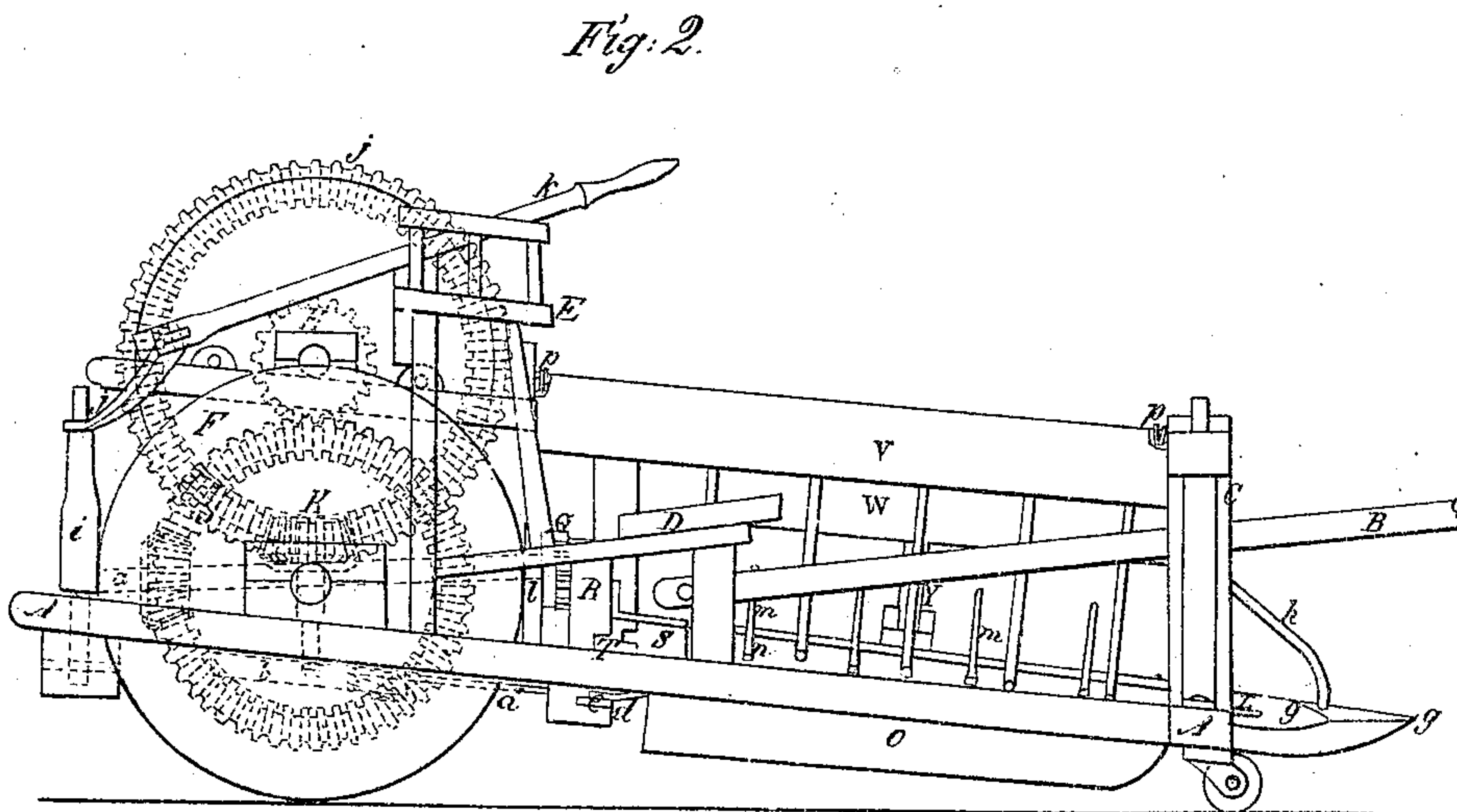
