(No Model.)

P. F. HODGES.

GRAIN BINDER.

No. 315,288. Patented Apr. 7, 1885.

Fig. 1.

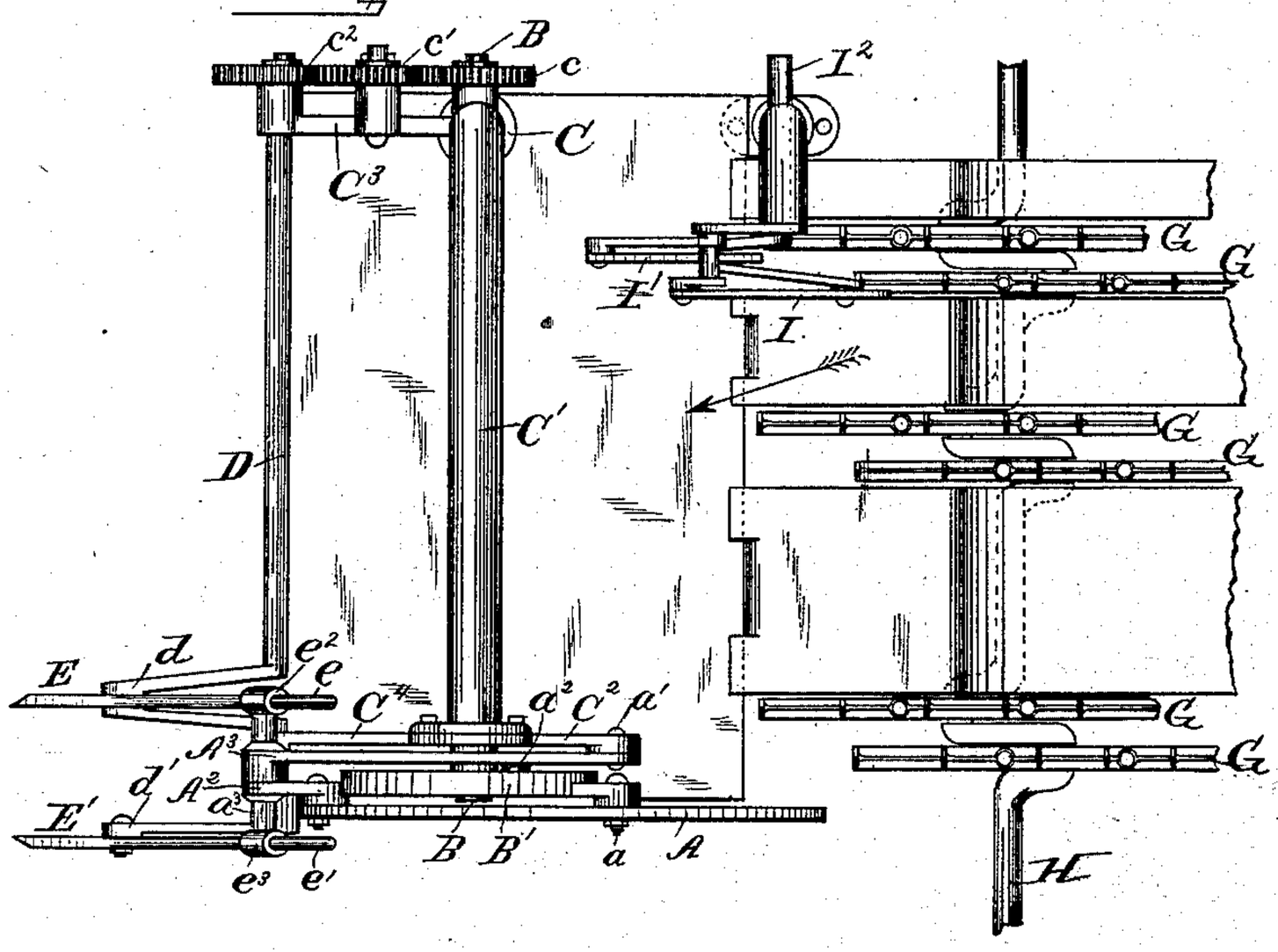
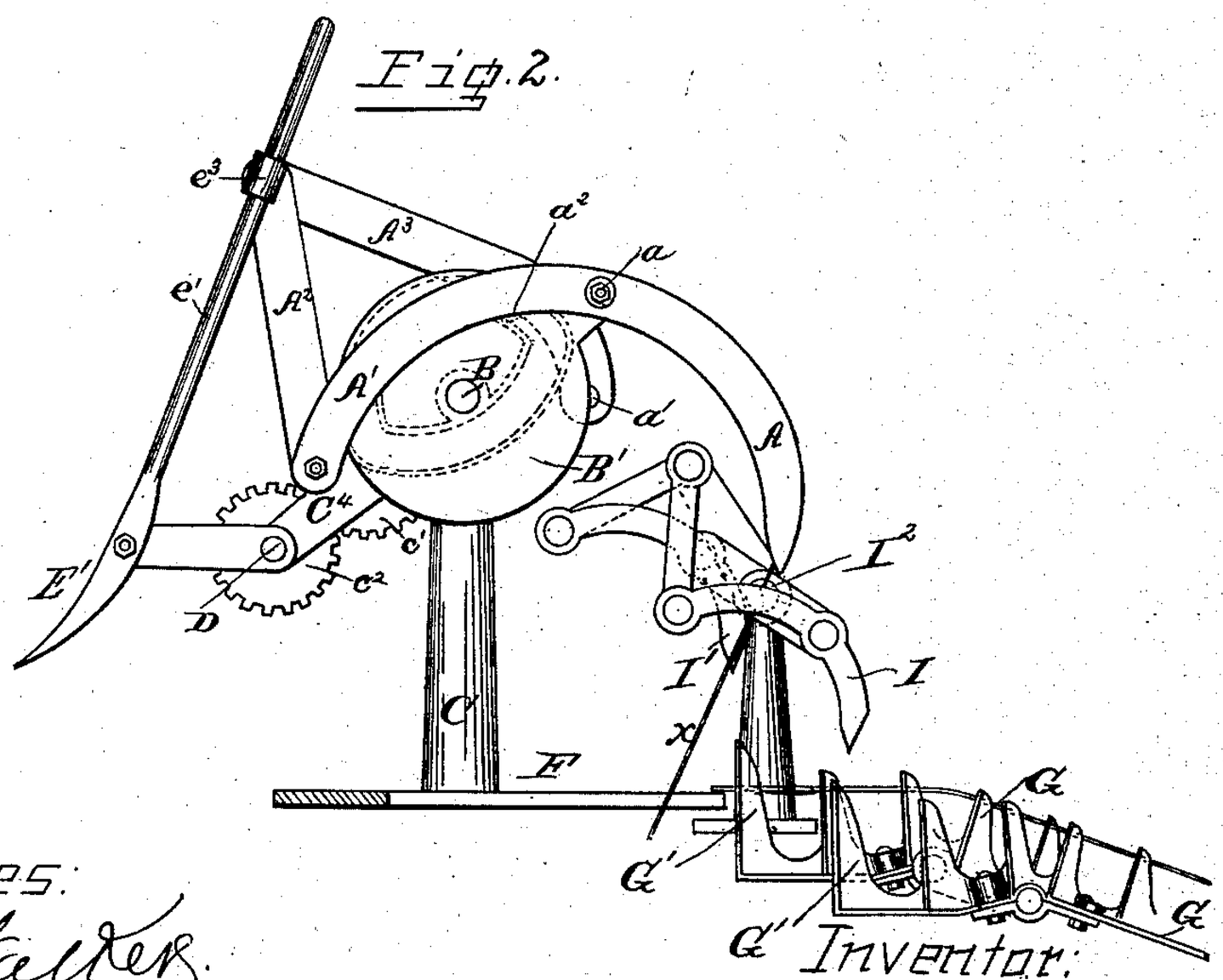


