(No Model.) 2 Sheets—Sheet 1.

S. DYER & D. F. GRAHAM.

MECHANICAL MOTION.

No. 389,881. Patented Sept. 25, 1888.

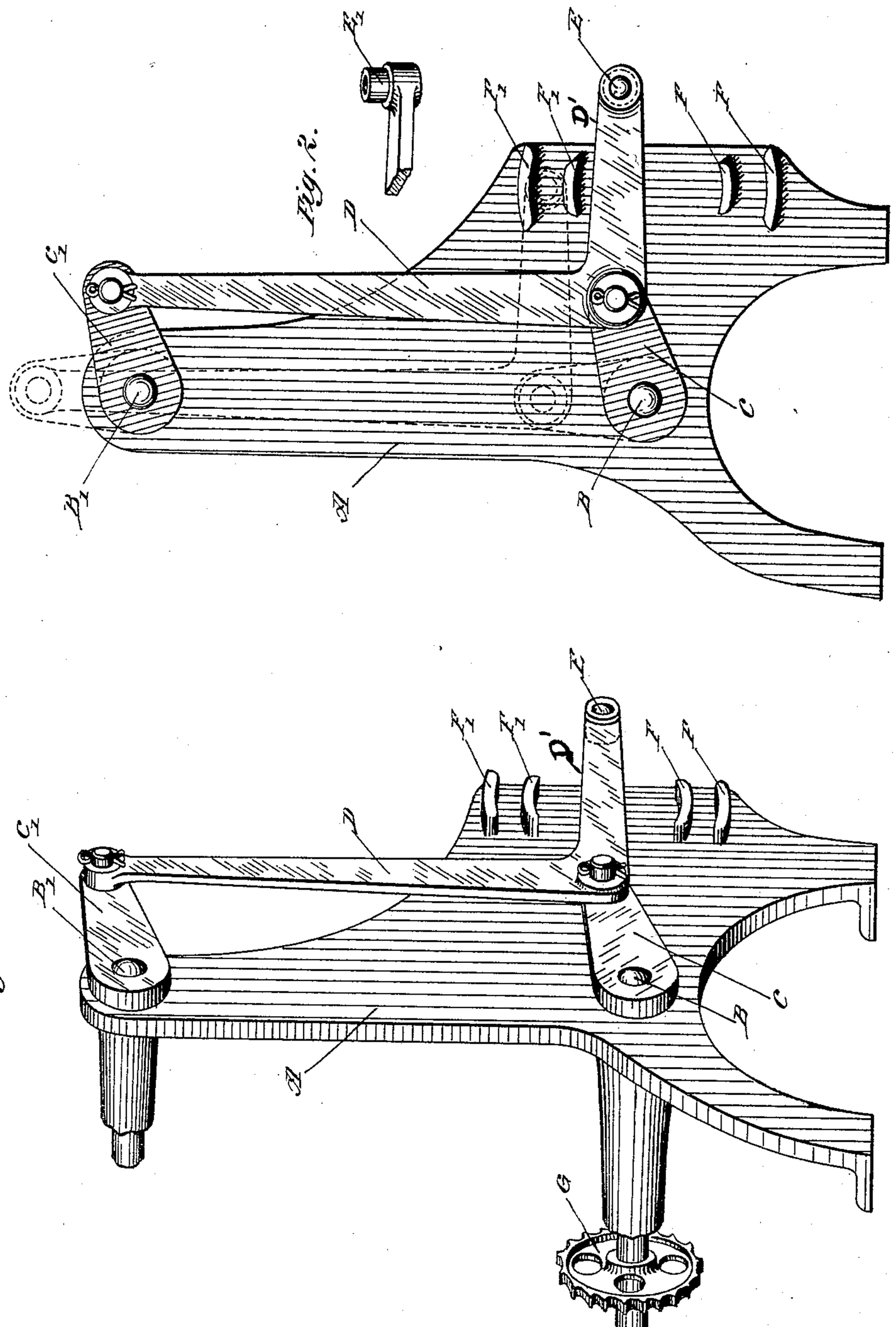

Fig. 1.

Fig. 2.

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(No Model.)

