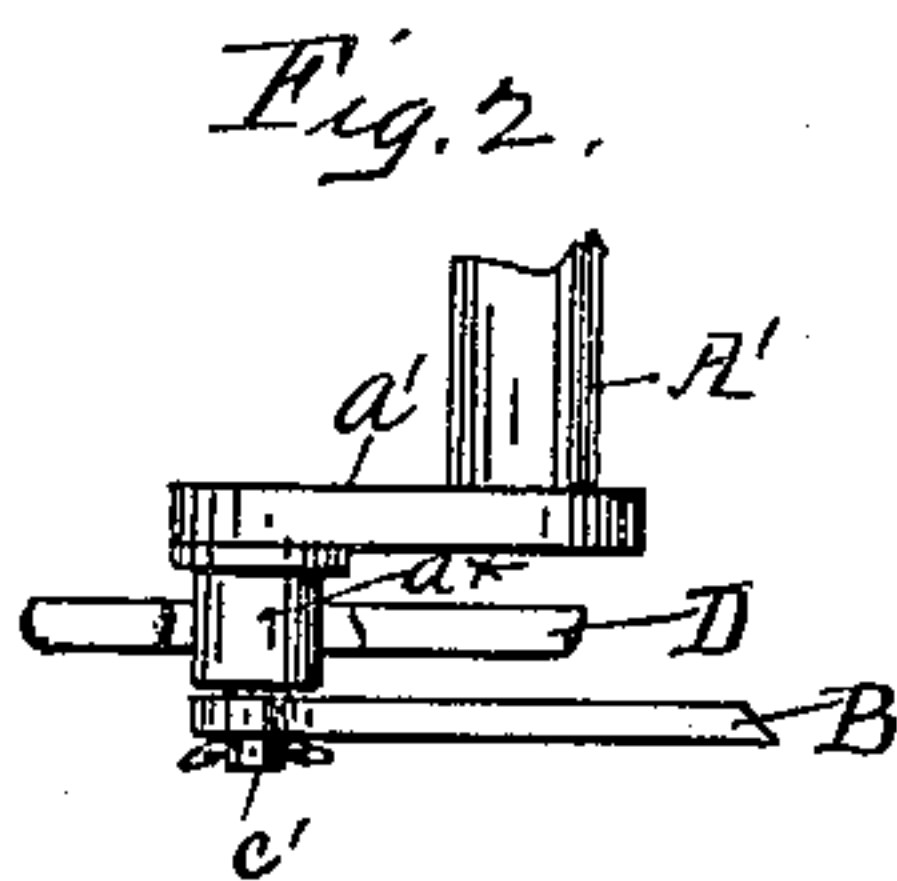
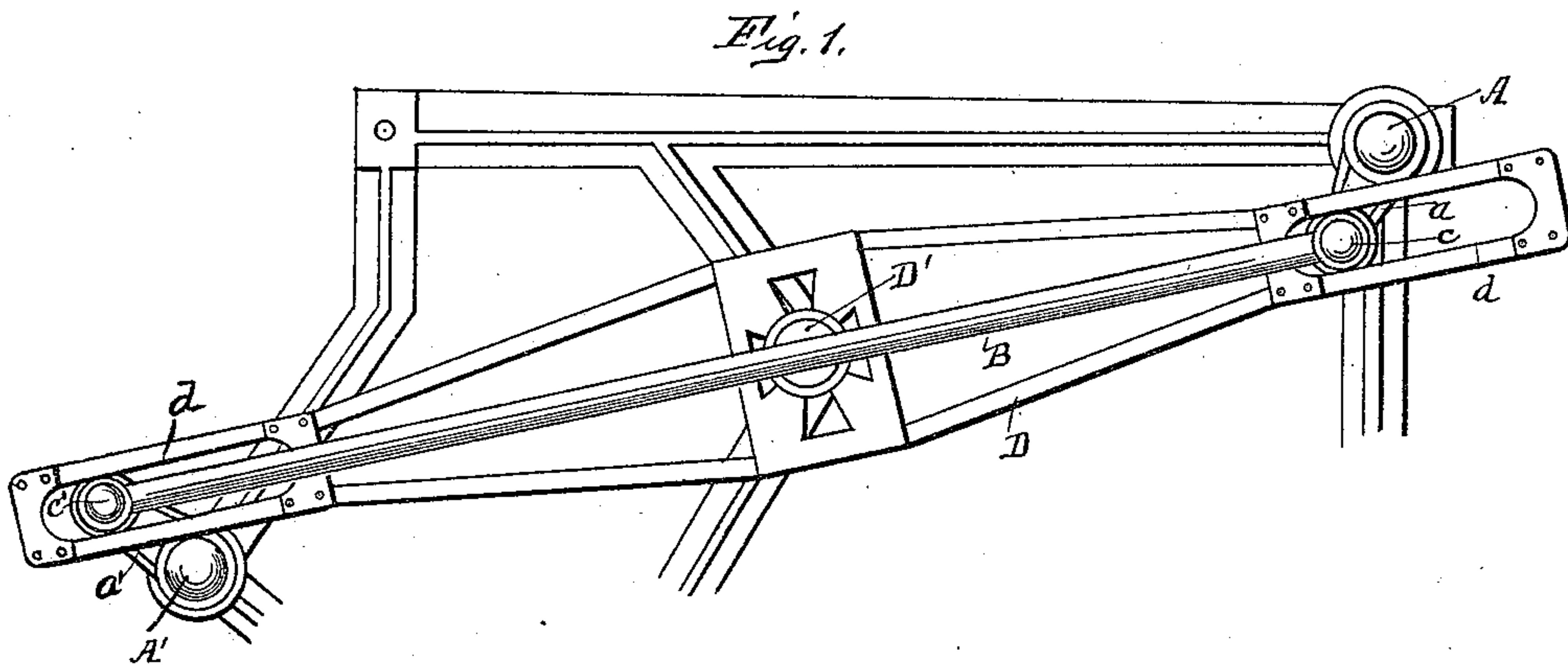