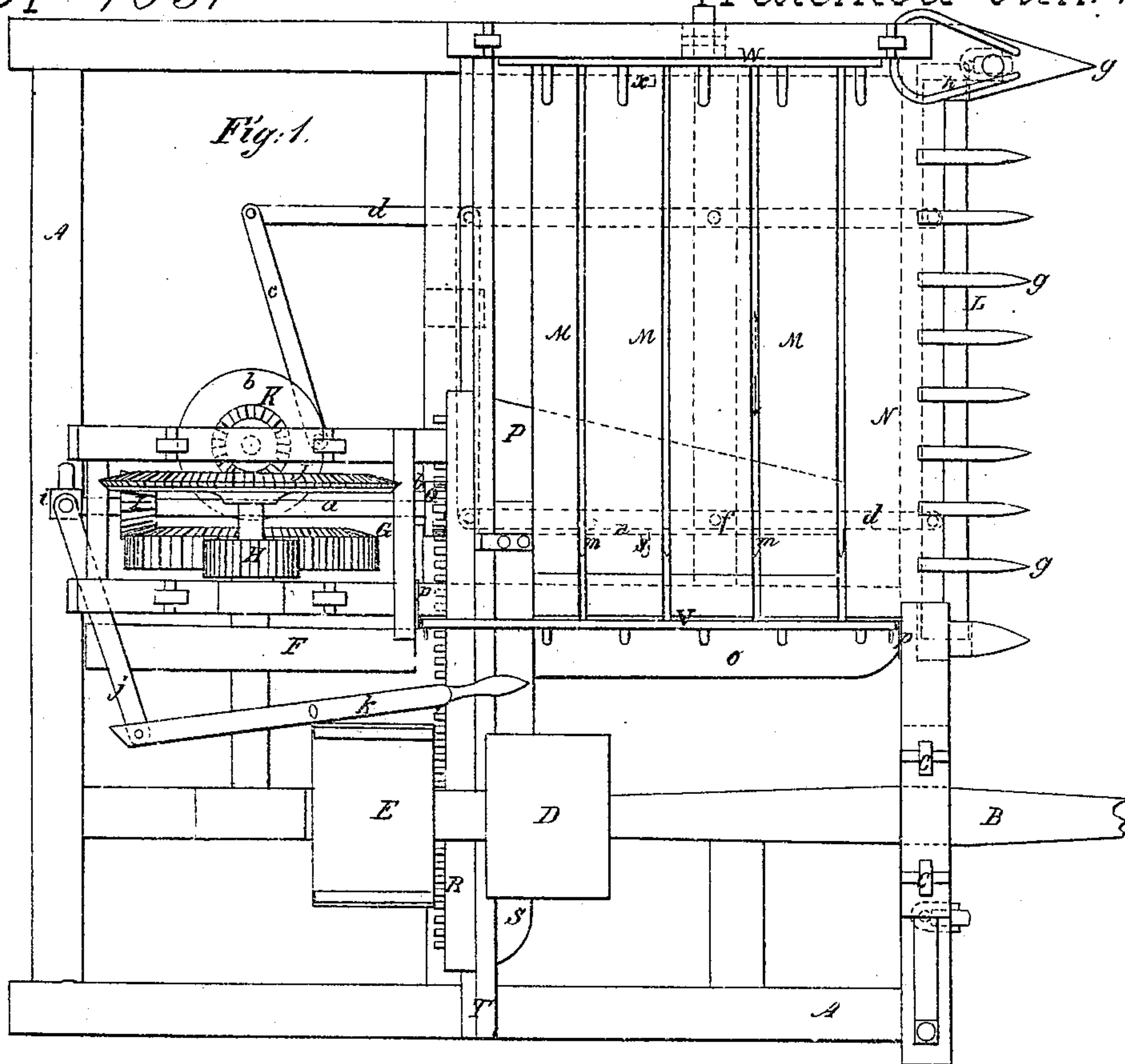


