

J. BORDWELL.
Harvester.

No. 205,235.

Patented June 25, 1878.

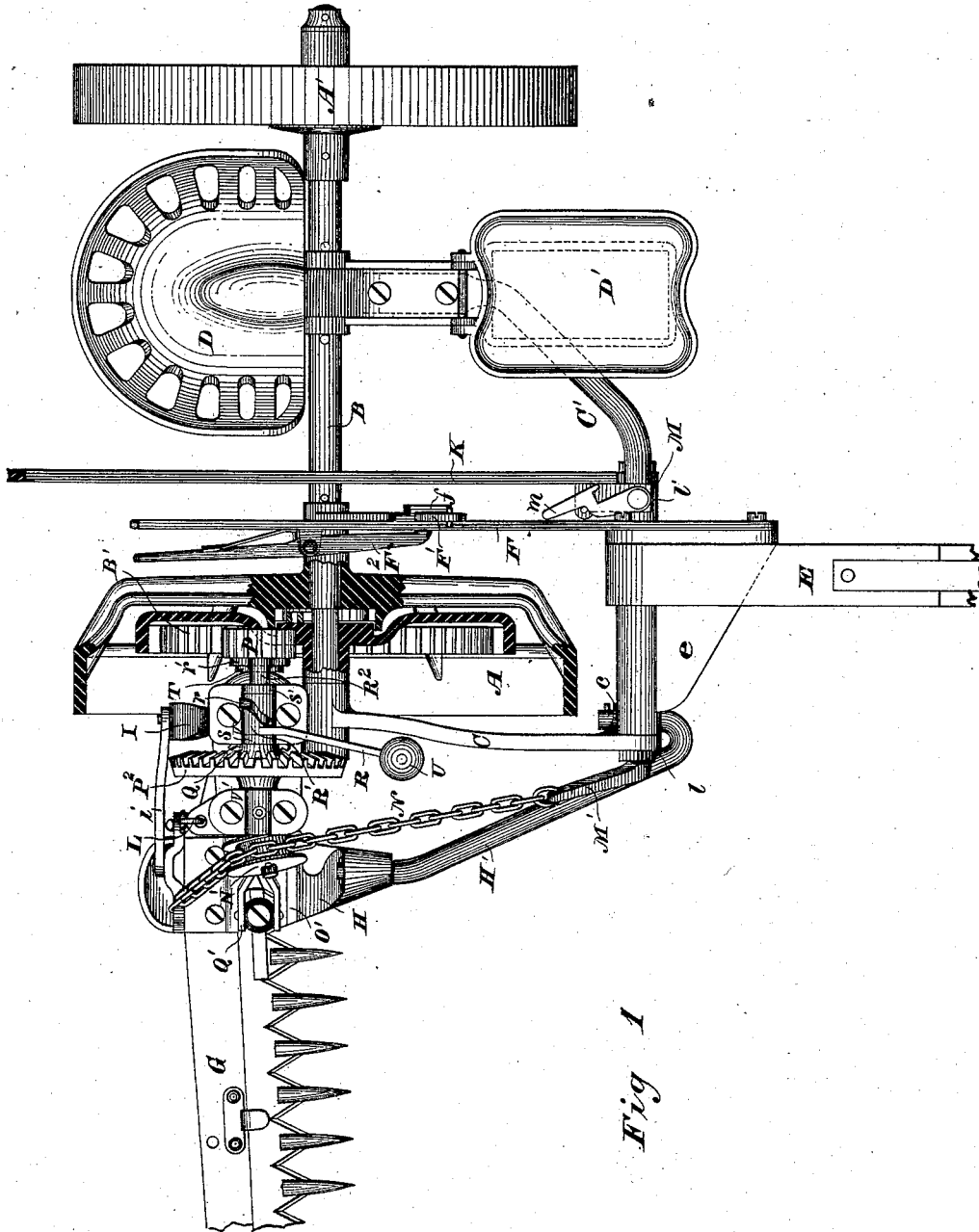


Fig 1

WITNESSES

Wm a Skinkle
Geo. W. Breck.

