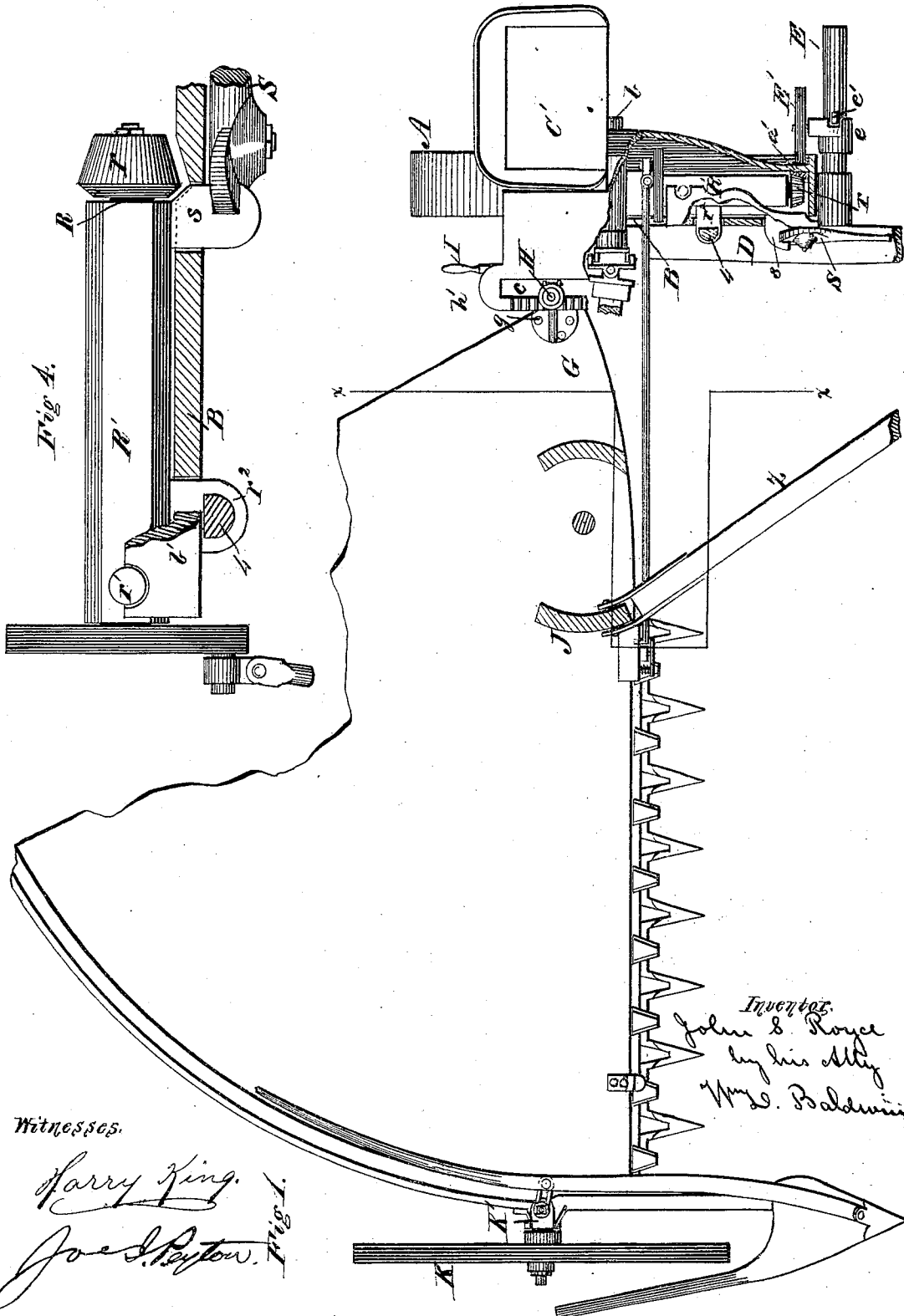


J. S. ROYCE.
Harvesters.

No. 148,327.