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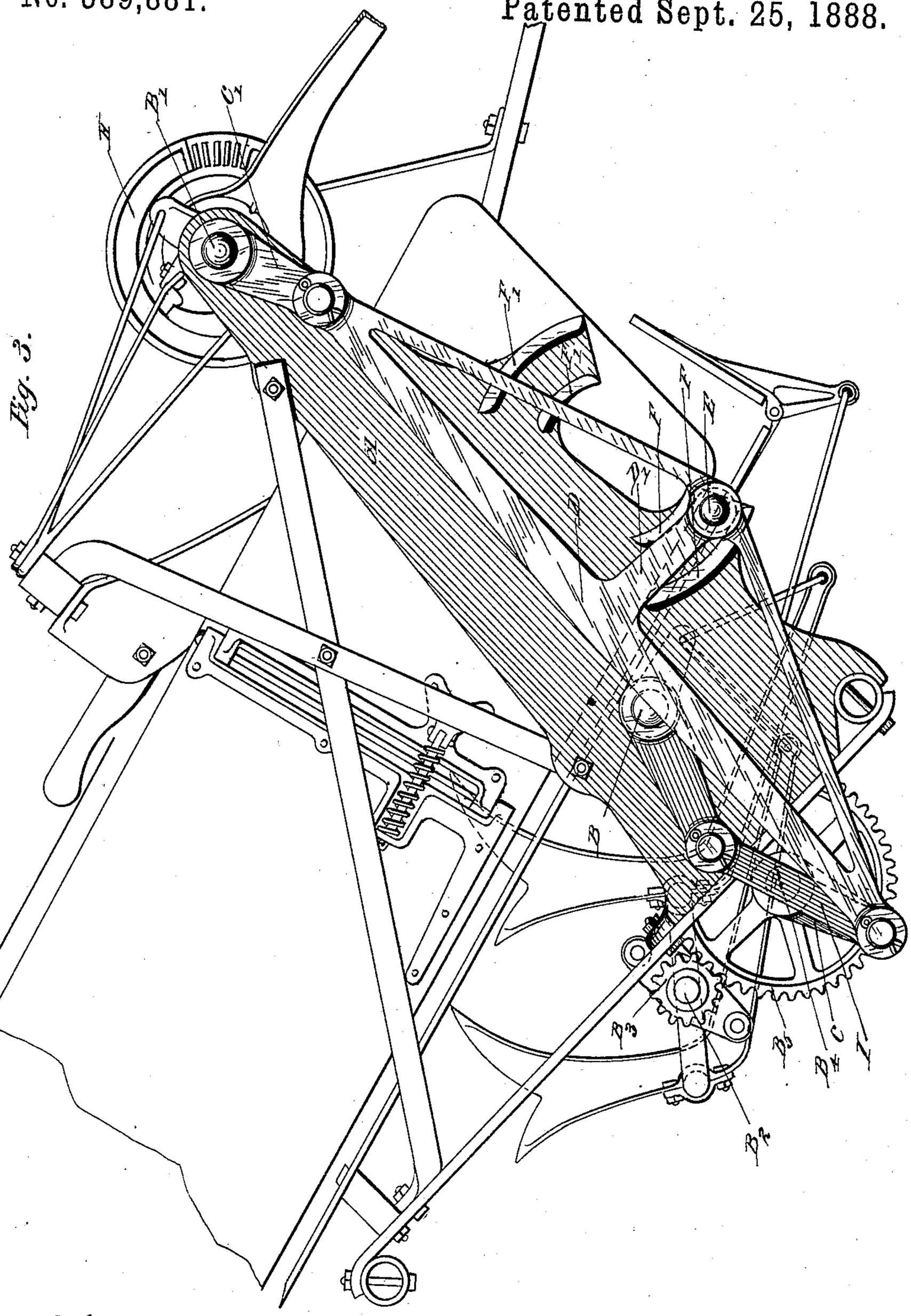
Fig. 3.



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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. 389,831, dated September 25, 1888.

Application filed April 30, 1888. Serial No. 272,232. (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, novel, and useful Mechanical Motion, more especially adapted to harvester binder machinery, but which will be found valuable for many purposes.

