

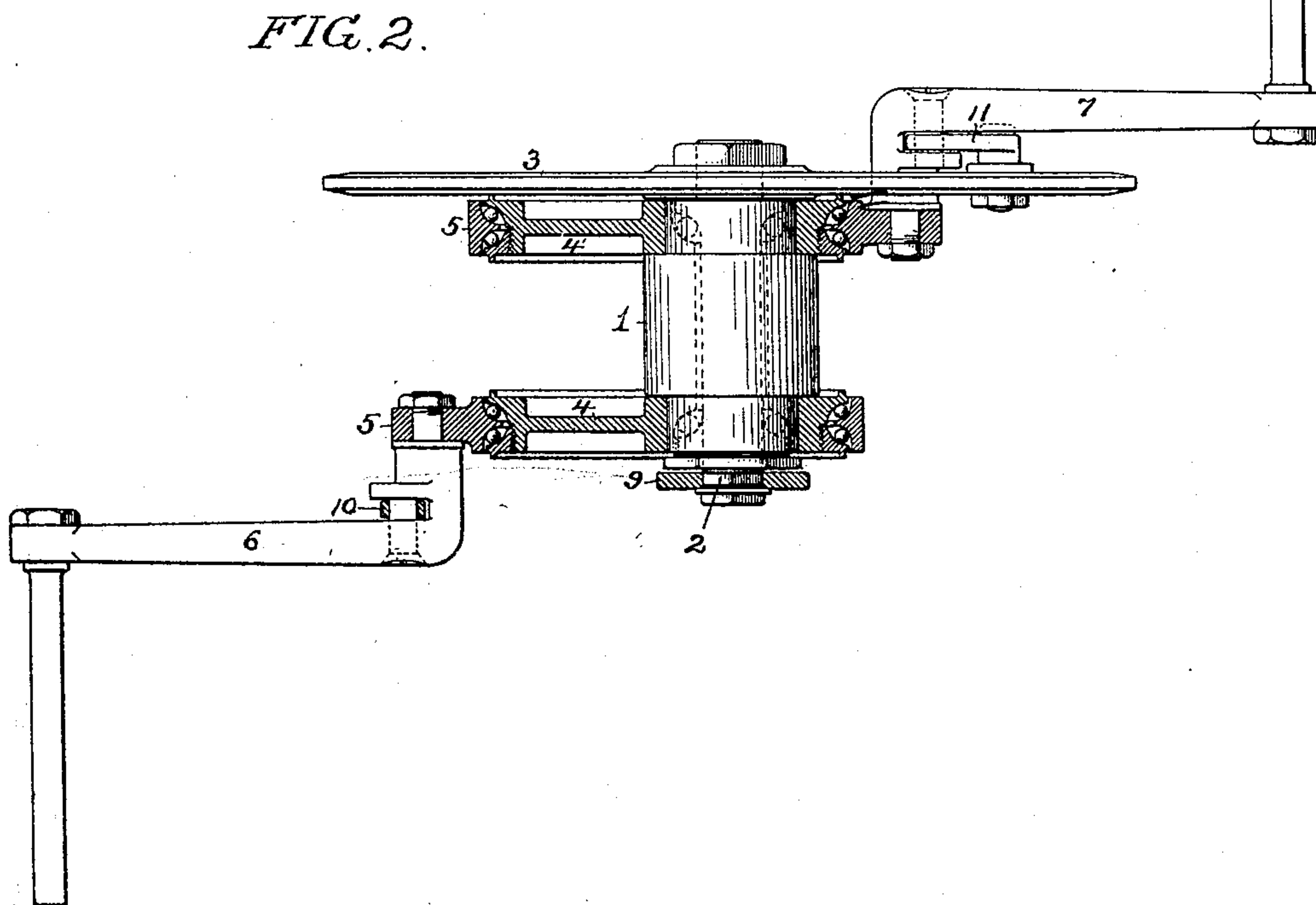
