

Sheet No. 1.  
2 Sheets.

S. K. Paden  
Harvester Rake.

No 43331

Patented Jun. 28, 1864.

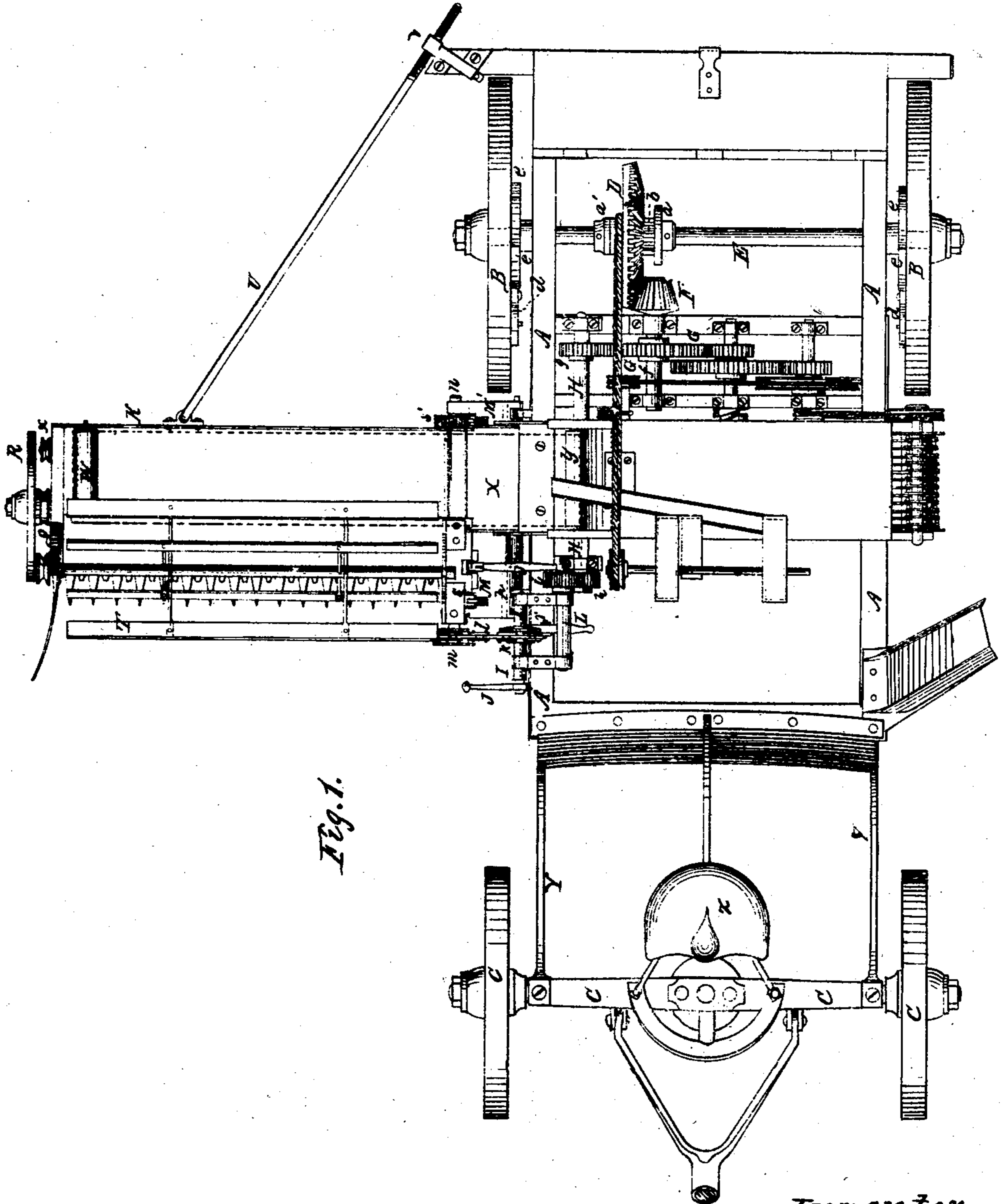
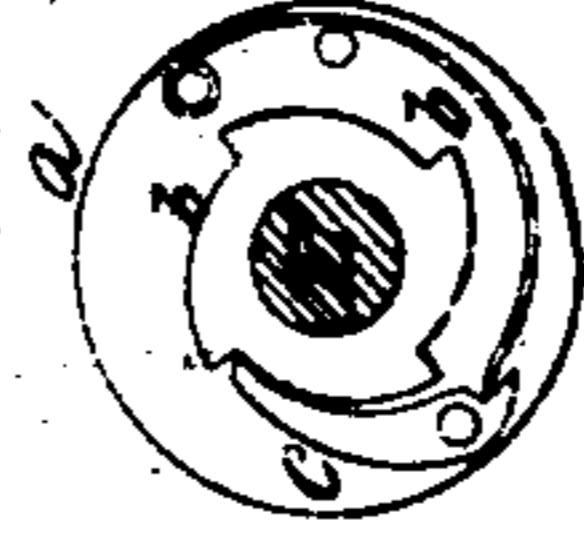


