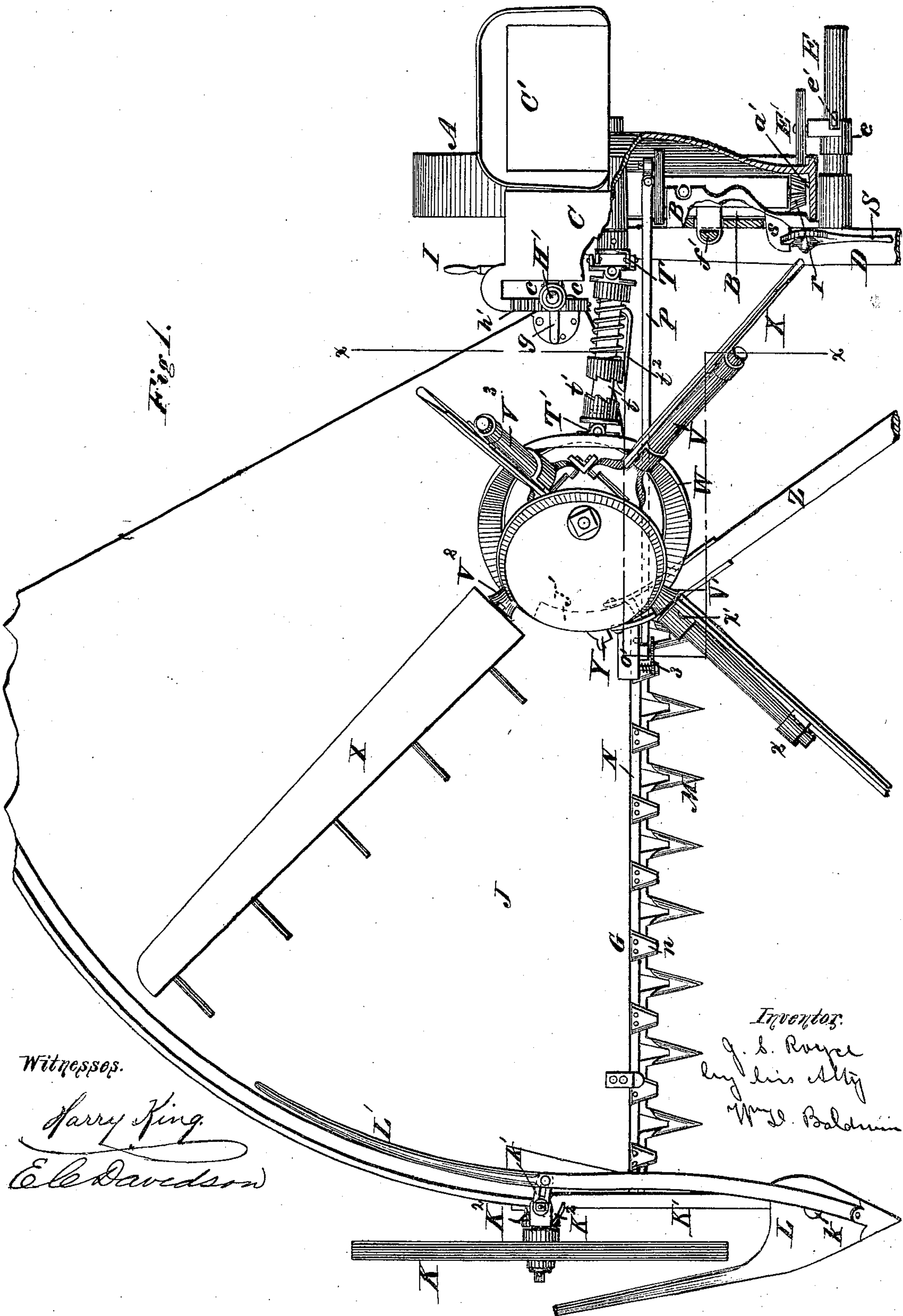


J. S. ROYCE.
Harvester-Rakes.

No. 148,326.

Patented March 10, 1874.



Witnesses.

