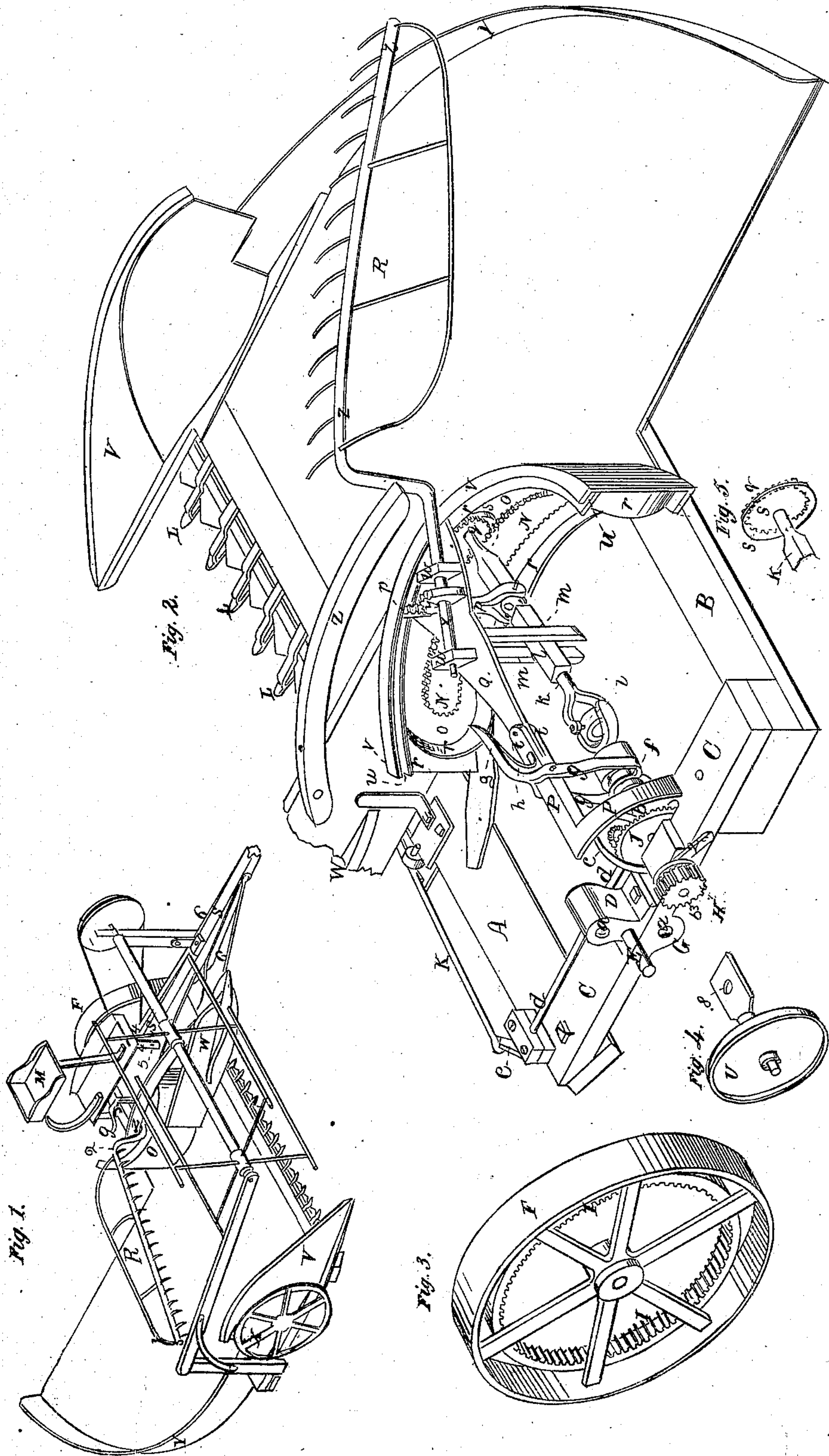


# Seymour & Pease, Harvester Rake.

28 Sheets Sheet 1.

No. 15,722.