W. McLaughan.
Harvester Rake.

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Nº 9031

Patented Jun. 15, 1852.

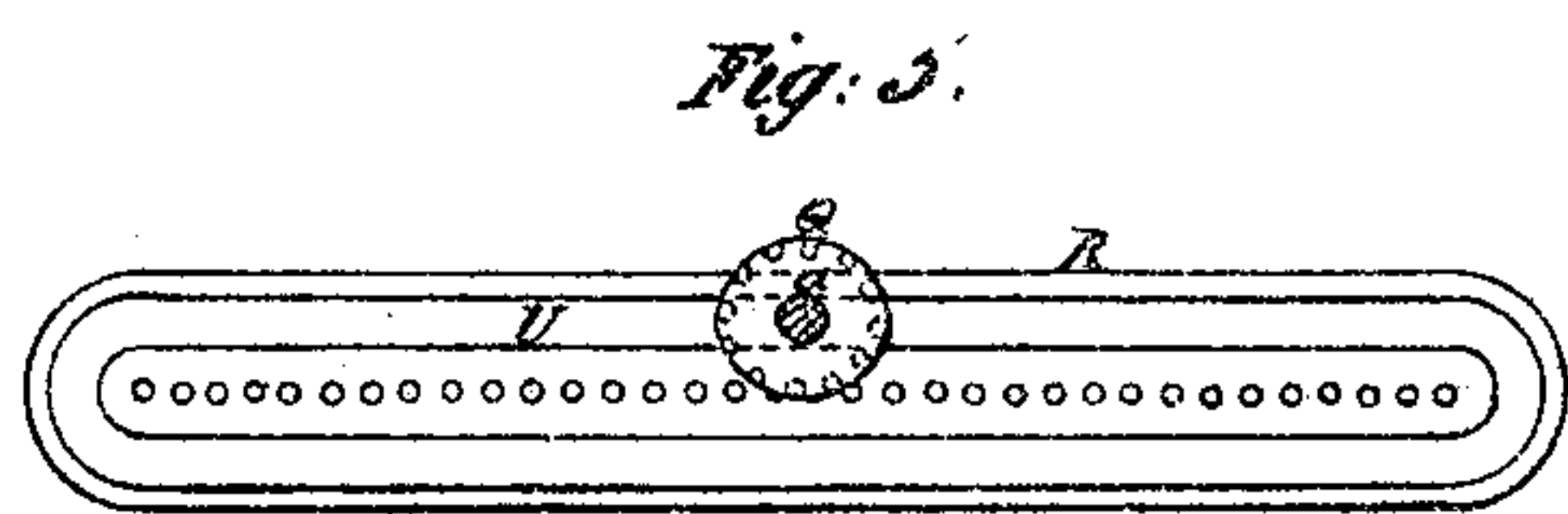
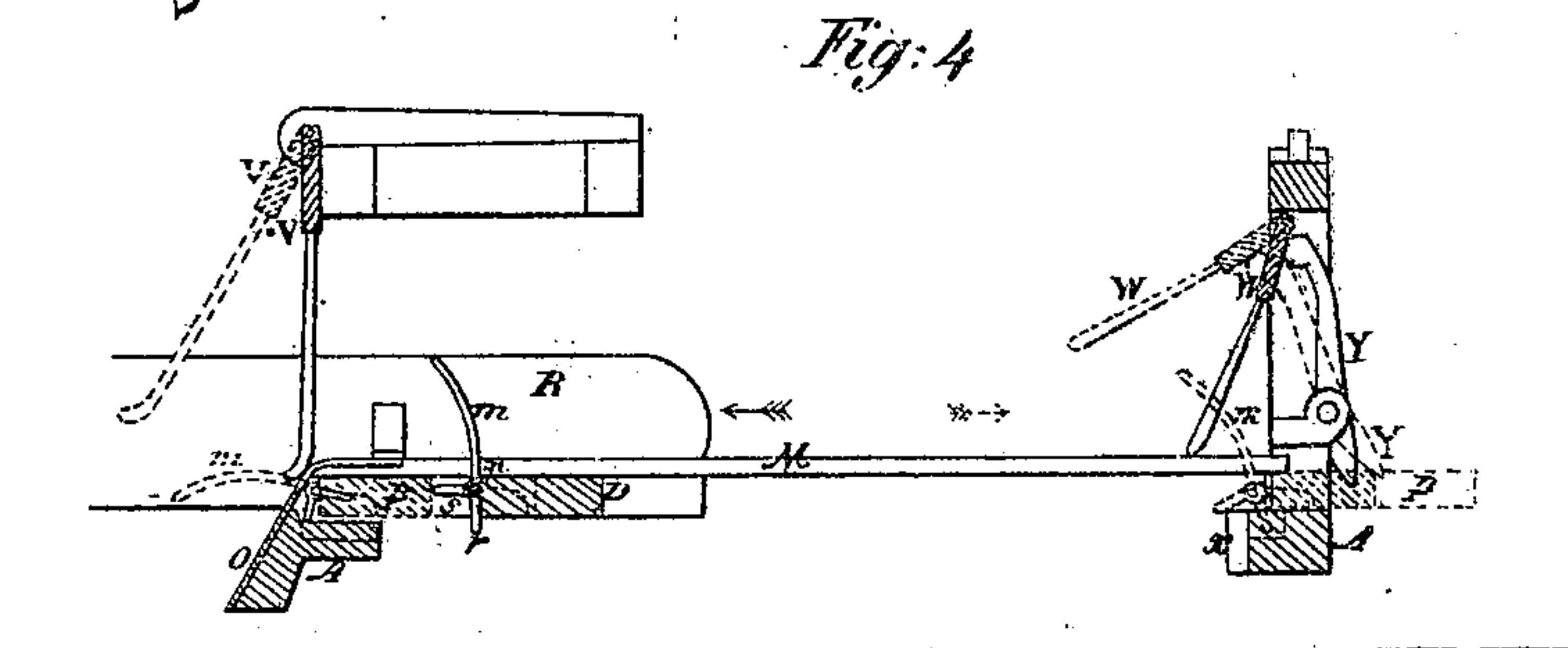
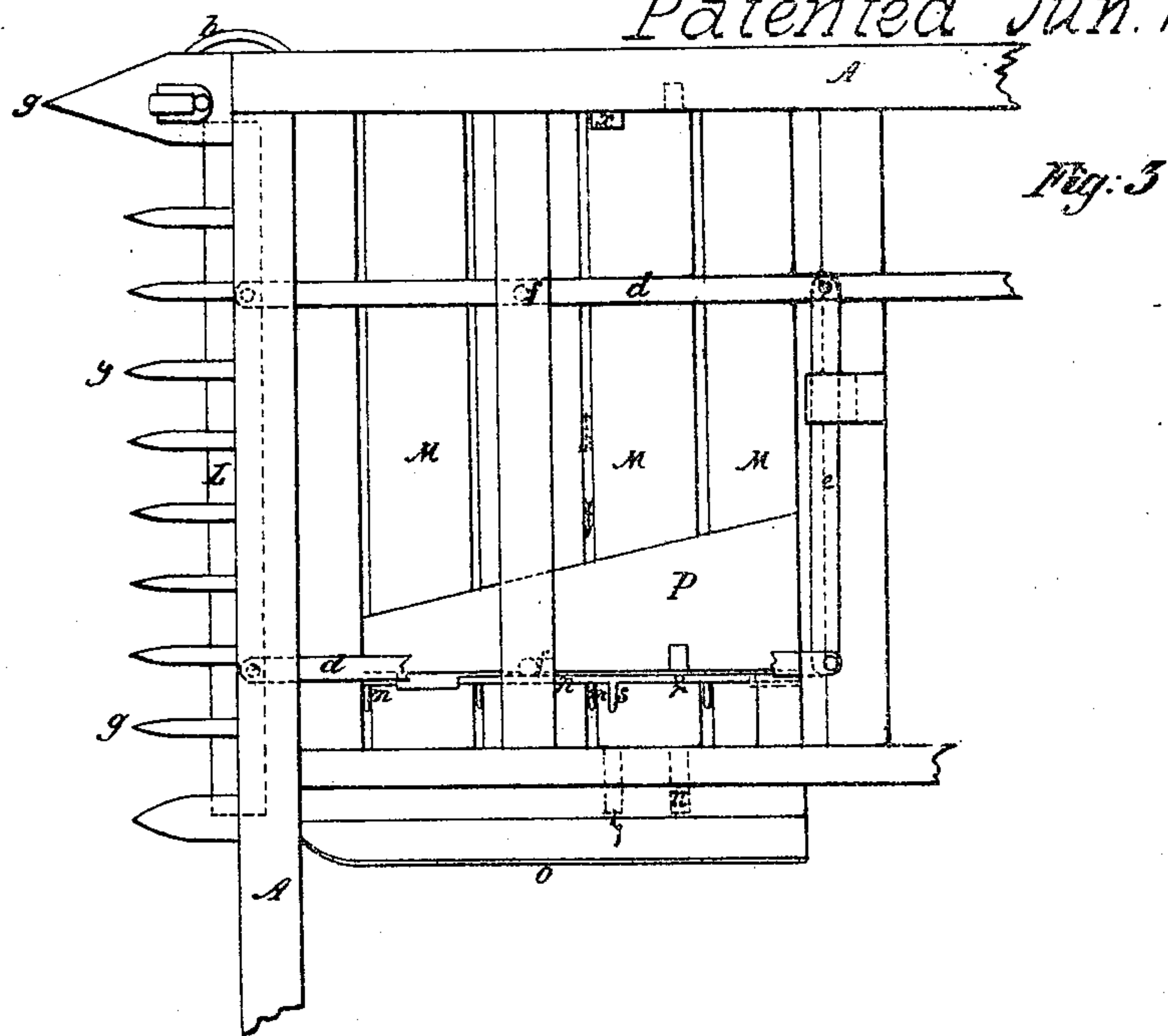