The following is a full and complete description of our invention, and will enable any one skilled in the art to construct and use the same, reference being had to the accompanying drawings, which form 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 we have produced a new motion that may be successfully used for other purposes.

Our invention consists in attaching two cranks together by a single pitman, so that the revolution of one rotates the other in the same direction positively and at a uniform rate of speed at every point, and combining with the same guideways for controlling the pitman, as will be hereinafter more fully described. These objects we attain by the mechanism set forth in the specification and illustrated by the accompanying drawings.

Figure 1 is a perspective view of a frame on which are mounted two parallel shafts, with a crank mounted on the outer end of each shaft, said cranks being connected by a single pitman having an arm extending at right angles from it, there being a roller on the end of said arm, which runs in guideways that control the pitman and cause it to rotate the driven crank positively in the same direction with the driver, as set forth and claimed. Fig. 2 is a view showing the movement of the cranks and pitman and relation of the guideways in controlling the pitman and cranks in passing dead-centers. Fig. 3 is an elevation of a binder, showing now this invention may be applied to a grain-binder to operate the needle-shaft and communicate motion to the tying mechanism.

A is the frame upon which the two shafts B and B′ are mounted.

C and C′ are the cranks mounted upon the shafts or journals B and B′.

D is the pitman carrying a projection which is situated out of the line which passes through the crank-pins. An arm, D′, is attached to and extends outward at right angles from the pitman. The projection consists, in the construction shown, of a stud, E, on outer end of the arm D′, and carrying a roller, E′.

F and F′ are the guides or helpers that control the pitman in passing the dead-centers, situated so that the roller will bear against one or the other of them when the cranks are on the dead-centers. The dotted lines show the cranks on the upward dead-centers as the cranks are being rotated. The roller is in the upper guideway, to govern the pitman so as to make the motion and direction of the driven crank positive and uniform with the driver and move in the same direction.

G is a chain-pulley on shaft B, to show a way of driving the crank C. If shaft B is the driving-shaft, and be supposed to rotate to the left in Fig. 2, it will be seen that when the parts are on the dead-center, as seen in dotted lines, the lower of the two guides F′ F′ will maintain the proper position of arm D′ and prevent the reversal of shaft B. On the other hand, if shaft B be supposed to revolve to the right in said figure, the upper of guides F′ will prevent that turning of the pitman which must accompany a reversal of shaft B′. On the lower dead-center the guides or helpers F F operate in an analogous manner. If B′ be the driving-shaft and turn to the left, the upper of helpers F′ F′ will prevent the reversal of shaft B, and so correspondingly with the other helpers.

B′, Fig. 3, shows shaft on which the tyer-wheel H is mounted, crank C′ being mounted upon the same shaft.

B^2 in Fig. 3 represents the packer-shaft of binder, and B^3 the spur-pinion mounted on it.

B represents shaft or journal of cog-wheel B^5, upon which crank C is mounted.

I is the link that connects crank C to the crank of the needle-shaft B^4.

Pitman D in Fig. 3 is shown with the arm D′ braced in both directions, simply to show that the pitman can be made in any special form either for strength or convenience.

Motion is imparted to the packer-shaft by any of the well-known devices, and from that to crank C, which in turn operates the needle-arm by link I and shaft B^4, and communicates motion to the knotting mechanism through pitman D and crank C'.

The binder being a "Champion" of the well-known type, we have no claim to make upon that as a binder, only showing it for the purpose of applying our invention to a grain-binder.

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

1. The combination, with the two shafts having the cranks, of a pitman connecting said cranks, a projection on said pitman and out of the line of the crank-pins, and the guides or helpers beside the path of said projection at the points where the latter comes at the times when the cranks are on the dead-center, substantially as set forth.

2. The combination, with the packer-shaft of a grain-binder, the shaft of the knotting mechanism, and their cranks, of a pitman connecting said cranks and provided with a projection situated out of the line of the crank-pins, and guides or helpers situated beside the path of said projection, substantially as set forth.

In testimony whereof we hereunto set our hands and affix our seals this 5th day of April, A. D. 1888.

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

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