Patented, Sep. 9. 1856.



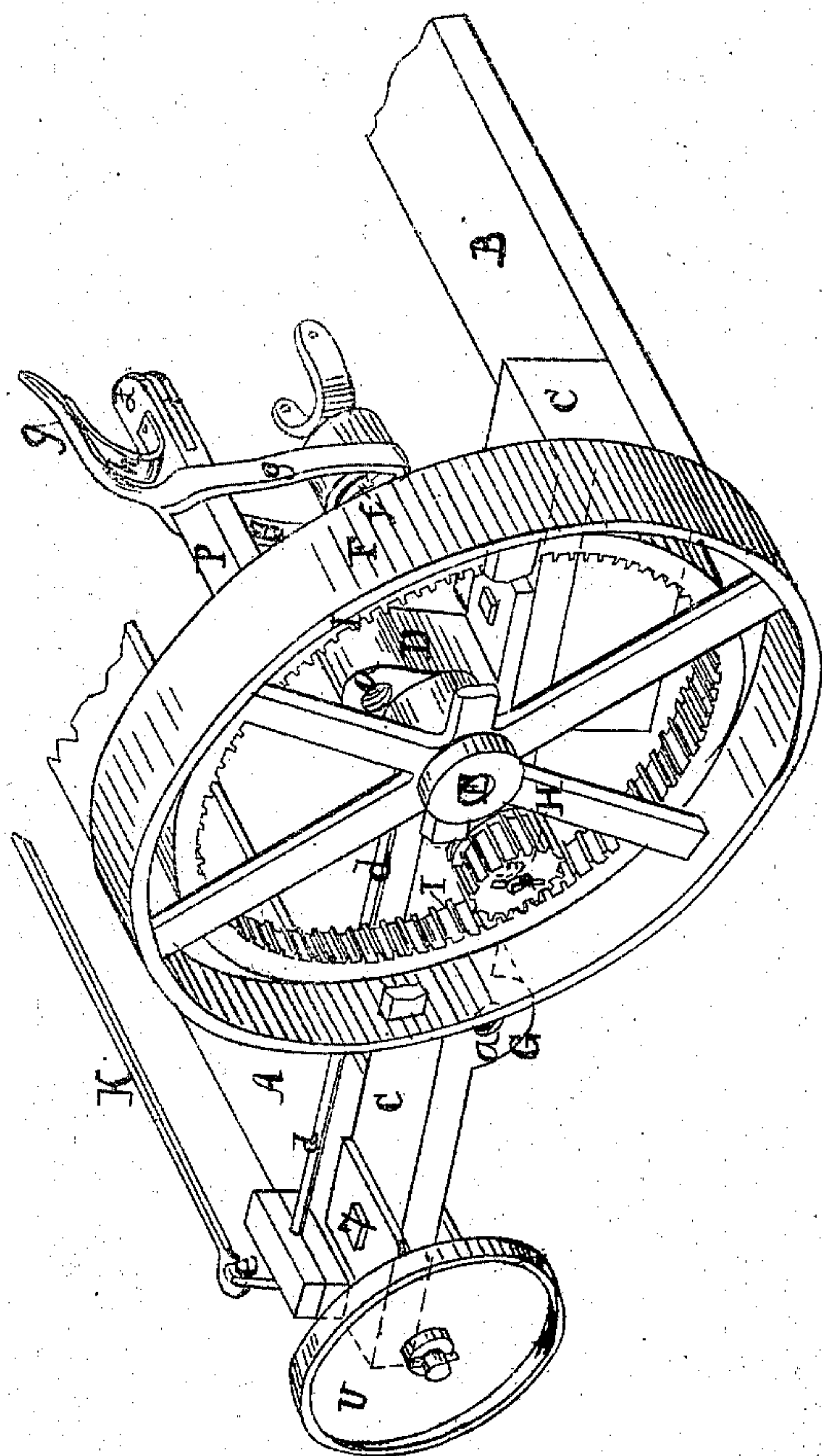
*Seymour & Pease,  
Harvester Reel.*

*2 Sheets, Sheet 2.*

*No. 15722.*

*Patented. Sep. 9. 1856.*

*Fig. 6.*





# UNITED STATES PATENT OFFICE.

WM. H. SEYMOUR AND H. PEASE, OF BROCKPORT, NEW YORK, ASSIGNORS  
TO WM. H. SEYMOUR AND DAYTON S. MORGAN, OF SAME PLACE.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 15,722, dated September 9, 1856.

*To all whom it may concern:*

Be it known that we, WILLIAM H. SEYMOUR and HENRY PEASE, both of Brockport, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Harvesting-Machines; and we do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 represents a perspective view of the entire machine as seen from that end of it which runs next the standing grain by an observer stationed at the point of the divider. Fig. 2 represents an enlarged perspective view of the machine, taken from a point diagonally opposite to that represented in Fig. 1, and in this figure the main driving and supporting wheel is removed from its journal and shown at a little distance therefrom, so as to clearly show those parts which would fall behind or be hid by it in the perspective. Figs. 3, 4, 5, and 6 represent detached portions of the machine.

The same letters of the alphabet, where they occur in the separate figures, represent corresponding parts of the machine in all.

Our invention relates to the raking apparatus, which is self-acting, but at all times under the control of the operator or director of the machine, and also relates to the general arrangement of the raking apparatus and those parts acting in connection with it.

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

This machine in its general plan and arrangements is like those with automatic rakes heretofore patented to William H. Seymour in those respects. Therefore we do not deem a particular description of our machine to be necessary.

Upon the two longitudinal pieces A B, which may extend to the extreme outside of the platform, is supported a bed-piece or plate, C, on which is secured a metallic block or piece, D, for containing the journal E, upon which the main supporting and driving wheel F turns, and on the bed-piece C, underneath the axle or journal-block D, may be cast or otherwise