INVENTOR

Joseph Bordwell

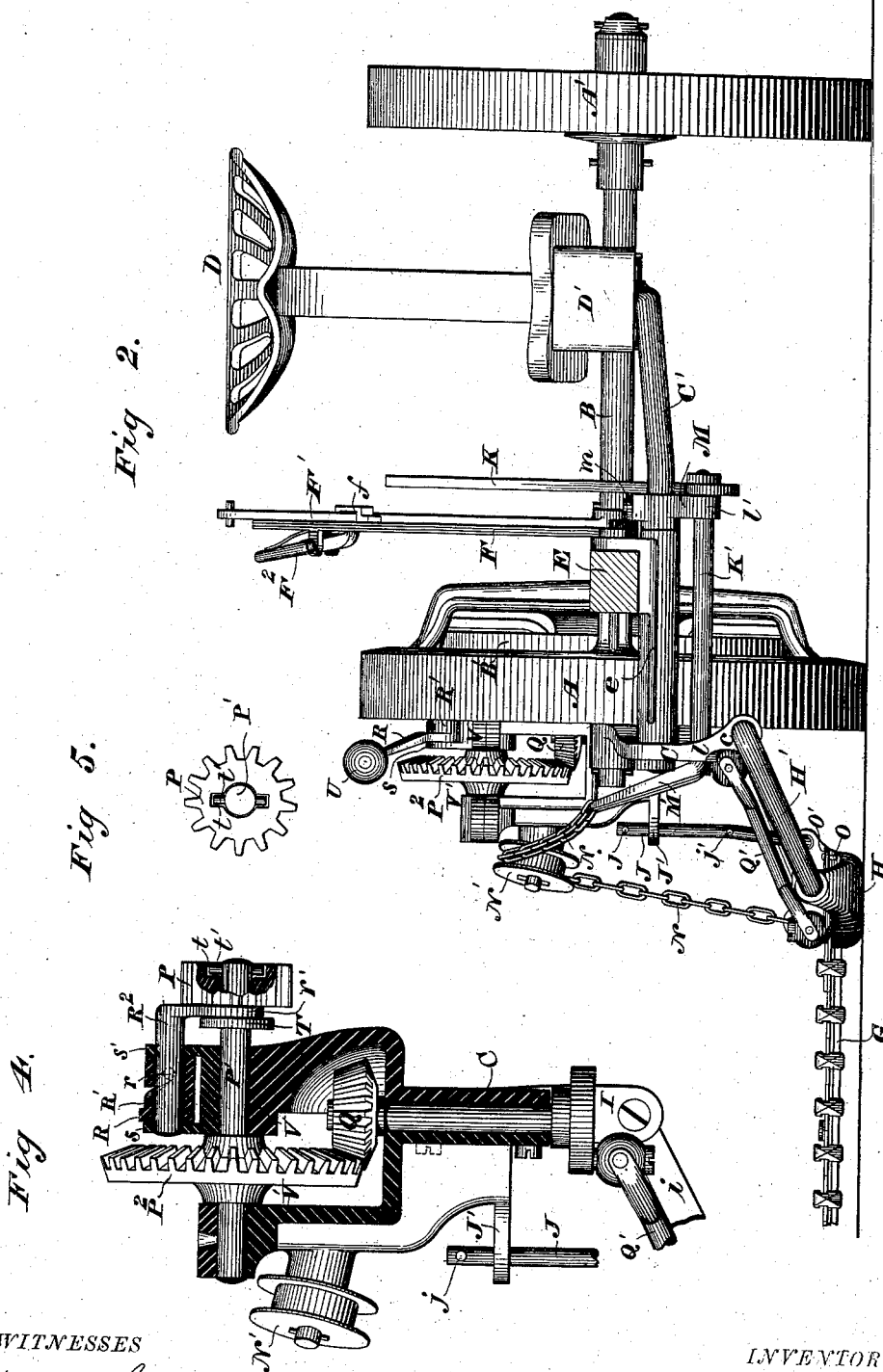
By his Attorneys

Galvin, Hopkins & Taylor

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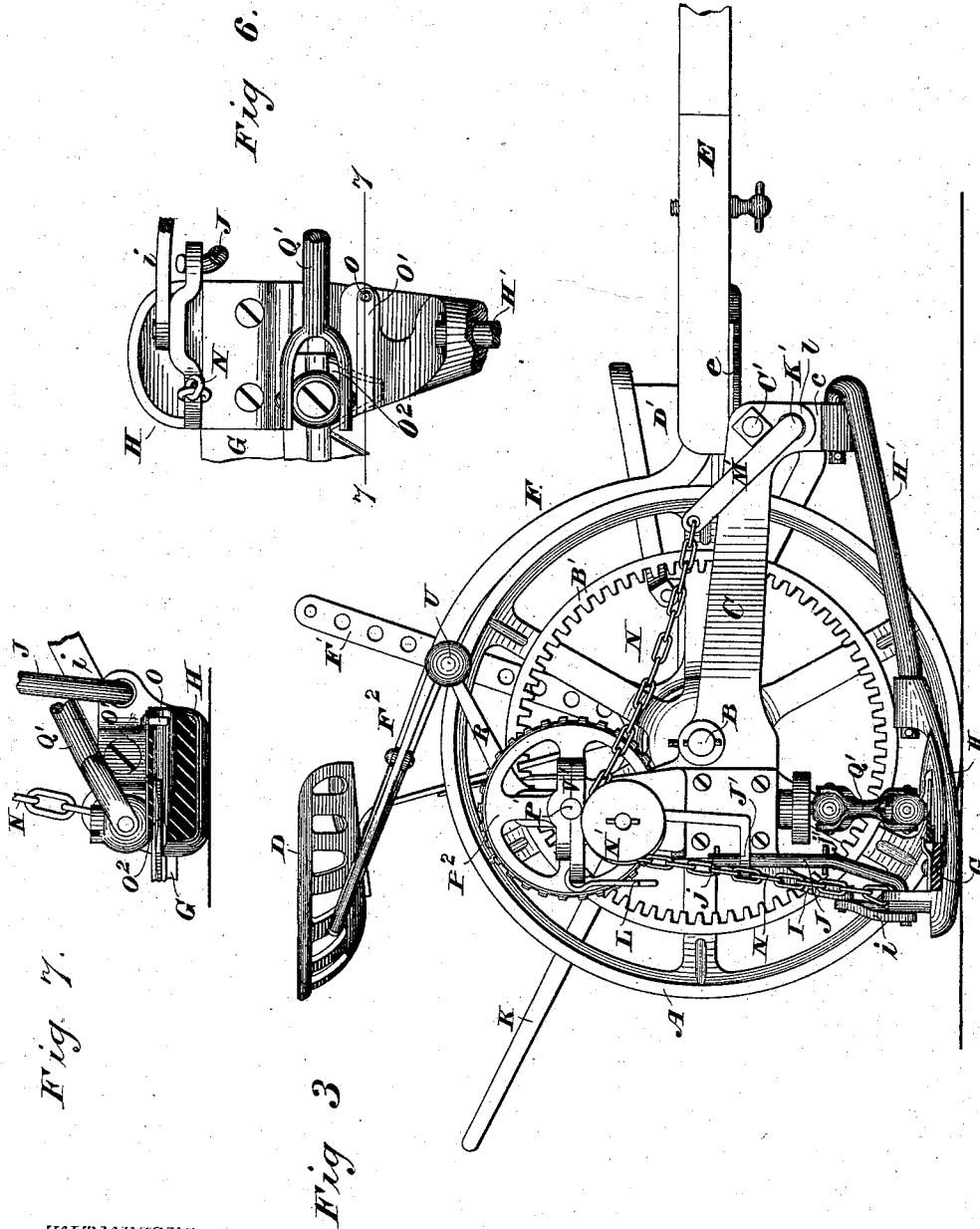


Fig. 7.

Fig. 3

Fig. 6.

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UNITED STATES PATENT OFFICE.

JOSEPH BORDWELL, OF BROCKPORT, NEW YORK, ASSIGNOR TO DAYTON S. MORGAN, OF SAME PLACE.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 205,235, dated June 25, 1878; application filed April 22, 1878.

To all whom it may concern:

Be it known that I, JOSEPH BORDWELL, of Brockport, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Mowing-Machines, of which the following is a specification:

My invention relates to improvements in that class of two-wheeled hinge-joint mowing-machines having the cutting apparatus in the line of the driving-wheel, and resembles, in general respects, the invention shown and described in Letters Patent of the United States granted to Wm. H. Seymour, March 28, 1876, No. 175,511. My objects mainly are to improve said patented machine.

The subject-matter claimed hereinafter specifically will be designated.

In the accompanying drawings, Figure 1 is a plan or top view of the machine, with the driving-wheel and internal spur-gear in section to show the gearing; Fig. 2, a front elevation thereof; Fig. 3, a view in elevation, seen from the inner, grain, or cutting-apparatus side of the machine, with the cutting apparatus in section; Fig. 4 is an enlarged view, showing a front elevation of the gearing and adjacent portion of the machine, with parts in section; Fig. 5, a similarly-enlarged view, showing the end of the counter-shaft and the shifting-pinion thereon; Fig. 6, an enlarged view, showing the shoe in plan and the adjacent portions of its connections; Fig. 7, a section on the line 7 7 of Fig. 6.