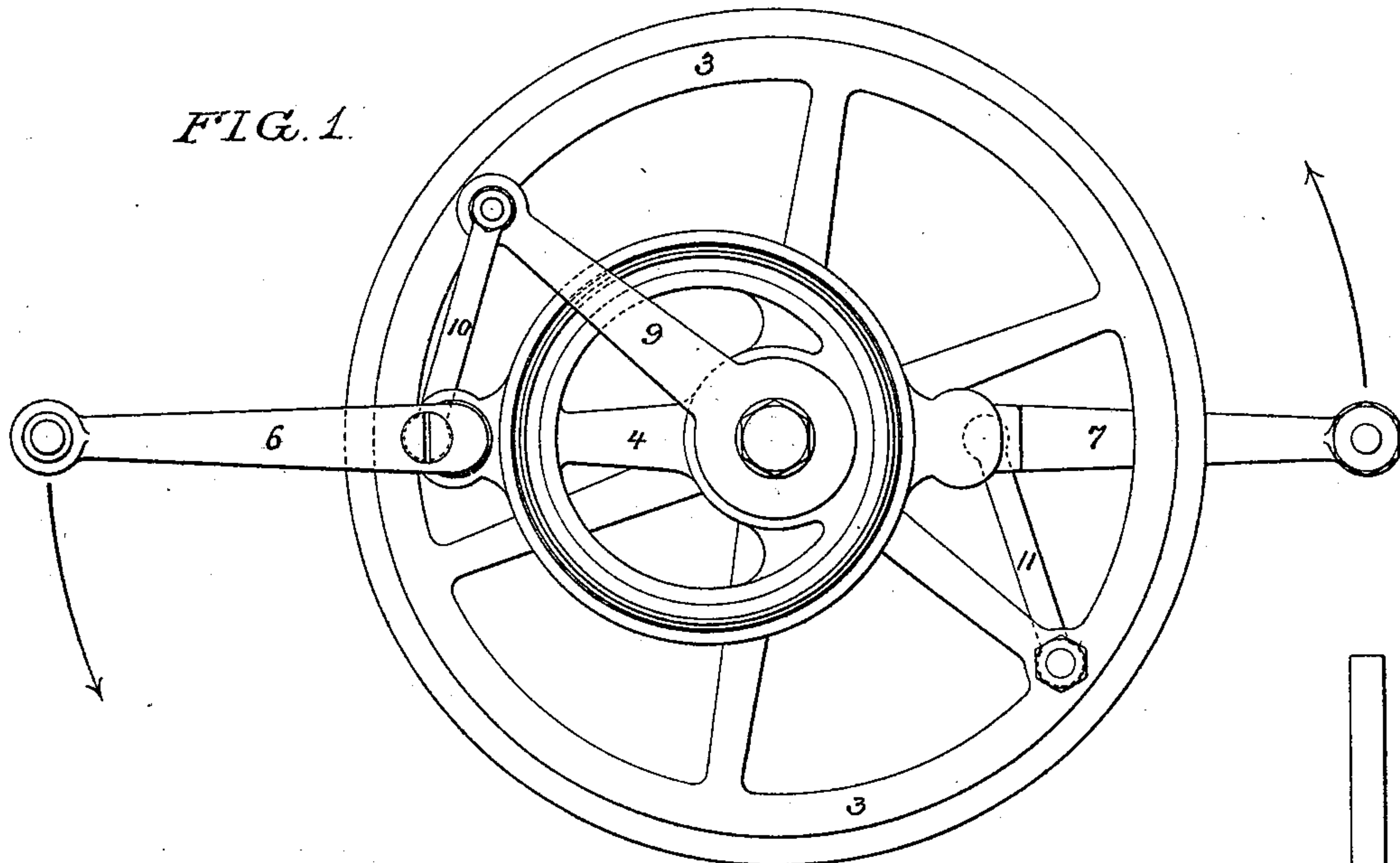
(No Model.)