secured another journal-bearer, G, so that a series of holes, *a a*, may be had, into which the journal E may be placed as the machine may require to be raised or lowered. The holes *a a a* are arranged in the arc of a circle whose center is at the center of the pinion H, so that the raising or lowering of the wheel F shall always keep its cogged gear-wheel I in mesh with the pinion which turns in fixed bearings on the bed-piece C.

On the shaft *b* of the pinion H is a bevel-gear wheel, J, which drives a small bevel-pinion, *c*, on one end of a shaft, *d*, the opposite end of said shaft *d* having upon it a crank, *e*, to which and to the sickle-bar is attached a pitman, K, for giving motion to the sickle-bar and cutters thereon. The bar A, which forms a part of the frame, may also be the finger-bar, to which the fingers L are attached.

*f* is a clutch, to which a clutch-lever, *g*, is connected, extending upward into convenient position for the operator, who by his foot from the seat M may throw out said clutch and hold it out of operation until he desires the rake to have motion, when by removing his foot from the clutch-lever the spring *h* underneath it will instantly throw the clutch into action. The clutch-ring *f* slides upon small guides on the shaft *b*, which causes it to move and couple with great regularity and without sudden jar. Beyond the clutch-rings on the shaft *b* is a gimbal or universal joint, *i*, uniting the shaft *b* to another shaft, *k*, which has upon it a square sleeve, *l*, supported by and moving vertically between two guides, *m m*, the object being to allow the shaft *k* to have uninterrupted motion in its sleeve while the sleeve is free to carry said shaft as it moves between the guides. On the shaft *k*, beyond the sleeve, is a second universal or gimbal joint, *o*, to which a perpendicular rack, *p*, is attached so as to allow the rack to turn with the sweep of the rake, the use of which will be described in connection with the operation of the rake. On the extreme end of the shaft *k* is a spur-wheel, *q*, which takes into an endless rack, N, attached permanently to a curved plate, O, which is a fixture on the frame of the machine. Both the rack N and the plate O are curved in the arc of a circle whose center is at the universal joint *i*, so that the pinion or spur-wheel *q* may remain in gear with said rack N



while it goes through its necessary "change motion" to give the rake its traverse, and rising and falling and turning movement.