Two driving-wheels, A A', are mounted upon a main axle, B, and connected therewith by backing-ratchets. The inner drive-wheel A is dish-shaped, and surrounds a portion of the driving-gearing. The backing-ratchet connection between the wheel A and axle is through or by way of an internal spur-gear, B', which is fast upon the axle and independent of said wheel. The axle is supported in bearings in the outside main frame bar or piece C and the inside bent rod or main frame bar C'. The driver's seat D and foot-board and tool-box D' are mounted on the frame-bar C'. The tongue E is bolted to the tongue-plate e, pivoted to rock on the inner main frame-bar C'. A rocking lever, F, secured rigidly to the rear end of the tongue, is pro-

vided with an eye, f, movable freely endwise upon a rocking post, F¹, on the main axle. The lever is locked at any desired elevation by the spring-detent F². The finger-beam G is secured to the shoe H, the toe of which is attached by a swivel-joint to a drag-bar, H', connected by a swivel-joint to a down-hanger, c, on the piece C, below the bar C' of the main frame. The rear end of the shoe is connected by a link, i, to a down-hanger, I, from the frame-bar C. A link, J, pivoted to a lug on the shoe, moves endwise through a bracket, J', on the frame, and is provided with a stop, by which it may be prevented from descending below a given point when the machine is in operation, and which serves also (when the cutting apparatus is elevated) to hold the shoe above the ground for transportation. The stop to limit the downward movement of the link, as shown, consists of a pin, j, projecting transversely through the link near its top above the bracket J'. The stop may be made adjustable by providing several holes in the link, through any one of which the pin may be passed, according to the distance it is desired to hold the heel or shoe end of the cutting apparatus above the ground, either when at work or when elevated.

All the parts, so far as described above, are, both in construction and mode of operation, the same as, or substantially similar to, the corresponding parts of the machine shown and described in the before-mentioned patent of Wm. H. Seymour.

The finger-beam, when turned up toward the main frame, may be locked by a hook, L, as in said Seymour's patent.

Instead of the lifting devices shown and described in the above-referred-to patent to Seymour, I employ a lever, K, rocking in a vertical path transverse to the finger-beam, and at the side of and close to the driver's seat. This lever is secured to the inner end of a rock-shaft, K', which is mounted in bearings l l', the outer one formed in the main-frame down-hanger c, and the inner one in the pendent portion or down-hanging part of a bracket, M, fast on the frame-rod C', at the inner side of the tongue. The rock-shaft extends crosswise of the tongue beneath the

plate *e*, and parallel with the outer end of the bent rod *C'*. Obviously this rock-shaft might be supported in bearings formed with the tongue-plate. At its outer end the rock-shaft is formed with an arm or crank, *M'*, to which is secured one end of a chain or other flexible connection, *N*, which passes over a pulley, *N'*, revolving on a stud-shaft projecting from the gearing-supporting portion of the main frame outside the driving-wheel *A*, and is then connected to a lug on the rear of the shoe *H*. The pulley is inclined so as to rotate in a path parallel with the line of movement of the lifting-chain. The link *J*, before mentioned, is straight, or nearly so, for about half or a little more than half its length, and is then bent outward and backward to the lower end. A stop-pin, *j'*, limits the upward movement of the link.

From the above description, and by reference to the drawings, it will be seen that in operation the driver, by throwing forward the lever *K*, first lifts the heel or shoe end of the cutting apparatus until the stop *j'* strikes the bracket *J'*, if it is desired to lift the shoe to this extent. A continued forward movement of the lifting-lever throws up the divider end of the cutting apparatus, and lifts the finger-beam bodily to a position in which the divider is raised considerably above the shoe. The cutting apparatus may be held in this position by a pivoted horizontally-swinging catch, *m*, pivoted on the top of the bracket *M*, and provided with a hook, which engages the lifting-lever at its rear and holds it, and through it the finger-beam. When the finger-beam is thrown up vertically the link *J* slides downward in the bracket to lower the shoe sufficiently far to enable the hook *L* to engage the finger-beam. It will thus be seen that the lever *K* serves to rock the finger-beam on its hinged connections with the main frame at the heel end only, if desirable; then to throw up the outer end of the finger-beam; and, finally, to keep the chain taut when the finger-beam is folded up to the side of the machine.