W. M^c Lagan.

Harvester Rake.

N^o 9031.

Patented Jun. 15, 1852



UNITED STATES PATENT OFFICE.

WILLIAM McLAGAN, OF CUYLERVILLE, NEW YORK.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 9,031, dated June 15, 1852.

To all whom it may concern:

Be it known that I, WILLIAM McLAGAN, of Cuylerville, in the county of Livingston and State of New York, 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 same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan or bird's eye view of the machine. Fig. 2 is a side elevation thereof. Fig. 3 is an inverted plan or under view, in detail, of the inclined table of slats, on which the grain is deposited previous to being thrown off into gavels, showing also the rake for accomplishing the latter object, cutter, and other parts. Fig. 4 is a sectional elevation taken transversely of the machine through one of the spaces separating two of the adjoining slats forming the table, looking toward the back of the machine, and exhibiting mainly the rake, rake-cleaner, and spring delivery-gate. Fig. 5 is a detached view of the rack and pinion operating the rake, showing the rack lengthwise, seen from its front.

The same letters of reference denote corresponding parts throughout the several figures.

To enable others skilled in the art to make and use my invention, I will proceed to describe the machine with its several improvements.

A A is the frame of the machine, which, when supported on its carrying-wheels, lies at an inclination from the horizontal position, as seen in Fig. 2, so that the front of the machine dips toward the ground, as is usual in other machines of a similar character, the which many parts and arrangements I adopt are the same, and I shall therefore in this description briefly refer to them only as necessary for the illustration of my improvements forming adjuncts thereto.

B is the tongue to which the cattle are attached for putting the machine in motion and operating it. The tongue B passes through a heel, C C, wherein it may have vertical, but is not allowed lateral, play. The tongue runs some distance back and forms its draft attachment under the step D of the driver's seat E, the heel C C serving for the tongue to bear against when turning the machine, or to be borne on during any lateral stress formed by

the cutter or otherwise when the machine is in motion.