2 Sheets—Sheet 1.

J. C. POTTS.
CRANK POWER.

No. 600,169.

Patented Mar. 8, 1898.



Witnesses
Hamilton S. Turner
T. C. Bechtold

Inventor
Joseph C. Potts
by his Attorneys
Hewson & Hewson

(No Model.)

2 Sheets—Sheet 2.

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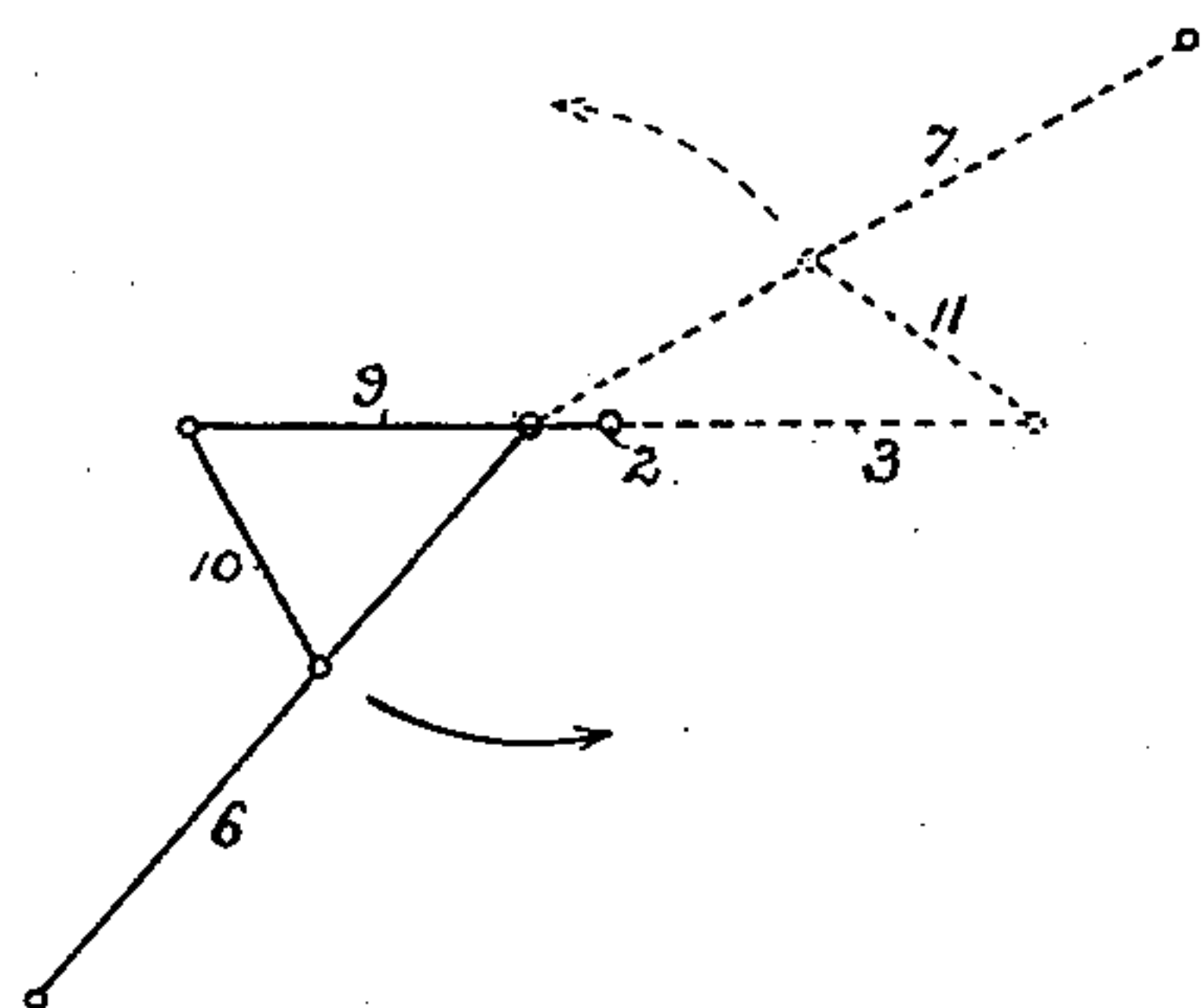


FIG. 3.

