

(No Model.)

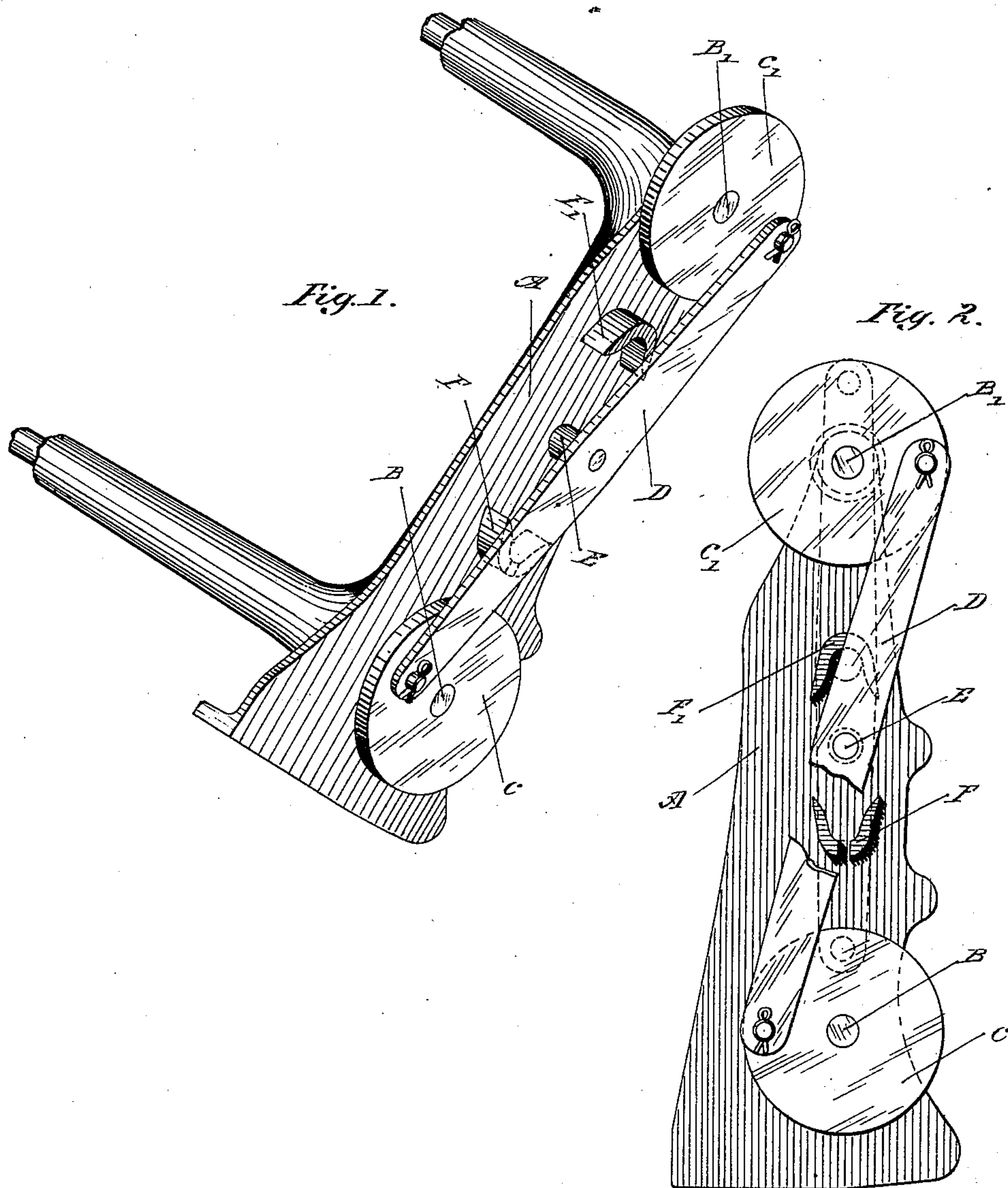
S. DYER & D. F. GRAHAM.

2 Sheets—Sheet 1.

MECHANICAL MOTION.

No. 389,880.

Patented Sept. 25, 1888.