To prevent the spur  $q$  from binding in the rack  $N$ , to keep it in gear therewith, and to allow it to more freely traverse around the rack, flanges or ways  $rr$  are formed on the top and bottom of the curved plate  $O$ , on which ways a friction-roller,  $s$ , arranged on the shaft  $k$ , immediately behind the spur  $q$ , runs, to hold said spur at the proper meshing distance from the rack, said friction-roller  $s$  and its arrangement with regard to the spur and shaft being more clearly shown in a detached broken figure underneath Fig. 2. The flanges or ways  $rr$  on the plate  $O$  encircle the rack  $N$ , being parallel to said rack, for guiding the friction-roller, as also the spur, on the round as well as the straight parts of said rack.

To the lugs  $t t$  on the arm  $P$ , which arm also supports the clutch-lever  $g$ , is pivoted one end of a traversing plate,  $Q$ , the other end of said plate moving in a groove,  $u$ , between the top flange or way,  $r$ , and another similar flange,  $v$ , above it, to keep it in proper position as it traverses horizontally back and forth. To the under side of this plate  $Q$  are attached the guides  $m m$ , between which the sleeve  $l$  moves, and the traverse of the plate  $Q$  is obtained by the spur  $q$  running around the endless rack  $N$ , the shaft of said spur  $q$  passing through the sleeve  $l$ , as heretofore described.

Upon the plate  $Q$  are two small pillar-blocks,  $w w$ , in which the shank  $x$  of the rake  $R$  is supported and turns. An opening is made through plate  $Q$  sufficiently large to admit the rack  $p$  to pass through, and also for a spur-wheel,  $y$ , attached to said shank  $x$ , to turn in, said rack  $p$  taking into and at proper intervals turning the spur-wheel  $y$  and the shank and rake to which it is affixed. The rake thus receives its traverse movement over the platform by the spur  $q$  running around the stationary rack  $N$ , and its rising and falling and turning movement through the moving rack  $p$  and spur-wheel  $y$ , the several movements taking place at proper times and places, so as to rake off and deliver the grain in gavels on the ground in rear of the driving machinery, the gavels as they are carried to the delivering point being turned around a quarter of a circle and laid upon the ground at right angles to the path of the machine.

The rake-head  $z$  is bent, as shown in the drawings, and a bow,  $1$ , is affixed to said rake-head, both the rake-head and bow being highest at their inner ends and dipping or inclining toward the platform at their outer end. The rake and bow enter between the falling straws and that lying upon the platform, to keep separate the two while the latter is being raked off. The arched form of the bow and its descent toward its outer end, combined with the centrifugal force due to its swinging motion, cause the bent and other straws to slide off onto the platform, that would hang upon and

clog it if it were parallel to the rake-head. Furthermore, this bow is quite as effective for separating the falling grain from that being raked off the platform as a board is, while it is much lighter, offers less obstruction in passing through the air, and does not, like a board or diaphragm shield, act as a fan to blow about the straw.

The bed-plate  $C$ , for sustaining the gearing, we have heretofore described as being provided with the means for adjusting the driving-wheel. This adjustment is necessary for regulating the height at which the cutters are to work and for properly balancing the machine. To said plate is also pivoted an arm,  $2$ , which, when dropped in behind the pinion  $H$ , slips the pinion out to the end of the shaft  $b$ , and a pin,  $3$ , through said shaft, taking into a recess in the pinion, causes the pinion and shaft to turn together. When the arm  $2$  is raised up or thrown back the pinion  $H$  slips away from the pin  $3$ , and then said pinion can turn without turning the shaft  $b$ , and thus the working parts may be geared to or ungeared from the main driving-wheel at pleasure.

