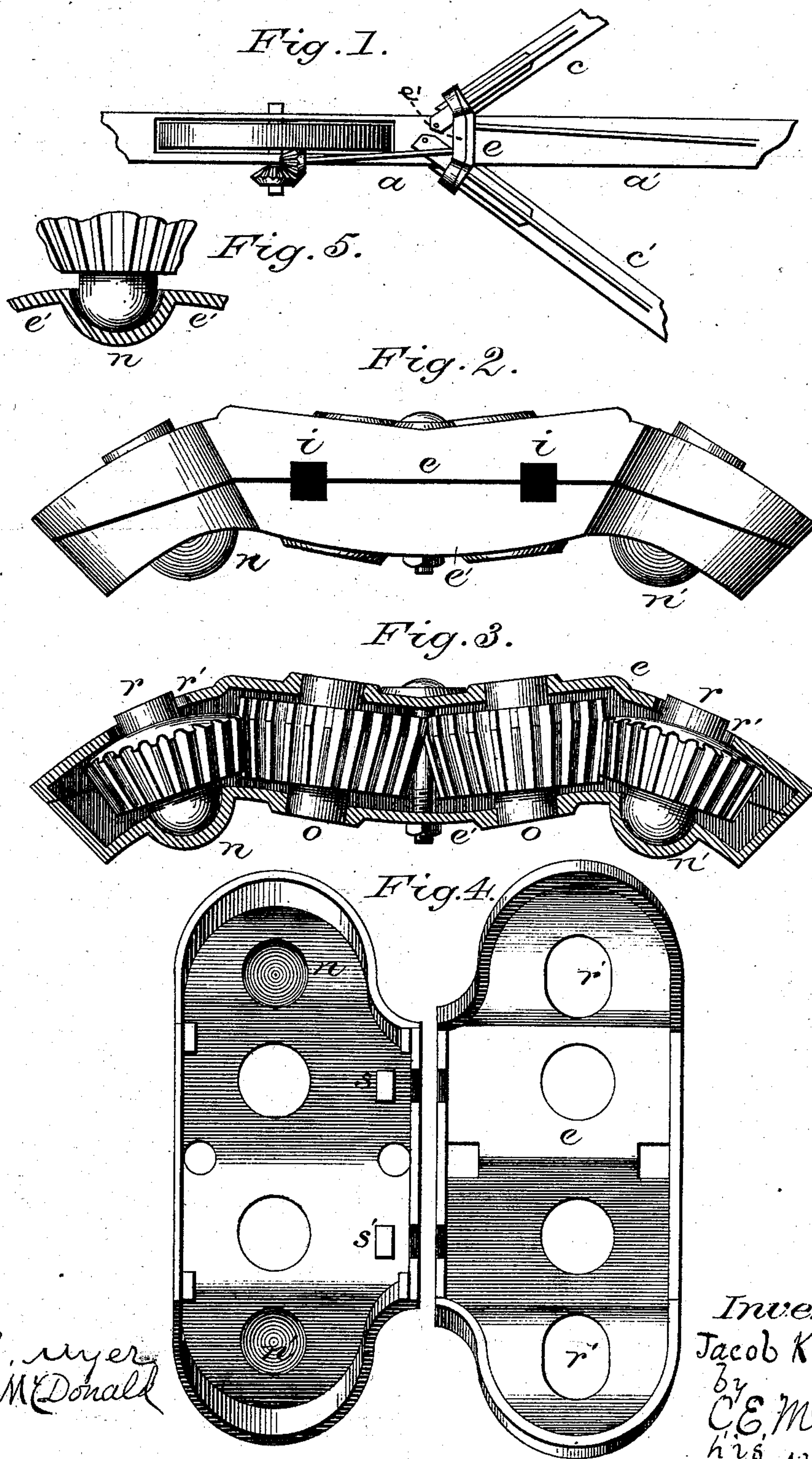


J. KING.
Gearing for Grain Drills.

No. 237,390.

Patented Feb. 8, 1881.



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by
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UNITED STATES PATENT OFFICE.

JACOB KING, OF INDIANAPOLIS, INDIANA.

GEARING FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 237,390, dated February 8, 1881.

Application filed June 25, 1880. (Model.)