To prevent the cutter-bar from sliding or dropping out of place when the finger-beam is inclined or folded up, and yet admit of the withdrawal of the cutter-bar when desired, I provide a stop on the shoe, against which the heel end or last cutter-blade of the knife abuts when the cutting apparatus is elevated. This stop consists of a pin, *O*, secured to a spring, *O'*, and projecting through an opening in the cutter-guideway on the shoe, so as to be in line with the cutters. (See Figs. 6 and 7.) The inner cutter-blade or knife-section *O''* is preferably cut away at its edge which strikes against the pin, so as to prevent it from cutting or wearing the stop. Normally the stop is held in its working position by the plate-spring *O'*, which is secured at its end opposite that from which the stop projects upon the shoe. The spring, at its free end, may be forced up to withdraw the stop when the knife-bar is to be removed or inserted in place.

The internally-toothed gear *B'* drives the pinion *P* on the counter-shaft *P'*, to which is fastened the bevel-gear *P''*, for driving the crank-shaft pinion *Q*, and the cutters through the pitman *Q'*, and its connections, as shown and described in the patent of Seymour before referred to.

Instead of the mechanism for throwing the cutters into and out of operation described in said patent, I make use of the following devices: A weighted rocking lever, *R*, is provided with a sleeve or collar, *R'*, having a serpentine groove or cam-slot in it, and turning about an endwise-moving rod, *R''*. This rod is provided with a lug or pin, *r*, which enters the slot in the lever-collar, which collar is prevented from moving endwise by bracket-lugs *s s'*, between which the collar is mounted. The shaft *R''* is mounted in bearings in these bracket-lugs above the counter-shaft, so as to be capable of movement endwise parallel with the counter-shaft. At its inner end the rod *R''* is bent downward and forward with a fork or clutch-yoke, *r'*, which engages a collar, *T*, on the loosely-mounted pinion *P* of the counter-shaft. The clutch engages the pinion-sleeve between the pinion and flange or head of the sleeve, so that the endwise movement of the yoke-rod is imparted to the pinion. A suitable notch or a cross-cut, *t*, in the pinion *P* is engaged by an interlocking lateral projection or pin, *t'*, on the counter-shaft, when it is desired to engage the shifting pinion *P* with this shaft. By rocking the lever *R* forward the pinion is engaged with the counter-shaft, and held so against accidental displacement by the weight *U*, and by rocking it in the opposite direction the shifting pinion is moved away from the end of the counter-shaft and disengaged therefrom. Endwise movement of the counter-shaft is prevented by the bevel-gear *P''*, the hub of which is inclosed and fits snugly between the uprights *V V'* of the gear-supporting portion of the main frame. The driver from his seat can quickly throw the cutters into or out of operation by shifting the pinion, which at all times rotates in contact with the internal or main gear.

I claim as my own invention—

1. The combination, substantially as hereinafore set forth, of the main frame, the cranked rock-shaft mounted in bearings at the front of the main frame, and crossing it transversely to and beneath the tongue in advance of the driving-wheel, the lifting-lever secured to one end of the rock-shaft, the chain secured to the crank at the outer end of the rock-shaft outside the main frame, the pulley on the gearing portion of the main frame, outside the driving-wheel and above the shoe, over which pulley the chain passes, and the hinged cutting apparatus.

2. The combination of the frame-bar *C*, the bent frame-rod *C'*, the down-hanger *e*, the bracket *M*, the cranked rock-shaft mounted in bearings beneath the heel of the tongue in said down-hanger and bracket, the lifting-

lever at the inner side of the tongue, and a flexible connection between the crank of the rock-shaft and the cutting apparatus, these members being constructed and operating substantially as hereinbefore set forth.

3. The combination of the driving-wheel, the main internally-toothed gear, the gearing-supporting portion of the main frame outside the driving-wheel, the counter-shaft, the shifting pinion movable endwise thereon, and at all times meshing with the main gear, the stop on the counter-shaft end interlocking with the pinion, the endwise-moving clutch-rod engaging the pinion, the weighted shifting-lever, its slotted collar turning above the

clutch-rod between its supporting-brackets, the pin on this clutch-rod engaging the slot in the lever-collar, the bevel-pinion on the counter-shaft, the upright crank-shaft, and its pinion, these members being constructed and operating substantially as hereinbefore set forth.

In testimony whereof I have hereunto subscribed my name.

JOSEPH ^{his} × BORDWELL.
mark.

Witnesses:

E. T. LAMB,
HENRY HARRISON.