse positions.

Intermediate of each two adjacent ratchet-wheels *G' I* the driving-shaft *D* carries a lever, *N*, which, in this example, is a hand lever, and on which are mounted two pawls, *O*, in the proper positions to engage the ratchet-wheels, respectively, so that if an oscillating motion is imparted to these levers they act on the ratchet-wheels pertaining to the cog-

wheels *G*, to impart a rotary motion to the driving-shaft, and on the ratchet-wheels pertaining to the chain-wheels *I*, to impart a like motion to these wheels, but in an opposite direction to the driving-shaft. The motion of both the driving-shaft *D* and its chain-wheels *I* is imparted to the main shaft *E* through the cog-wheels *G J* and the chains *L*, respectively; and since the motion imparted by the driving-shaft is in a reverse direction thereto, it corresponds to the motion imparted by the chain-wheels, and consequently the motion derived by the main shaft is in one and the same direction from both sources.

It will be noticed that the operation of both levers *N* is identical, and consequently one of the levers and concomitant parts may be omitted. It is preferred, however, to employ the two levers, because by oscillating the same alternately in opposite directions a continuous or nearly continuous motion is imparted to the shaft.

It is evident that in lieu of the chains and chain-wheels, belts and pulleys may be employed.

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

1. The combination, substantially as hereinafore described, with the driving-shaft and the main shaft, of a fixed cog-wheel on both shafts, one gearing with the other, a loose chain-wheel on the driving-shaft, a fixed chain-wheel on the main shaft connecting with the chain-wheel of the driving-shaft, a ratchet-wheel secured to both the cog-wheel and the chain-wheel of the driving-shaft on the opposed sides of such wheels, and one in a reverse position to the other, an oscillating lever intermediate of the ratchet-wheels on the driving-shaft, and pawls on the oscillating lever adapted to engage the ratchet-wheels, respectively.

2. The combination, substantially as hereinafore described, with the driving-shaft and the main shaft, of fixed cog-wheels on both shafts—one at each end thereof—gearing with each other, loose chain-wheels on the driving-shaft—one adjacent to each of the cog-wheels thereof—fixed chain-wheels on the main shaft connecting with the chain-wheels of the driv-

ing-shaft, ratchet-wheels secured to adjacent
cog-wheels and chain-wheels of the driving-
shaft on the opposed sides of such wheels and
in reverse positions, oscillating levers, one
5 intermediate of each two adjacent ratchet-
wheels on the driving-shaft, and pawls on
each of the levers adapted to engage the ratch-
et-wheels, respectively.

In testimony whereof I have hereunto set
my hand and seal in the presence of two sub- 10
scribing witnesses.

CHARLES BERNHARD. [l. s.]

Witnesses:

W. HAUFF,

CHAS. WAHLERS.