Witnesses:

E. J. Cook

William F. Bennett

Inventors:

Samuel Dyer,

David F. Graham

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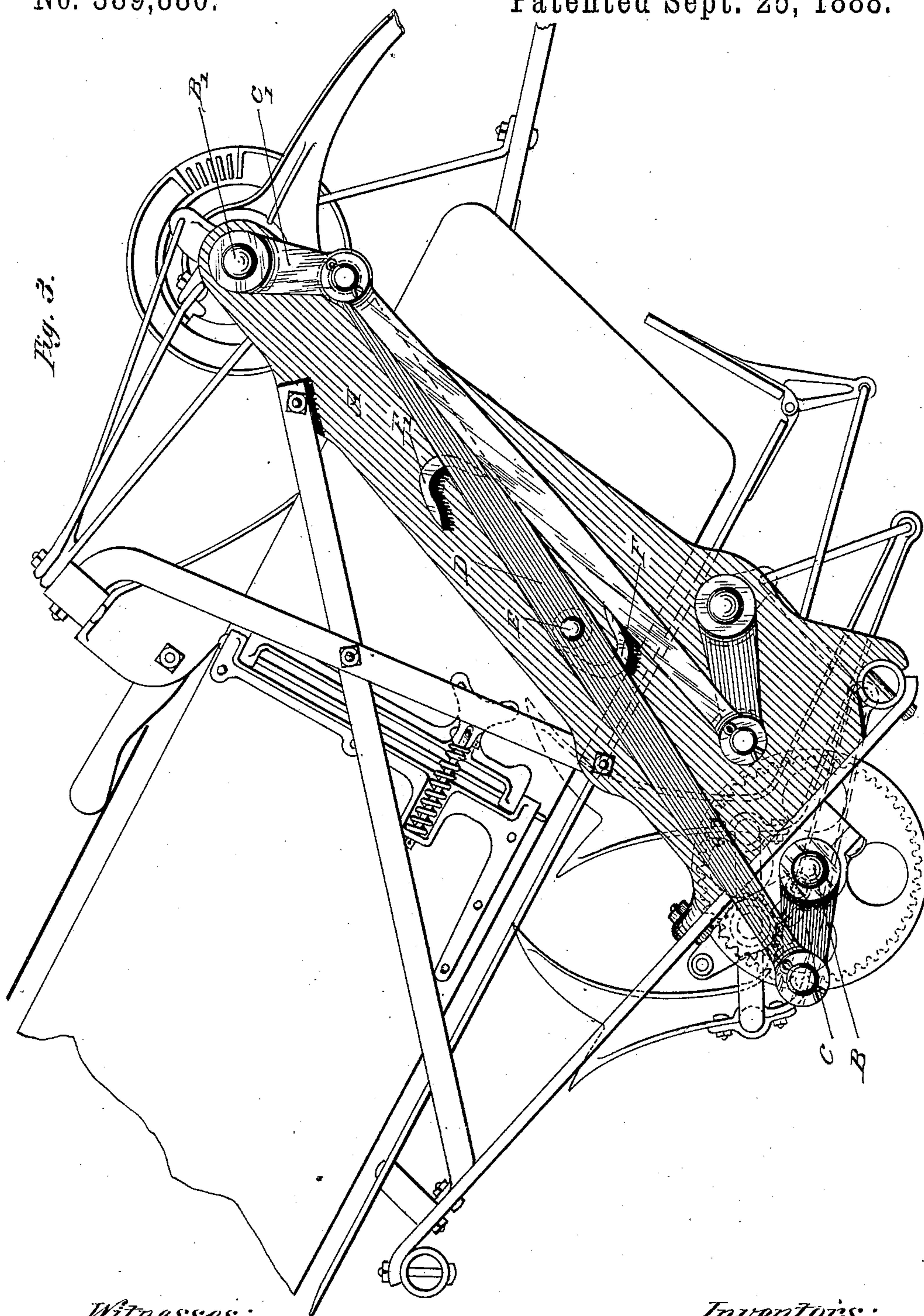
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UNITED STATES PATENT OFFICE.

SAMUEL DYER AND DAVID F. GRAHAM, OF SPRINGFIELD, OHIO, ASSIGNORS
TO THE WILLIAM N. WHITELEY COMPANY, OF SAME PLACE.

MECHANICAL MOTION.

SPECIFICATION forming part of Letters Patent No. 389,880, dated September 25, 1888.