(No Model.)

K. C. KUNKLE.
MECHANICAL MOVEMENT.

No. 447,075.

Patented Feb. 24, 1891.



WITNESSES
J. N. Kail
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MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 447,075, dated February 24, 1891.

Application filed November 25, 1890. Serial No. 372,590. (No model.)

To all whom it may concern:

Be it known that I, KENTON C. KUNKLE, a citizen of the United States, residing at Lebanon, in the county of Warren and State of Ohio, have invented certain new and useful Improvements in Mechanical Movements; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in mechanical movements, and has particular reference to devices which are for use in transmitting power from one shaft or device to another by means of cranks and a pitman.

The improvement consists in providing a sway-bar centrally pivoted and having longitudinally-slotted ends riding upon the crank-pins to which the pitman is attached.

The invention has particular adaptation for use as an end gear on grain-binders, and in an application filed on even date herewith, Serial No. 372,589, I have shown and described this invention in such position and use. It will, however, be understood that the present invention is not confined to any particular position or use, as it may be applied in any situation where dead-centers are to be overcome in the transmission of power.

The following detail description will fully explain the nature, construction, and purpose of my said invention and the manner in which the same is used.

The accompanying drawings illustrate my said invention.

Figure 1 is a front elevation of the device. Fig. 2 is a plan view of one crank with a part of the sway-bar broken away.

Similar letters of reference indicate corresponding parts in the figures where they occur.

A A' are two shafts or other mechanical parts carrying cranks *a a'* and crank-pins *c c'*.

B is a pitman or connecting-bar uniting the crank-pins in the usual way.

D is my sway-bar. This is preferably a framed bar centrally pivoted to a fixed portion of the frame of a machine, as shown at D'. Each end of the sway-bar is provided with a longitudinal slot or opening *d*, which rides over the crank-pin. The sway-bar is first set over the crank-pins and then the pitman is set in place on the crank-pins. The sway-bar acts as a lever on account of its central pivot, and the force exerted on either crank from the shaft to which it is attached gives a leverage upon the other crank by means of the sway-bar, which will overcome the dead-centers with certainty and ease and without loss of power or strain upon the parts. The sway-bar comes into action when the pitman is powerless and moves the cranks past the dead-points. Then the action ceases, and the pitman actuates the cranks again until another dead-point is reached. In this way a regular motion is given to the parts, and no loss of power is experienced by having both pitman and sway-bar, for only one is in operation at the same time, as they supplement and alternate with each other. It will be understood, of course, that the sway-bar need not be framed, but may be a single straight bar. Each of the slots *d* is about equal in length to the diameter of the circle described by the revolution of the crank-pins.

The crank-pins *c c'* are preferably equipped with anti-friction rollers *a* a** to render the action the easiest possible, and the diameter of said rollers or crank-pins is somewhat less than the width of the slot in the sway-bar, so that there will be only one point for friction on each crank-pin when the sway-bar is called into action at the dead-points.

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

1. The combination, with a pair of cranks and a connecting-rod or pitman, of a pivoted sway-bar having longitudinal slots in its ends set over the pins of said cranks, as set forth.

2. The combination, with a pair of cranks and a connecting rod or pitman, of a framed

sway-bar centrally pivoted and having slots in its ends to ride over the pins of said cranks, as set forth.

3. A sway-bar for overcoming dead-centers,
5 consisting of a bar centrally pivoted and having slotted ends to ride over cranks or wrist-pins, as set forth.

4. The combination, with a pair of cranks having anti-friction rollers on their pins and
10 a pitman connecting said crank-pins, of a

sway-bar centrally pivoted and provided with slots in its ends riding over the rollers on said crank-pins, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

KENTON C. KUNKLE.

Witnesses:

I. N. KALB,

F. T. F. JOHNSON,