When the machine is used as a reaper the tongue  $S$  is held rigid between two standards,  $4 4$ , Fig. 1, by a bolt,  $5$ , passing through the rear end of the tongue and through the standards. When used as a mower, the rake-platform and other superfluous parts being first removed or uncoupled, the bolt  $5$  is withdrawn, so that the rear end of the tongue may play up and down between said standards, it (the tongue) being secured to the machine by the drag-bars or straps  $6 6$ . Besides this change, an additional supporting-wheel,  $U$ , (in separate figure,) is secured to the end of the bar  $A$  (which is also the finger-bar) by the bolt  $7$  passing through the bed-piece  $C$ , finger-bar  $A$ , and the hole  $8$  in the axle of said supporting-wheel  $U$ , and the supporting-wheel axle may be above, below, or between the finger-bar and bed-piece, as may be preferred, its object being to support that end of the machine and allow it to play up and down and take away the weight of the machine from the horses' necks, and at the same time not allow too much weight on the cutters.

The platform is furnished with outside and inside dividing-boards,  $V W$ , to divide and direct the falling straw onto said platform. It also has the customary outside supporting-wheel,  $X$ , properly shielded by the outside divider to prevent the straw or grass from winding around it or becoming entangled therein. There is, moreover, a curved guiding-board or fence,  $Y$ , around the outside of the platform to keep the straw from being pushed off or leaving the platform until it arrives at the proper delivery-point. On the inside divider and director,  $W$ , is an adjustable shield,  $Z$ , to turn the straw away from the driving-gear and onto the platform, so as to be caught and raked off by the rake.

The reel-posts and the driving of the reel



need not be particularly described, as the drawings clearly enough indicate their construction and operation.

The rake, of course, unless thrown out and into gear, would move at all times when the machine was in motion and with a speed commensurate with the speed of the machine. Such regulated motion would answer the purpose if the grain always stood alike on the ground; but as there are always "thick" and "thin" places in standing grain the gavels would be of variable sizes if the rake ran at the same uniform speed. To avoid the gathering of a gavel until there is sufficient straw in the platform to make the gavel of proper size, the operator may, by placing his foot on the clutch-lever *g*, hold the rake from moving until sufficient straw has accumulated, and then by simply removing his foot the rake goes into action and clears the platform.

In Fig. 6 we have shown the driving and supporting wheels in place as arranged for mowing, and in order to facilitate the change of the driving-wheels the blocks or hubs *D* may be cast on the bed-plate *C*, and each furnished with suitable holes for a journal *E*; or other guides may be so arranged as to make the change readily, and when so made the machine is properly balanced for mowing.

Having thus fully described the nature of

our invention, what we claim therein as new, and desire to secure by Letters Patent, is—

1. The particular arrangement of the clutch and clutch-lever with regard to the conductor's seat and platform, and the shaft *b*, from which motion is communicated to both the rake and sickle, as that the operator from his seat, having a distinct view of the platform, can engage or disengage said rake with his foot while the sickle continues to run, substantially in the manner and for the purpose set forth.

2. The combination of the universal-joint *i* for connecting the shafts *b k*, the sleeve *l*, and plate *Q* with its guides *m m* and gimbal-joint *o* for giving the rake its traverse movement, substantially as described.

3. The bow and rake-head, so formed as to incline toward their outer ends, and so acting as to cause the bent or entangled straws to slide off onto the platform, substantially in the manner described.

In testimony whereof we have hereunto subscribed our names.

WM. H. SEYMOUR.  
HENRY PEASE.

In presence of—

GEO. H. ALLEN,  
J. M. BARNETT.