Harry King.
Ed Davidson

Inventor:
J. S. Royce
by his atty
Wm. D. Baldwin

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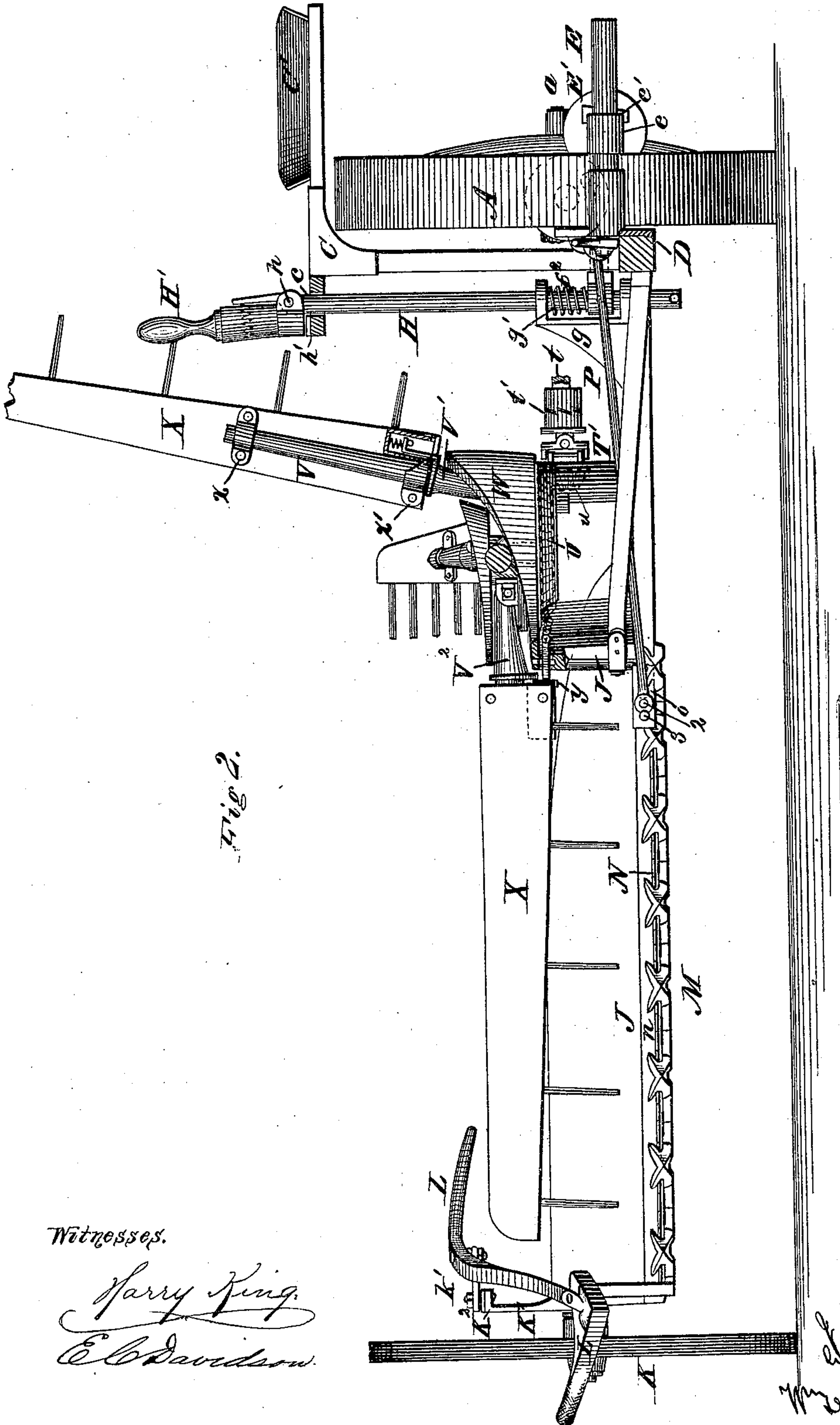


Fig. 2.

Witnesses.