FIG. 4.

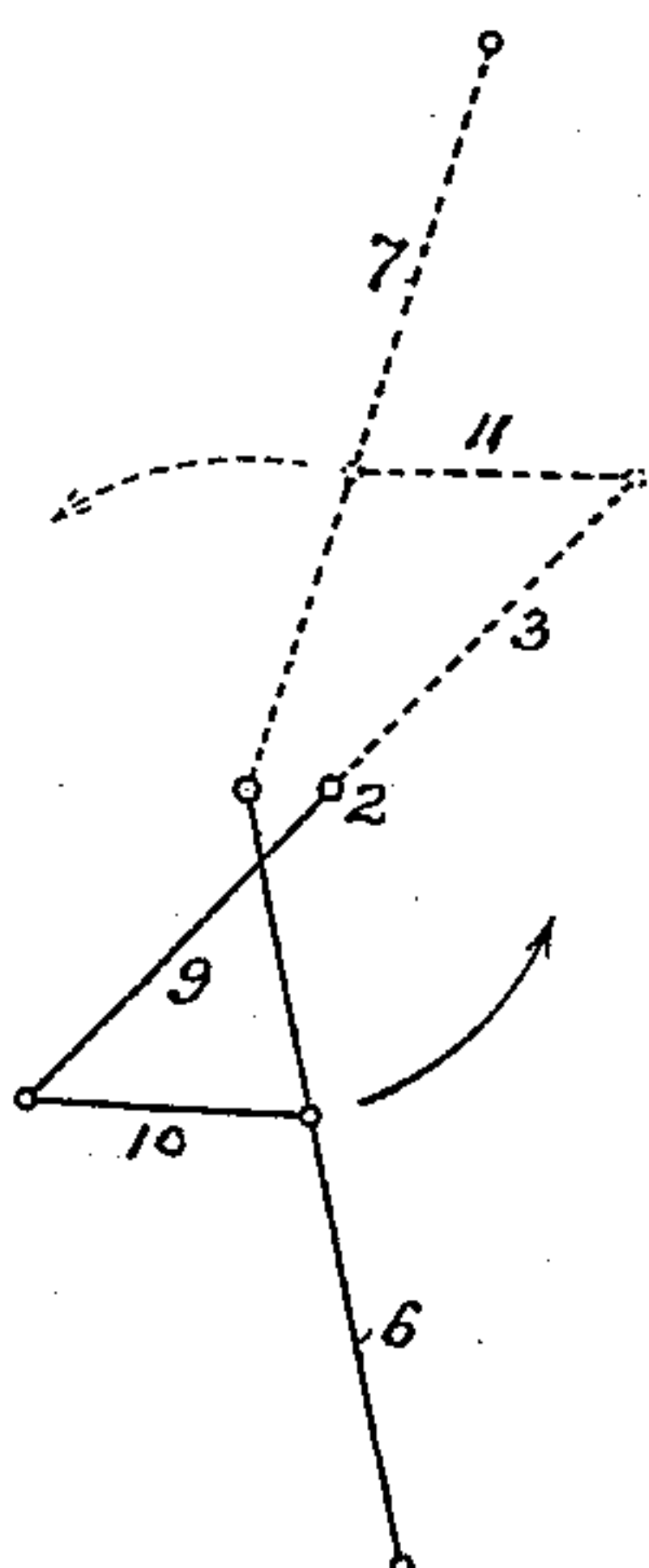


FIG. 5.