To all whom it may concern:

Be it known that I, JACOB KING, of the city of Indianapolis, county of Marion, and State of Indiana, have invented an Improvement in Gearing for Grain-Drills, of which the following is a specification.

The nature and object of the invention will be fully understood from the following general description and the accompanying drawings.

Figure 1 of the accompanying drawings is a top view of part of a main drill with my device fastened on it. Fig. 2 is an edge view of the case in which my device is inclosed; Fig. 3, a sectional view of the same case with the gear-wheels in it; Fig. 4, an inside view of both halves of the same case; Fig. 5, a detail view of the ball-and-socket joint, hereinafter to be described.

In a case of cast metal of the form shown by *e e'* of Figs. 2, 3, and 4 are placed four beveled wheels, *r, o o*, and *r*. *r* and *r* are straight deep-cut beveled wheels. *o* and *o* are deep-cut wheels, which are beveled both ways with straight bevels. One part of this double bevel of *o* and *o* engages *o* and *o* together. The other part of the bevel engages *o* and *o* with *r* and *r*, as shown in Fig. 3 of said drawings. *o* and *o* are mounted in straight rigid bearings in the case *e e'*. *r* and *r* are mounted in the case *e e'* as follows:

At *n* or *n'* there is a ball-and-socket joint. The ball is on the end of the axle, and forms the journal at the small end of the wheel *r*. The socket is in the half *e'* of the case *e e'*. The other end of the axle of said wheels *r* consists of a straight journal, which is mounted in the slot *r'*, as shown in Figs. 3 and 4. In the center of each of these four journals is cast a square hole of convenient size, running through the whole length of the axle.

At *i* and *i* are square holes, cast in said case to accommodate bolts for fastening said device to the beam of a grain-drill. To prevent these bolts from slipping up against and marring the gearing while the device is being put on the drill, the lugs *s* and *s'* of Fig. 4 are cast on the half *e'* of said case *e e'*. The two halves of said case are secured together by convenient bolts, the whole device to be as shown in the drawings.

To use this device it is bolted firmly on one edge on the beam or central bar of a grain-drill, with the concave side *e'* of the case forward. A shaft passes from a bevel-wheel engaged by a bevel-wheel on the shaft of the driving-wheel to the square hole in the axle of one of the wheels *o*, and communicates motion to the entire train of wheels inclosed in the case *e e'*. Another shaft passes backward in the same way from the other wheel *o* to the feed-wheel of the middle grain-box. Another shaft passes in the same way backward from each of the wheels *r* and *r*, along the wing-beams of the grain-drill, to the feed-wheels of the side boxes, so that when the driving-wheel begins to move not only does it communicate its motion to the train of wheels in the case *e e'*, but also, by means of said shafts, to the feed-wheels of all three grain-boxes. It will now be found that the front ends of the shafts from the outside grain-boxes to the wheels *r* and *r* rest on the ball-and-socket joint of *r* and *r* as on pivots, and that, the other end of the axles of the wheels *r* and *r* being free to move a little laterally in the slots *r'* and *r'*, the side boxes and the beams on which they stand may be swung around laterally through an arc of several degrees without in any way affecting the working of the machine; and thus, in drilling grain, the rows may be made wide or narrow, at pleasure. The machine will work equally well in either position. The teeth of *r, o o*, and *r* are cut so deep that in any of said positions the lap will be sufficient for the work they have to do.

I do not claim to be the inventor of a ball-and-socket joint; nor do I claim the general use thereof; nor do I, for the purposes of this application, claim any of the devices claimed in Patent No. 138,166, which was granted to me on the 22d day of April, 1873, for an improvement in grain-drills; nor do I, for the purposes of this application, claim any of the devices claimed in Patent No. 149,674, which was granted to A. N. Norris on the 14th day of April, 1874, for an improvement in grain-drills; but

What I do claim is—

1. In a grain-drill, the combination of the bevel-pinions with the ball-and-socket joint *n* *n'*, with the case *e e'*, having the slots *r r'*, con-

structed and operating substantially as specified.

2. In a grain-drill, the combination, with the gears, as described, of the case *e e'*, having the
5 lugs *s s'*, constructed and operating substantially as and for the purpose set forth.

In testimony that I claim the foregoing speci-

fication I have hereunto set my hand this 3d day of February, 1880.

JACOB KING.

Witnesses:

F. M. McDONALD,
O. C. MEYER.