Harry King.
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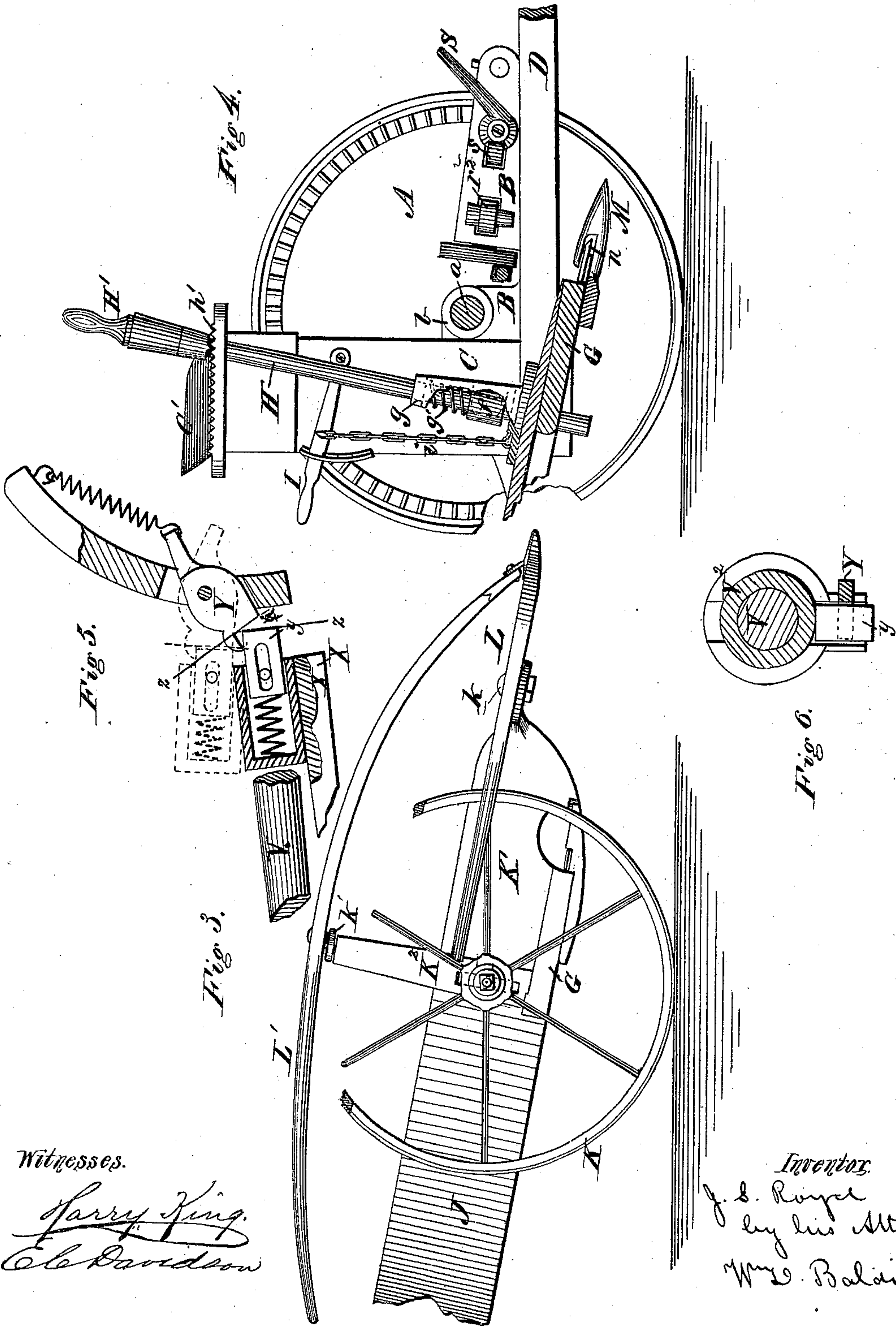
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Ch Davidson

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UNITED STATES PATENT OFFICE.

JOHN SEARS ROYCE, OF CUYLERVILLE, NEW YORK.

IMPROVEMENT IN HARVESTER-RAKES.

Specification forming part of Letters Patent No. **148,326**, dated March 10, 1874; application filed November 1, 1873.

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:

The improvements herein claimed relate to the raking and reeling devices; and consist, first, in so combining a fixed divider-plate, a laterally-adjustable divider, and a laterally-movable grain-guard, as to adapt the machine to varying conditions of the crop; second, in a novel clutch-coupling; third, in so combining a pivotally-swinging rake-head, a locking spring-latch, and a tripping-lever, as automatically to release the rake, and allow it to turn up out of the way at proper periods of its rotation.

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.

Figure 1 represents a plan or top view of so much of a reaping-machine as is necessary to illustrate the invention hereinafter claimed, with portions broken away to show other parts more clearly. Fig. 2 is a front view; Fig. 3, a side elevation of the divider end of the machine; Fig. 4, a vertical section on the line xx of Fig. 1, with the rake and its support omitted; Fig. 5, a horizontal section, showing a slightly-modified construction of the rake-tripping devices on an enlarged scale, and Fig. 6, a vertical transverse section through the inner end of the rake-arm (on an enlarged scale) on the line zz of Fig. 5, looking outward, as indicated by the eye thereon. The main portions of the machine shown in the accompanying drawings being fully shown on other application now pending, it is deemed unnecessary to describe in detail the construction of such parts as do not strictly relate to the subject-matter herein claimed.