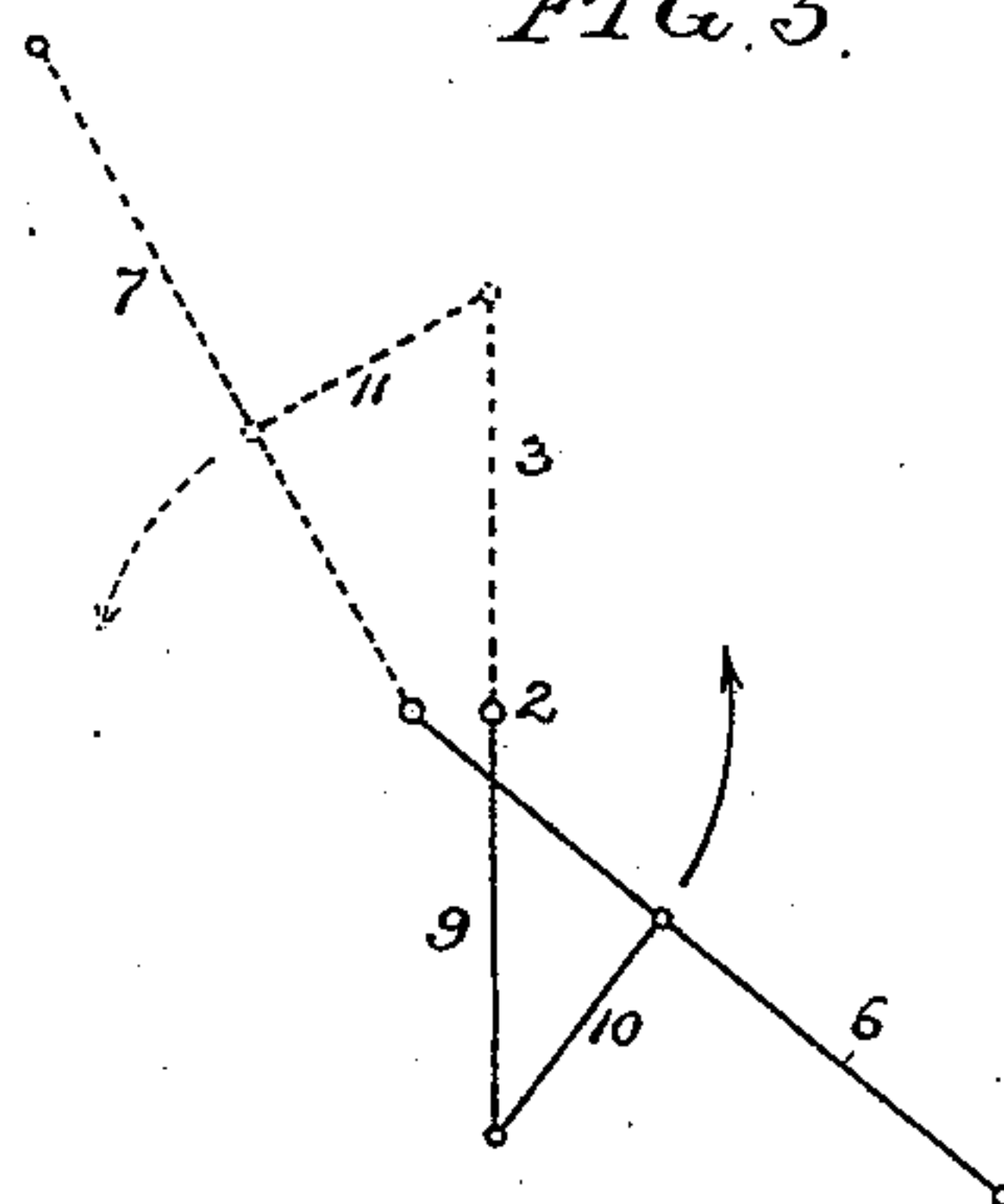