Fig. 2.



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UNITED STATES PATENT OFFICE.

PLINY F. HODGES, OF CHICAGO, ILLINOIS.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 315,288, dated April 7, 1885.

Application filed September 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, PLINY F. HODGES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain-Binders; and I do hereby 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.

This invention relates to that class of self-binding harvesting-machines in which the binding wire or cord is applied around the bundles of grain by a so-called "binding-arm," and from which the bound bundles of grain are ejected by a so-called "discharging-arm," one or more, operating from above the bundle-supporting platform, or so-called "binder-table," as distinguished from that class of machines in which the discharging-arm operates from below through a slot in the binder-table.

My improvement, designed for machines in which is used an orbitally-moving binding-arm operating from above the binder-table, consists in so combining a discharging-arm, one or more, with such binding-arm that an orbital movement is also imparted to the discharging-arm.

In order that my invention may be clearly understood, I will describe it as applied to a machine operating with a binding-arm substantially such as described in United States Letters Patent No. 255,985, granted to me on the 4th day of April, A. D. 1882.

Figure 1 is a plan view of so much of a self-binding harvesting-machine as is required to illustrate my invention in connection with said patented binding-arm. Fig. 2 is an end elevation of the same.

The same letters of reference indicate identical parts in both the figures.

The binding-arm A is pivoted to a crank-pin, *a*, on the crank-disk B′, fixed to the extreme outer end of the binder-shaft B, and is constructed with a rear extension, A′, which is connected by a link, A^2, to an oscillating lever, A^3. This lever A^3 is fulcrumed at *a′* to a bracket-arm, C^2, on the tubular overhanging arm C′, which supports the binder-shaft, and it is provided with a laterally-projecting stud carrying an anti-friction roller, a^2, which enters a cam-groove in the back of crank-disk B′. The cam-groove (shown in dotted lines in Fig. 2) oscillates lever A^3, which, through link A^2 and the rear extension, A′, rocks the binding-arm on crank-pin *a* as the latter carries it around in the rotation of disk B′, so that the binding-arm moves in the manner described in my aforesaid patent. The discharger-shaft D is journaled in bracket-arms C^3 and C^4, projecting from the standard C and tubular overhanging arm C′, respectively, and is driven in this instance by a train of spur-wheels, *c c′* c^2, from the binder-shaft. I employ two orbitally-moving discharging-arms, E and E′, respectively pivoted to the cranks *d* and *d′* of the discharger-shaft, so that they are on opposite sides of the binding-arm. Each discharging-arm is constructed with an extension or stem (marked *e* and *e′*) respectively. These stems *e* and *e′* pass through eyes e^2 and e^3 on the opposite ends of the loose pivot-pin a^3, which connects link A^2 and lever A^3.

It will be readily observed that in consequence of the described connections of the discharging-arms they will travel in an orbit-path, so as to maintain a position substantially vertical to the binder-table in sweeping a bundle of grain from it. This action may be effected by known means other than those described, although, when used in connection with my aforesaid patented binding-arm, I prefer to combine the discharging-arms therewith in the manner described for the sake of simplicity.

In the machine illustrated (in part) the grain delivered from the grain-platform (only the delivery end F of which is shown) is packed against the binding cord or wire *x* by packers G′, which are the last teeth on the toothed carrying-bars G, by which the grain is moved across the grain-platform toward the binder-table, and which have a compound reciprocating and vibrating motion imparted to them by the crank-shaft H.

At the forward end of the binder-table and adjacent to the delivery end of the grain-platform is a butt-rake or butt-hastener composed of a pair of rotating fingers, I I′, driven by a crank-shaft, I^2, which overhangs the grain-passage in substantially the manner illustrated. This butt-hastener, which is driven at a higher speed than the packers G′, swings the grain in the direction indicated by the arrow

in Fig. 1, so that in effect the grain is moved in an obliquely-rearward direction in the act of packing it into a bundle or sheaf.

I claim as my invention—

The combination, substantially as before set forth, of the binding-arm, an oscillating lever connected by a link to the heel of said binding-arm for controlling the movement of the same, and an orbitally-moving discharging-arm the stem of which is controlled by the pivot-pin connecting said oscillating lever and link.

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

PLINY F. HODGES.

Witnesses:

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