A driving-wheel, A, is fixed on a stud-axle or shaft, a , which turns in a box or journal, b , on a frame-plate, B. A post or standard, C, secured upon the frame-plate B, supports a seat, C', for the driver. This seat being out-

side of 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. 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 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 ratchet, as usual. (See Fig. 4.) A platform, J, is attached to the finger-beam, as usual. 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, K¹, of metal, of somewhat peculiar shape, (see Fig. 3,) 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 divider, L, is pivoted upon the front edge of this plate K¹, so as to swing horizontally on the pin k to allow the point of the divider to be adjusted laterally to gather more or less grain, as desired. The rear end of this divider overlaps and protects the grain-wheel. A supplementary guard or bar, L', is pivoted in front on the toe of the divider, and in rear to an arm, K², on the plate K¹. The rear end of this guard is rendered adjustable laterally by being pivoted on a slotted arm, k' , provided with a screw and nut, or equivalent clamping devices. By this mode of construction this guard is not only adjustable laterally at its rear end, but is free to swing on its pivots to conform to the adjustment of the divider—a feature which I have found very useful in adapting the machine to varying conditions of the crop. A universal joint, T, connects the stud-shaft a with an extensible tumbling-shaft, t , connected at its other end by

a similar joint, T' , with a spur-wheel, u , acting on a crown-wheel, U , to which rake-arms V V^1 V^2 V^3 are pivoted. The tumbling-shaft is provided with the usual clutch-coupling t^1 , the parts of which are nominally held together by a spring. To hold these parts disconnected, I employ a spring-hook, t^2 , mounted on the tumbling-shaft itself, which spring hooks into a notch on the part of the clutch nearest to it when retracted, and holds the parts disengaged until released by the attendant. I deem this a cheaper and simpler disconnecting device than the usual shipper. The rake-arms are pivoted to rise and fall as the crown-wheel revolves, being guided by a cam, W , as usual. The rake-arms, it will be observed, are rounded. Rake-heads X are pivoted, so as to swing around these arms, by means of eyes x x' . These eyes, it will be noticed, are so arranged upon the rake-heads that the outer ends of the heads, when over the finger-beam, are elevated somewhat higher than their inner ends. (See Fig. 2.) This elevation accommodates the tendency of the grain to accumulate at the divider end of the platform, and avoids straining the rakes.

The operation of the various parts will readily be comprehended from the preceding description, and, therefore, needs no recapitulation here. After the rake-head has swept the cut grain back upon the platform, (see Figs. 1 and 2,) a spring-latch, y , shown in detail in Fig. 6, which has previously locked it by taking into notches in the socket of the rake-arm, and thus prevented the rake-head from turning, is released by a swinging tripping-lever, Y , (see Figs. 1 and 5,) with which it comes in contact, and the rake is left free to turn up when desired, in order that the grain may be allowed to accumulate upon the platform. The tripping-lever can be drawn out of action, when

desired, by means of the usual cord and treadle. The rake-heads may be turned up by springs, but I prefer so to counterbalance them that they, when unlatched, turn up of themselves to pass over the gavel, and fall back again into position when moving forward again. It is obvious that one or more blank heads or beaters may be used instead of having each arm carry a rake-head, and that the number of rake and reel arms may be varied.

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

I claim—

1. The combination, substantially as set forth, of the fixed divider-plate K^1 , the laterally-adjustable divider L , pivoted thereon, and the supplementary laterally-movable grain-guard L' , pivoted to the divider.

2. The clutch on the tumbling-shaft, constructed as described, in combination with a spring-hook, also on the shaft, to hold one member of the clutch out of gear, when desired.

3. The combination of the rake-arm, the rake-head so pivoted as to be capable of swinging around said arm, the locking spring-latch on the rake-head, and a swinging tripping-lever, Y , on the cam, these members being constructed and operating as set forth, whereby each rake-head, after sweeping the cut grain upon the platform, is automatically released, and allowed to turn up out of the way until a gavel of sufficient size has accumulated on the platform.

In testimony whereof I have hereunto subscribed my name.

JOHN SEARS ROYCE.

Witnesses:

B. H. MORSE,
JOS. I. PEYTON.