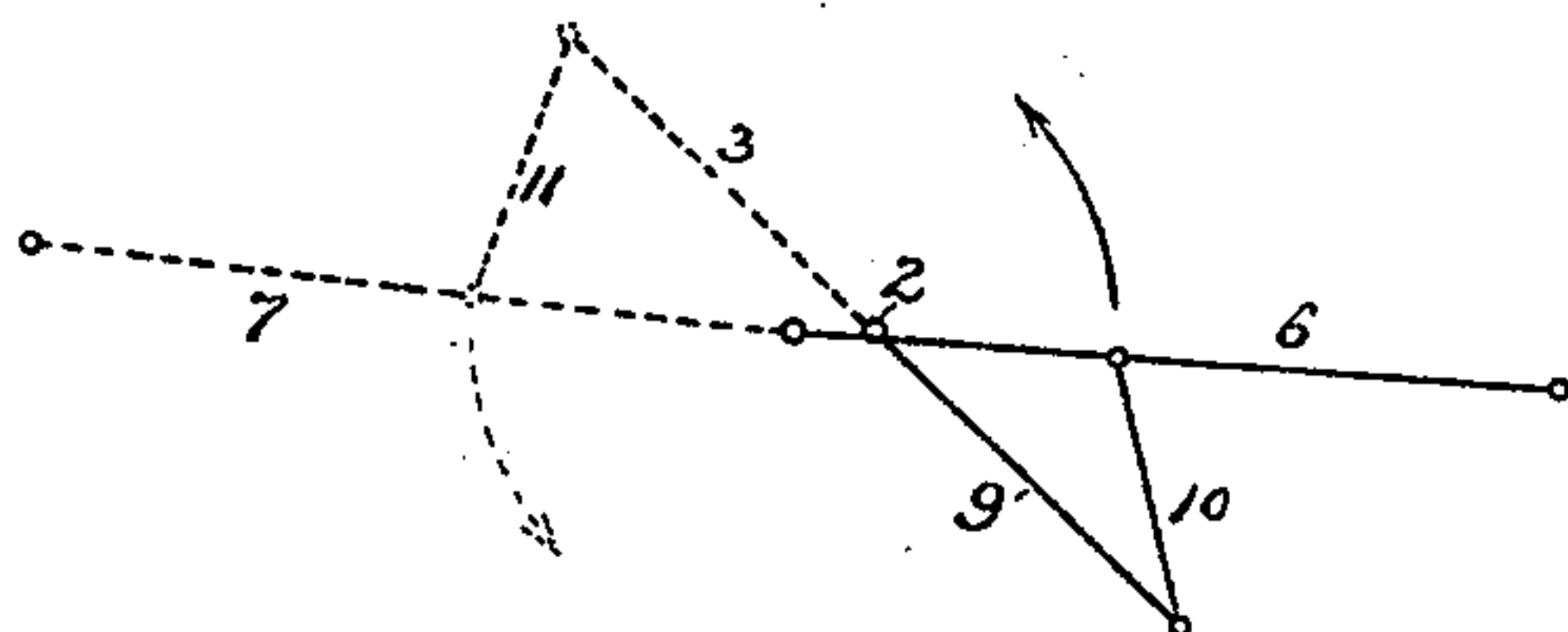