Application filed April 30, 1888. Serial No. 272,231. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL DYER and DAVID F. GRAHAM, both citizens of the United States, residing in the city of Springfield, in the county of Clark and State of Ohio, have invented a new and useful Mechanical Motion Specially Applicable to Harvester Binding Machinery, of which the following is such a full and complete description of the invention as will enable any one skilled in the art to construct and use the same, reference being had to the drawings forming a part of this specification.

The object of our invention is to simplify the machinery employed to operate a grain-binder and retain its efficiency, and at the same time produce an improved motion that may be successfully used for other purposes. We attain these objects by the mechanism illustrated in the accompanying drawings and set forth in the specification.

Our invention consists in combining with a single pitman two stops or fulcrums, which we term "helpers," arranged as hereinafter described, so as to positively drive one crank in an opposite direction from the driver.

Figure 1 is a perspective view showing two parallel shafts mounted in a frame with cranks on one end of each, said cranks being connected by a single pitman. When one crank is caused to revolve, it in turn causes the other crank to revolve in an opposite direction by means of the pitman and helpers, as shown. Fig. 2 is a sectional view showing the helpers and pitman, a part of the pitman being broken away to more fully show the guides or helpers. Fig. 3 is a perspective view of a binder, showing the application of our invention to a grain-binder.

Like letters refer to like parts.

A is the frame on which the shafts and cranks are mounted.

B and B' are the shafts.

C and C' are the crank arms or disks.

D is the pitman.

E is the pin and roller mounted on pitman.

F and F' are the helpers.

The operation is as follows: The shaft B and crank C can be operated by any of the well-known ways, and at each revolution it makes it causes shaft B' and crank C' to revolve in an

opposite direction through and by the aid of pitman D and helpers F and F'. As the cranks come in line with each other and with the shafts the pin and roller D engage one of the helpers, which for an instant becomes a fulcrum on which the pitman plays as a lever of the first order, thereby applying power to crank C' on lines at right angles to the pitman, which causes the crank C' to go by the dead-center, as shown in dotted lines in Fig. 2.

By means of this invention a reverse motion can be given by one crank to another, thereby saving intermediate gearing and avoiding complication, and may be used to great advantage in a great many machines. In Fig. 3 we show it in use upon a grain-binder, where motion is transmitted from the packer-shaft to the tyer-wheel shaft. C is a crank, which, with its shaft B, receives its motion from the packer-shaft by means of cog-gear, the wheel on which crank C is mounted being an internal gear-wheel and driven by spur-wheel on packer-shaft, said crank giving motion to the tyer-wheel shaft B', causing it to revolve in an opposite direction, and it must be positive in its movement. Crank C is connected by pitman D to crank C' on tyer-wheel shaft B'. When crank C revolves to the right, pitman D, by the aid of its helpers F and F', rotates crank C' to the left, giving it a positive movement and greatly simplifying the means by which it is done. The driving-power that actuates crank C is applied from the end opposite to the crank. The needle arm is driven in the usual manner from the crank on tyer-wheel shaft.

The binder is of the well-known type, and we have no claims to make on the binder in this case, but show it simply for the purpose of showing the application of our invention to a binder.

We are aware that a pitman has been used to transmit motion from one crank to another, the two cranks operating in an opposite direction; but that pitman was controlled by a fixed center or a continuous slide, which caused a great deal of friction and was not as simple in construction nor so easily and cheaply made, neither is it as practical. We do not claim that style of pitman and helper.

Having thus fully described our invention,

we claim as new and desire to secure by Letters Patent—

1. The combination, with the two oppositely-rotating shafts and their cranks, of the pitman
5 having a pivot intermediate its ends, and the helpers F F', situated at the ends of the throw of said pivot, and adapted to act temporarily as fulcrums on which power may be applied laterally to the driven crank, said pivot being
10 out of contact with said helpers and free except at the ends of its stroke, substantially as set forth.

2. The combination, with the packer-shaft and the shaft B, of the connecting-gearing, the

crank C on the latter shaft, the tyer-wheel 15 shaft, the crank C' on the latter, the pitman having between its ends a pivot, and the helpers F F', adapted to engage said pivot, substantially as set forth.

In testimony whereof we hereunto set our
hands and affix our seals this 3d day of April,
A. D. 1888.

SAMUEL DYER. [L. S.]
DAVID F. GRAHAM. [L. S.]

In presence of—
WILLIAM F. BEVITT,
ED. J. COOK.