Fig. 1.

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Samuel H. Paden.  
By Atty. A. B. Houghton.

Sheet No. 2  
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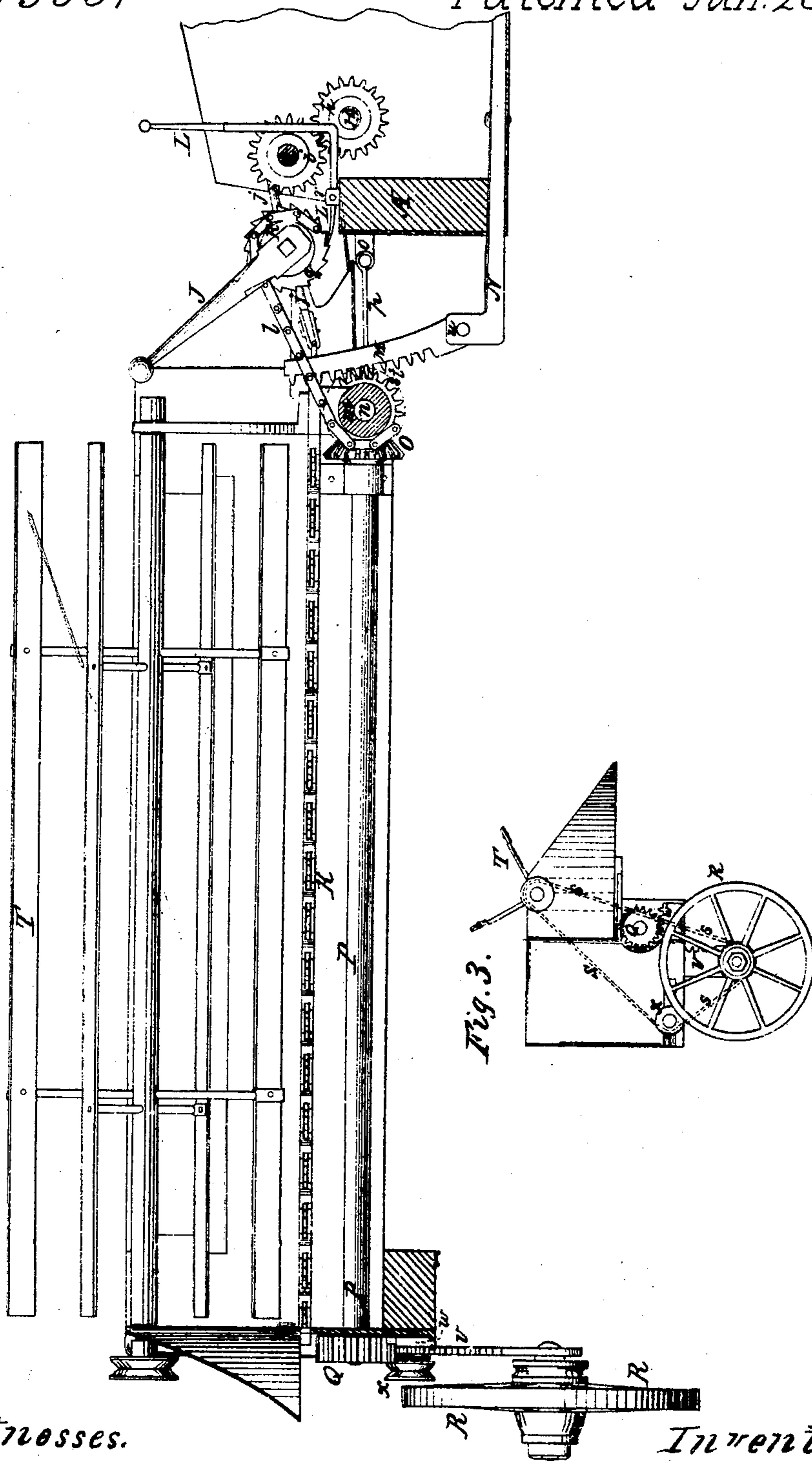
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Fig. 2.