F is the fulcrum and driving carrying-wheel. It is situated, as shown, in rear of the tongue, at the back of the machine, whereby I am enabled to place it on one side of the line of draft—viz., the side on which is the cut—so that through the relative referred to bearing-points of the tongue more control is obtained over the machine in turning it; also less tendency than in other machines to press laterally on the cattle and crowd them into or toward the grain, which is the effect produced by the resistance of the cut. The wheel F, elevating the machine at the back, operates, when in motion, the saw or knives for cutting the wheat, rake, and other working parts, the wheel F, through the wheel G, (on the same shaft,) having spur and bevel teeth communicating motion through the pinions H and I to the cutter and rake, the shaft *a* of the bevel-pinion I operating the rake, while another bevel-wheel, J, on the shaft of the pinion H works into a pinion, K, for actuating the cutter. Suitable framing for carrying these several wheels is erected on the main frame. The pinion K, hung on a vertical (or nearly so) shaft, revolves a disk, *b*, which, through an eccentric pin projecting from its lower face, operates the rod *c*, working the levers *d d*, linked together by coupling-rod *e*, and having their fulera *f f* in a cross-piece of the frame. The levers *d d* extend toward the front of the machine, where they are connected to the cutter L, which may either be a saw or have a knife or sickle-edge, and which, by its motion lengthwise as the machine travels forward, cut the stalks of the wheat near their bottom, the wheat falling back onto the table of slats behind the cutter, the motion and construction of which I do not claim as new.

M M M are the slats forming the receiving-table for the grain as it is cut. They are stationary and situated transversely of the machine at a slight distance apart from one another, so as to leave a space of equal breadth between them for the travel therethrough of the rake-teeth.

N is a metallic or other apron connecting the first or front slat with the cutter L, and O is a delivery-apron sloped from the inside ends of the slats to the ground, a narrow upper extension of it covering the said ends of the slats,

g g g are the fingers or guards which serve to collect and hold in the wheat between them while the cutter *L* is performing its cut, the off finger or guard projecting more than the others, and being fitted with a guide, *h*, for directing the feed to the cutter and supplying the table of slats.

P is the rake head or board, situated underneath the table of slats and lying transversely to them. It receives a reciprocating motion in direction of the length of the slats through the following means: The shaft *a* of the pinion *I* has, in addition to its revolving movement, a vertical motion or play allowed it, or a motion equivalent thereto, it vibrating from the pinion *I* end, where it is hung in a lever, *i*, so connected by joint to the frame as to admit of the pinion *I* being thrown in or out of gear with the wheel *G*, this being done by means of the rod *j* through the handle-lever *r*, operated by the driver at pleasure, as the rake is required to be set in motion. The end farthest from the pinion *I* of the shaft *a* has its bearing at that part, so as to admit of a considerable up-and-down play, it working in a slot or guide, *l*, which prevents much lateral movement of the shaft there. A pinion, *Q*, is fitted onto the shaft *a* at this latter-named end, which pinion gears into and operates a rack, *R*, connected with and attached to the rake-board *P*, the connection being established through means of the slide *S*, bracketed to the rack, and fitting by a tongue in a groove made in a stationary rail-piece, *T*, along which the slide *S* and rack *R* travel—one on either side. The rack *R* is of peculiar construction, as seen in Fig. 5, it having its teeth (into which the pinion *Q* gears) projecting at right angles, or thereabout, from its face down the center line thereof, round pegs or pins serving for the teeth, and the rack having grooves above and below the teeth, made continuous by a curved groove at either end, thereby forming one continuous groove, *U*, into which the pinion *Q* end of the shaft *a* fits, so that by the turning of the pinion *Q* the rack *R* is reciprocated backward and forward, and with it the rake, in the manner specified, the pinion *Q* alternately operating above and below the teeth of the rack.

On one edge of the rake-board *P* (that nearest the delivery end) are hung the rake-teeth *m m*, they being connected by a rod or spindle, *n*, thereto, which admits of their falling down in one—what may be called the “front”—direction, in which direction they are bent, as seen in Fig. 4. They fit in and travel along the spaces between the slats *M M M*, reciprocating therethrough or along, they starting, as it were, from the side of the machine next to the standing grain, moving as indicated by black arrow, during which travel they are erect and serve to press the cut grain against and through the spring delivery-gate *V*, which, through means of springs *p p* at either end, causes a resistance to the passage of the grain through the gate, the effect of which resistance