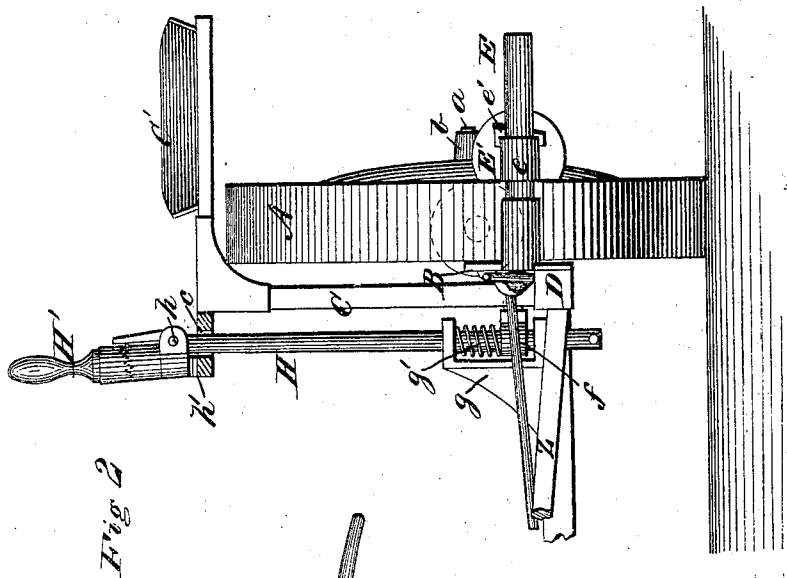
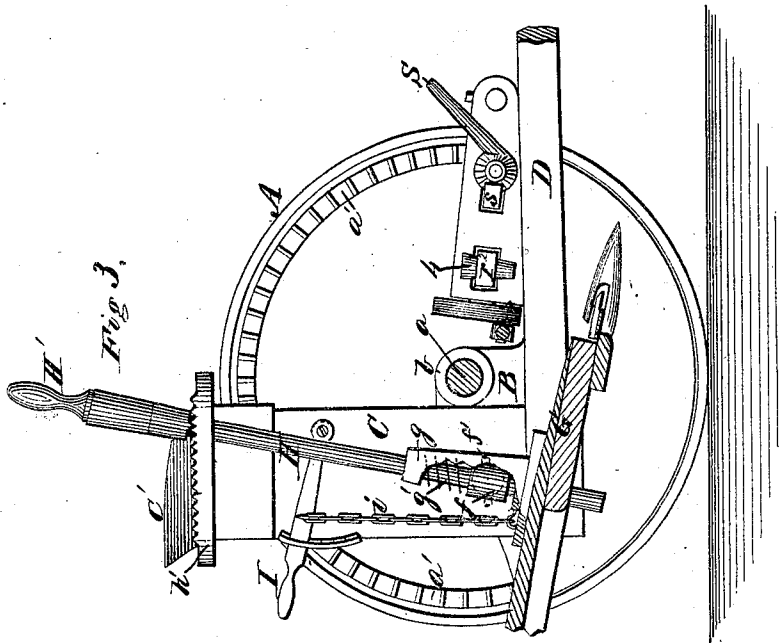
Patented March 10, 1874.



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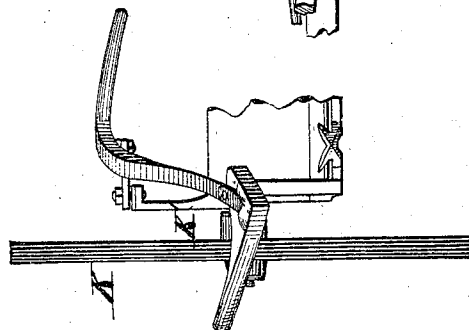
No. 148,327.

Patented March 10, 1874.



Witnesses.

Harry King
Joel Peyton.



Inventor.
J. S. Royce
by line atty
W. D. Baldwin

UNITED STATES PATENT OFFICE.

JOHN S. ROYCE, OF CUYLERVILLE, NEW YORK.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **148,327**, dated March 10, 1874; application filed January 21, 1874.

CASE B.

To all whom it may concern:

Be it known that I, JOHN SEARS ROYCE, of Cuylerville, in the county of Livingston and State of New York, have invented certain new and useful Improvements in Harvesters, of which the following is a specification:

In the accompanying drawings, all my improvements are shown as embodied in the best way now known to me. Obviously, however, some of these improvements may be used without the others, and in machines differing in construction and organization from the one shown.

The subject-matter claimed is hereinafter specified.

Figure 1 represents a plan view, partly in section, of so much of my improved machine as is necessary to illustrate the subject-matter herein claimed; Fig. 2, a front elevation thereof; Fig. 3, a side elevation thereof, partly in section, on the line *xx* of Fig. 1, the drag-bar being omitted; Fig. 4, a plan of the frame-plate and gearing-supports, partly in section.

A solid-plated dish-shaped driving-wheel, *A*, is fixed on a stud axle or shaft, *a*, which turns in a box or journal, *b*, on a plate, *B*, preferably of metal, arranged vertically within the plane of the wheel, to which its periphery conforms in outline, thus forming a shield to prevent dirt or other matter from entering the wheel and clogging the gearing. This plate, it will be observed, virtually constitutes both the main and gearing frames of the machine. A post or standard, *C*, secured upon the frame-plate *B*, supports a seat, *c'*, for the driver. This seat, being outside the plane of the main driving-wheel, the weight of the driver, when in it, tends to increase the pressure upon the driving-wheel while diminishing the weight upon the divider side of the machine. A tongue, *D*, is bolted to the frame-plate *B* at a point below the level of the axle, and as near the ground as practicable to secure an upward draft. An arm, *E*, inserted in a socket in the frame-plate, projects across the driving-wheel. A bearing-wheel, *E'*, is mounted on a socket-bracket, *e*, which slides on this arm and is fastened thereon by a notch and wedge, *e'*, thus counteracting the thrust of the gearing. This notch-and-pin fastening admits of the ready removal and

replacement of the bearing-wheel. A rocking trunnion, *f*, is mounted in bearings in the frame-plate *B* and fastened by a key, *f'*. A finger-beam, *G*, of any suitable well-known construction, carries on its inner or heel end a bifurcated bracket, *g*, through holes in which a rod or rocking-bar, *H*, passes, thus uniting the finger-beam to the main frame. The rocking-bar passes through the rocking trunnion, to which it is fastened, so that both rock together. The upper end of this rod terminates in a handle, *H'*, which turns on a pivot, *h*, transverse to the pivot of the rocking trunnion. A spring of well-known construction, within the handle, keeps a stud on the handle in contact with the teeth of a rack, *h'*, on the seat-post *C*. By this construction it will be observed that the driver can release the lever at any time simply by pulling the handle toward him and then rocking the finger-beam by rocking the rod *H* on its trunnions, a guide-slot, *c*, in the seat-frame keeping it in proper position.