FIG. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH C. POTTS, OF BERWYN, PENNSYLVANIA.

CRANK-POWER.

SPECIFICATION forming part of Letters Patent No. 600,169, dated March 8, 1898.

Application filed May 14, 1897. Serial No. 636,490. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. POTTS, a citizen of the United States, residing in Berwyn, Pennsylvania, have invented certain Improvements in Crank-Powers, of which the following is a specification.

My invention relates to that class of crank-powers—such as foot-powers, single-acting engines, and the like—in which the axis of the cranks is offset in respect to the axis of the shaft to be driven, so that the cranks will travel in a path eccentric to the axis of said shaft, whereby during that portion of the stroke of each crank in which power is being most effectively exerted each of the crank-pins will be traveling through that portion of its path which is farthest from the axis of the driven shaft, so that with a crank of given throw the effective leverage of said crank will be increased during the active portion of its stroke, there being a corresponding decrease of leverage during the return or inactive portion of the stroke.

The object of my invention is to so construct a crank-power of this class as to obtain the desired increase of leverage without any accompanying disadvantages, such as are due to friction of sliding parts or to otherwise ineffective methods of imparting the power of the cranks to the driving-shaft. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a crank-power constructed in accordance with my invention. Fig. 2 is a plan or top view of the same, partly in section; and Figs. 3, 4, 5, and 6 are diagrams illustrating the action of my improved crank-power.

In Figs. 1 and 2, 1 represents a bearing which may be supported or mounted in any available manner, depending upon the character of the machine to which the crank-power is applied, this bearing receiving the shaft 2, to which power is to be imparted, and said shaft 2 having a wheel 3 of any desired character, whereby the power may be transmitted from this shaft.

Forming part of or rigidly secured to the bearing 1 are projecting bearings 4 for rings 5, which carry the cranks 6 and 7, said bear-

ings being located in the present instance one at each end of said bearing 1 and having circular peripheries, which are eccentric in respect to the axis of the shaft 2, owing to the fact that the axis of the said bearings 4 is in advance of the axis of the shaft—that is to say, on that side of the shaft-axis which corresponds to the operative or acting half of the stroke of the cranks—the preferable location of the said forward axis being in a line drawn from the axis of the shaft 2 through the axis of the crank-pin when the crank is in mid-position in the operative half of its stroke, as shown in Fig. 1.

If desired, the entire bearing 1 may have the eccentric contour of the bearings 4.

The opposite cranks 6 and 7 are so secured to the rings 5 as to constitute rigid extensions or projections of said rings, and both the rings 5 and shaft 2 are preferably provided with ball-bearings of any appropriate character, so as to lessen the friction due to their rotative movement. The crank-pins may be provided with pedals if the device is used as a foot-power, or may be otherwise constructed to receive the power when the device is used in other classes of machinery.

To one end of the shaft 2 is secured an arm 9, and the outer end of this arm is connected by a link 10 to the crank 6, the crank being in advance of the arm—that is to say, preceding the same in the direction of rotation. The crank 7 is in like manner connected to an arm of the wheel 3 by means of a link 11, or it may be connected to a separate arm on the shaft, if desired.

The operation of my improved crank-power so as to effect the desired gain in leverage during the active half of the stroke will be fully understood on reference to Fig. 1 and to the diagrams Figs. 3, 4, 5, and 6, which show the cranks and shaft-arms in various positions of movement.

It will be observed that the gain in leverage is attained without the use of slotted cranks, slides, or other operative elements such as would cause excessive friction, and that the connection of the link 10 with the crank 6 and arm 9 and of the link 11 with the crank 7 and arm of the wheel 3 are such that the pull of the crank is imparted with most

directness during the time that said crank is passing through the operative half of its stroke.

I am aware that links have heretofore been
5 used as a means of transmitting the movement of eccentrically-hung cranks to a wheel and arm on a driving-shaft; but in one of such cases with which I am familiar the arrangement is the reverse of that which I have de-
10 vised and is intended for a different purpose—namely, the overcoming of the dead-center of the cranks—the crank-axis being in the rear of the shaft-axis instead of in advance of the same, so that there is a loss of power
15 instead of a gain, and in another instance the eccentrically-hung cranks impart power to the arm and wheel by means of push-links instead of by means of draft-links, such as those which I employ, an arrangement which
20 in certain positions of the parts would act as

a knee-joint or toggle and thereby cause excessive strain upon the connecting-pins of the links and also excessive friction and wear.

Having thus described my invention, I 25 claim and desire to secure by Letters Patent—

A crank-power in which are combined the shaft to be rotated, arms on said shaft, a pair of cranks turning on an axis in advance of 30 the axis of the shaft, and draft-links connected directly to said cranks and to the arms on the shaft, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of 35 two subscribing witnesses.

JOSEPH C. POTTS.

Witnesses:

CHAS. H. BANNARD,
WILL. A. BARR.