conjointly with the action of the rake-teeth, is to prevent the grain from scattering and produce a firm and compact gavel. The spring delivery-gate *V* is made of a board suspended by trunnions at either end, and having teeth projecting downward, which, at their lower extremity, press against the inclined delivery-apron *O* when the gate is shut; or the gate may be otherwise constructed and be acted upon by weight or weights instead of springs, to offer the necessary resistance for the effect specified in opening. The position of the gate *V* when open is shown in red lines, Fig. 4; also, same figure, immediately under the open gate, is exhibited in red lines the advanced position of the rake-board *P* at completion of its forward stroke, the rake-teeth being then turned downward, as exhibited in red on the left hand of Fig. 4, which action—that is, of the rake-teeth being so turned—combined with the resistance offered by the gate *V* and the inclined face of the apron *O*, will insure a firm and compact gavel, the rake-teeth pressing it onto the ground, the ears of wheat (previously lying onto the upper or back slats) falling first and being caught by the stubble, while the stalk ends forced onto the front framing of the machine will be gradually and gently dropped as the machine travels onward. The rake-teeth occupy their erect position only while collecting the cut grain on the table of slats into a gavel for delivery through the gate *V*—that is, in their travel, as indicated by black arrow, from the side of the machine next to the standing grain till arrival at the delivery-gate *V*. On their return or back stroke they maintain the position shown by red lines at the left hand of Fig. 4, not protruding above the slats *M M M*, so as to avoid interfering with the grain being cut and laid on the table till sufficient is cut for formation of another gavel, when the teeth of the rake, arriving at the termination of their back stroke, resume their erect position and proceed in their forward motion, as before. These changes in the position and actions of the rake-teeth are produced through pins *r s*, projecting from the spindle or rod *n*, which is fitted so as to turn, and to which the rake-teeth are attached, the pin *r* striking a fixed stud or point, *u*, when the rake arrives at the extremity of its front stroke, which throws the teeth to the position shown in red lines at the left hand of Fig. 4, and the pin *s*, recovering the teeth from this to their erect position when arriving at the termination of their back stroke, (whose direction is denoted by red arrow,) the pin *s* striking against a projecting stud, *x*, and so throwing the teeth upward. Suitable recesses or openings are made in the rake-board and framing of the machine for reception and operation of the studs *r* and *s*. The rake-teeth resuming their erect position at the termination of the back stroke is explained by lines in red at the right hand of Fig. 4; but in thus resuming their erect position the rake-teeth will be apt to throw up or back the grain on the

table of the slats, to prevent which I propose to adopt a rake-cleaner, W, resembling in construction the delivery-gate V, but not acted upon by springs, it being loosely suspended and swinging to the position when operated shown by red lines in Fig. 4, so that its teeth work in between the teeth of the rake, which they clear or clean, and project the grain raised by the rake-teeth along the table of slats toward the delivery-gate V. The said rake-cleaner is so operated by the rake-board P striking the lower end of a lever, Y, which has a fulcrum attached to the frame of the machine, and whose upper extremity bears and acts against the rake-cleaner, this motion of the lever Y also being shown in red lines at the right hand of Fig. 1.

One important feature connected with the action of the rake is that, through means of the handle-lever L, it may be thrown out of gear when coming to a thin or widely sown part of the field until, by the forward motion of the machine and continuous action of the cutter, sufficient grain is collected on the table of slats to form a gavel, when the driver

on the seat, without any interruption, puts the rake again into gear.

I do not claim as new the application of a rake having a reciprocating movement for the purpose of gathering the grain into gavels; nor yet do I claim causing the teeth *m m* to travel between the slats forming the receiving-table; neither vibrating the said teeth in the manner specified, as such have been done before; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The application of a rake-cleaner, W, constructed similarly to the gate V, but not acted upon by springs, it being loosely suspended and so operated by the back motion of the rake as that its teeth work upward between the teeth of the rake, throwing the grain cleared therefrom toward the delivery end or gate V.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

WILLIAM McLAGAN.

Witnesses:

A. GREGORY,

A. E. H. JOHNSON.