Witnesses.

A. W. Aldred  
A. Moore

Inventor:

Samuel K. Paden.  
By Atty. H. W. Longfellow.

# UNITED STATES PATENT OFFICE.

SAMUEL K. PADEN, OF VOLANT, PENNSYLVANIA.

## IMPROVEMENT IN HARVESTING-MACHINES.

Specification forming part of Letters Patent No. 43,331, dated June 28, 1864.

*To all whom it may concern:*

Be it known that I, SAMUEL K. PADEN, of Volant, in the county of Lawrence and State of Pennsylvania, have invented certain new and useful Improvements in Harvesting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a top plan of the machine. Fig. 2 represents a front elevation of the cutting apparatus, raising and lowering apparatus, and so much of the main frame as will show their connection therewith. Fig. 3 represents an end elevation of the outer end of the cutting apparatus or platform part of the machine.

Similar letters of reference, where they occur, denote like parts in all the figures.

My invention consists, first, in certain mechanism for raising and lowering the cutting apparatus and grain-receiver; also, in connection with the raising and lowering mechanism, the device for automatically taking up or letting out the driving belt, so as always to keep it properly strained for driving the reel; also, in connection with the double joint between the cutting apparatus and the main frame, the bridging or aprons for allowing the cut grain to be carried over or past the two hinged joints onto the main frame.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a main frame, supported in rear by the two main driving-wheels B B and in front by a truck, C. The main frame carries, in addition to the cutting and gathering devices and the gear that operates them, a thrashing and cleaning mechanism, which latter, however, not being pertinent to this application, I shall only casually refer to, as it cannot be claimed in connection with the reaping and gathering of the grain.

The bevel-gear D on the main axle E is loose, but held to its place by two collars, *a a'*. The hub of the gear D has ratchet-teeth *b* formed in it, against which a spring-pawl, *c*, on the fast collar *a* takes, and thus causes said gear D to turn with the axle, (this arrangement is more distinctly seen in a detached

sketch to the right of Fig. 1;) but when the axle E suddenly stops by the stoppage of the team, and when there is considerable momentum upon the other moving parts of the machine, without some provision therefor the teeth of the gears would be apt to break; but the arrangement I have shown allows the gearing to run by its momentum until that is exhausted without detriment to any of the parts, the ratchet-teeth on the bevel drive-gear D slipping past the spring-pawls *c*. There are also upon the main drive-wheels B B spring-pawls *d*, that work into ratchet-teeth *e* on a collar attached to the axle for causing the wheels and axle to turn together when the machine is moving forward, but allowing them to move independent of the axle when the machine is backed. The bevel-wheel D turns a bevel-pinion, F, on a shaft, *f*, said shaft also carrying a gear-wheel, G, that meshes with and turns a pinion, *g*, on one end of a shaft, H, passing through the mouth of the thrashing-machine, its opposite end having a pinion, *h*, on it, which turns the pinion *i* to a wrist, on which the pitman *j* is connected to work the cutters.