The finger-beam can be raised or lowered by means of a chain, *i*, attached to the finger-beam and to a lever, *I*, pivoted on the seat-frame, within easy reach of the driver, and held by a socket, as usual. (See Fig. 3.)

The bifurcated bracket *g*, it will be observed, moves up and down freely on the rocking bar, to accommodate the rising and falling of the finger-beam. The pressure of the latter upon the ground may be lightened by interposing a spring, *g'*, between the rocking trunnion and the upper bracket. (See Figs. 2 and 3.)

A shoe of the usual form may be used under the finger-beam, if desired, to enable its heel end readily to surmount obstructions.

The outer end of the finger-beam is supported by a grain-wheel, *K*, adjustable to various heights by a slot and screw, or in other well-known equivalent ways. This wheel is, by preference, mounted on a plate, *K'*, of metal, of somewhat peculiar shape, (see Fig. 2,) secured upon and projecting in advance of the finger-beam, so that the axle of the grain-wheel lies in, or very nearly in, the same vertical plane as the finger-beam. Both wheels, in fact, are in this same plane, the effect of which, as is well known, is that, as the wheels rise or fall, the finger-beam is correspondingly affected,

and is thus caused to conform closely to the surface over which the wheels pass. A gear, a' , inside the drive-wheel, drives a corresponding pinion, r , on a crank-shaft, R , which drives the cutters by a crank and pitman, as usual. I prefer, however, instead of the usual toothed gears, to employ a ring on the driving-wheel composed of radial corrugations, or of teeth of very slight depth, and to use a wheel on the crank-shaft of gutta-percha, or of some equivalent elastic yet firm material, thus constituting a cheap, noiseless, yet effective, gearing.

The crank-shaft is mounted in a long pipe-box bearing, R' , having trunnions r^1 pivoted in half-boxes in flanges b^1 on the frame-plate B . A lug, r^2 , on the pipe-box passes through a slot in the frame-plate, and is held by a key, 4. The pipe-box is thus securely held in place, and yet can readily be removed or replaced. The crank-shaft is thrown into or out of gear by means of a shipping-lever, S , provided with a cam-wedge acting on a notched stud, s , of the pipe-box, which has sufficient play on its trunnions r^1 to throw it out of contact with the driving-gear a' . A draw-bar, Z , is pivoted at its forward end to the tongue, and in rear to the fence or inner guard J' of the platform, or to some equivalent point, about in the same plane as the rocking trunnion f , which is above the plane of the finger-bar, by which means the finger-beam and trunnion are braced against the strain of the draft without interfering with the rocking capabilities of the cutting apparatus.

The advantages of my several improvements will be evident from the foregoing description, without further enlargement thereon.

I claim as my invention—

1. The combination of the rocking trunnion f , the rocking bar H secured thereto, and the bifurcated bracket g on the finger-beam, capable of moving vertically on said rod, these members being constructed and operating in combination, substantially in the manner de-

scribed, to admit of the rising and falling as well as of the rocking of the finger-beam.

2. The combination, as described, of the rocking trunnion f , the rocking bar, the bifurcated bracket movable endwise thereon, and the spring g' interposed between the trunnion and bracket, to diminish the pressure of the cutting apparatus upon the ground and render it easier to lift.

3. The combination, as described, of the rocking trunnion f , rocking lever, its spring-handle rocking on a pivot transverse to the rocking trunnion, and the detent whereby the lever may be released and rocked, as set forth.

4. The combination of the driving-wheel, the frame-plate, the seat-standard mounted thereon, the rocking lever mounted on said standard, the bifurcated bracket movable endwise thereon, the lifting-lever pivoted on the seat-standard, and the lifting-chain, all these members being constructed and operating in combination, as set forth.

5. The combination of the dish-shaped driving-wheel, the frame-plate inclosed therein, the crank-shaft mounted in a pipe-box pivoted to vibrate laterally on said plate, and the cam-lever or shipping-lever pivoted on said plate, and acting upon a lug on the crank-shaft pipe-box, to throw the cutters into or out of gear, as set forth.

6. The combination of the tongue, the frame-plate, the rocking trunnion f , the rocking-lever, the finger-beam, and the diagonal draw-bar pivoted to the tongue and to a post or standard on the finger-beam, but above it, these members being constructed and operating in combination, substantially in the manner described.

In testimony whereof I have hereunto subscribed my name.

JOHN SEARS ROYCE.

Witnesses:

J. H. VAIL,
H. G. BAKER.