On a shaft, I, to which a lever, J, is attached, so as to operate it, there is a sprocket or chain wheel, *k*, to which one end of a chain, *l*, is united, its other end being connected to a similar sprocket or chain wheel, *m*, on the end of a shaft, *n*, which shaft forms one of the hinged or pivoted joints by which the platform K is connected to the main frame A, the other joint or hinge being at *o*, and the two joints connected by an apron or bridge, *p*. The sprocket-wheel *k* has a ratchet, *q*, connected with it, into which a lever-pawl, L, pivoted at *r*, takes to hold it at any fixed position. The other sprocket-wheel, *m*, has a segment of teeth, *s*, upon the shaft with it, which take into the teeth *t* of a curved arc, M, pivoted at *u* to a piece, N, projecting from the main frame A. At the opposite end of the shaft *n* there is another segmental-toothed wheel, *s'*, similar to that *s*, and which works into another curved and hinged rack or arc, M', similar to that M. Now, by this arrangement the operator, by first throwing out the lever pawl or dog L and grasping the lever J, can let down the cutting apparatus to any desired height within its adjustment, it falling by its own weight and maintaining its parallelism with the ground by means of the double-hinged joints by which it is connected

to the main frame. When at the desired position, by letting go the dog L it will catch into the ratchet *q*, and there hold the platform and its several parts. By simply reversing the motion of the lever J the cutting apparatus, platform, reel, and their connections are raised up, the dog L catching and holding them from dropping when the lever is released.

The shaft *n* has upon it a bevel-gear, which works into and turns a bevel-gear, O, on one end of a shaft, P, placed underneath the platform K and extending to the outer or grain end of said platform, said shaft P thus receiving motion from the shaft *n* when *n* for any purpose is moved. The extreme outer end of the shaft P has upon it a cogged pinion, Q, which works into two straight racks, *v w*, the one, *v*, being vertical and attached to the axle of the outside supporting-wheel, R, for the purpose of raising and lowering the outer end of the platform and cutting apparatus at the same time and by the same motion that raises and lowers its other or inner end, and thus maintain its horizontal position or rather parallel position with the ground. The horizontal rack *w* has upon it a pulley, *x*, over which the endless belt S, that drives the reel T, passes, said belt being driven from the outside supporting-wheel, R, and as the reel is lowered with the cutting apparatus toward the wheel R the rack *w*, with its pulley *x*, takes up all the slack of the belt, and vice versa. When the reel is raised up it gives out the belt again, and thus always preserves a proper driving tension upon it.

The platform K is braced from the rear of the main frame by a brace-rod, U, which can be adjusted by means of the screw-thread thereon and the nut V, through which it passes.

The grain when cut is thrown back by the reel into a kind of box or trough, through which an endless carrying-belt (shown in red lines, Fig. 1) travels, it passing over a driven drum, *y*, on the shaft H, and running around a friction-drum, W, at its outer end. The shaft H, as before described, passes through the mouth of the thrashing apparatus, and thus the cut grain is carried directly into the thrasher without turning it on its passage thereto, and that the grain in its passage may not be interfered

with by the hinged connections between the cutting apparatus and main frame the space over the hinges is bridged by the piece X, which in nowise cramps the hinged movement.

The bars Y, that extend to and support the main frame on the truck C, are arched up, so that in turning around the wheels of the truck may turn under them. The connection of the truck-frame to its axle is such that while the wheels may assume a plane parallel to the ground over which they are passing the frame may retain its level position; but as this feature is applicable to carriages generally, and for which I have made application for separate Letters Patent, a more full explanation of it here is not deemed necessary.

Z is the driver's seat.

Aware that a thrashing machine is not appropriately a part of the subject-matter of an application for a patent for an improvement in harvesters, yet as I propose to thrash the grain on the machine, I have shown such a machine connected in all its parts with the harvesting-machine. A more special reference thereto than that shown in the drawings is not here given, as it would not be deemed relevant to the subject-matter herein claimed.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of the chain, chain-wheels, pinions, and curved segments for raising or lowering and holding the cutting apparatus at any adjusted height, substantially as described.

2. In connection with the raising and lowering mechanism, the shaft P, its pinion Q, and the two racks *v w* for taking up or letting out the reel-driving belt *s* to keep its tension on the pulleys uniform, substantially as described.

3. In combination with the double-hinged joints *n o* between the platform and main frame, the coupling *p* and bridge X, for the purpose of conveying the grain from the platform to the main frame by a belt, substantially as described.

S. K. PADEN

Witnesses:

A. B. STOUGHTON,  
BENJAMIN SMITH.