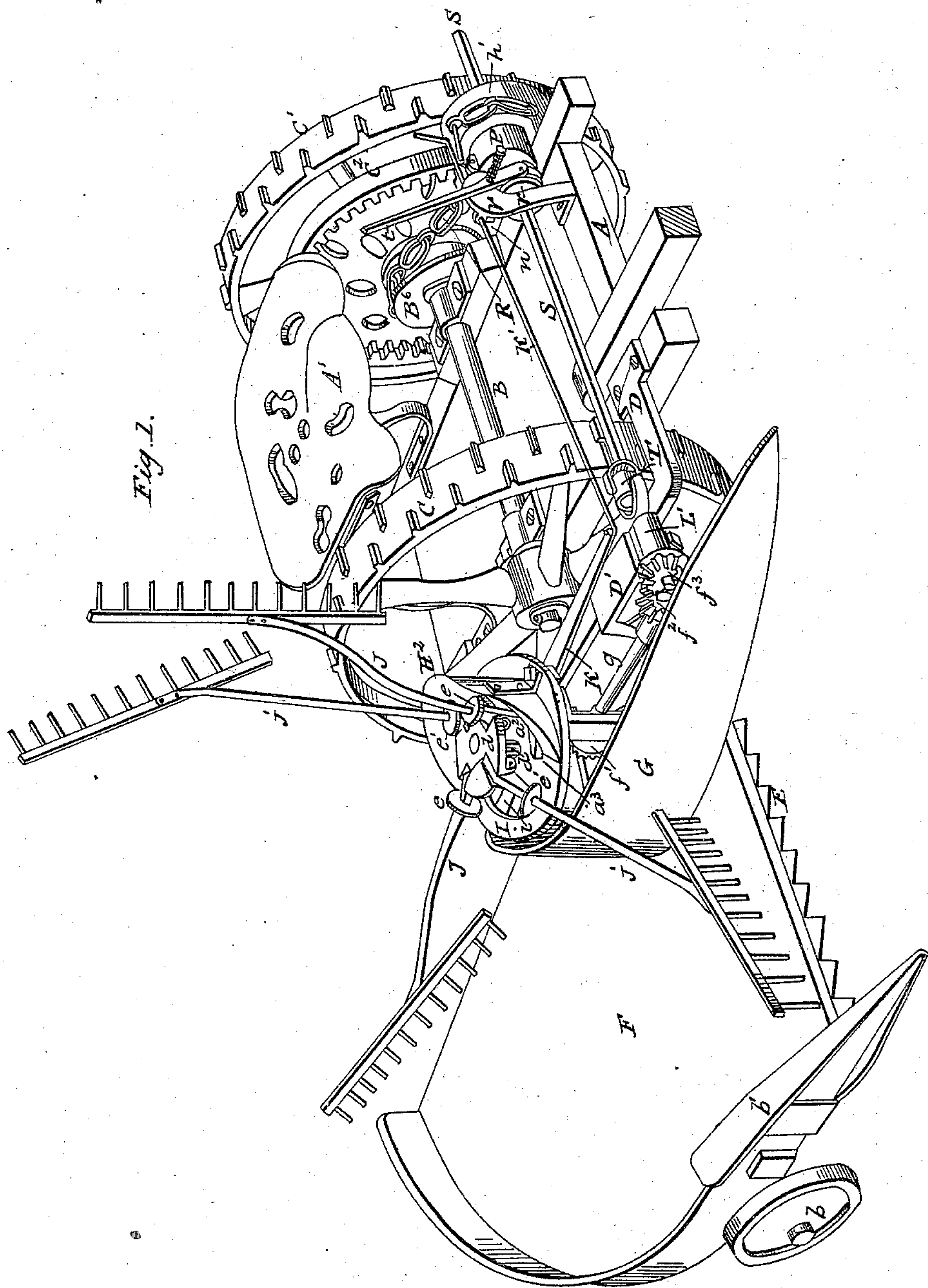


R. BRYSON.
Harvester Rake.

No. 74,983.

Patented March 3, 1868.



Witnesses.

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Edw. Schaefer

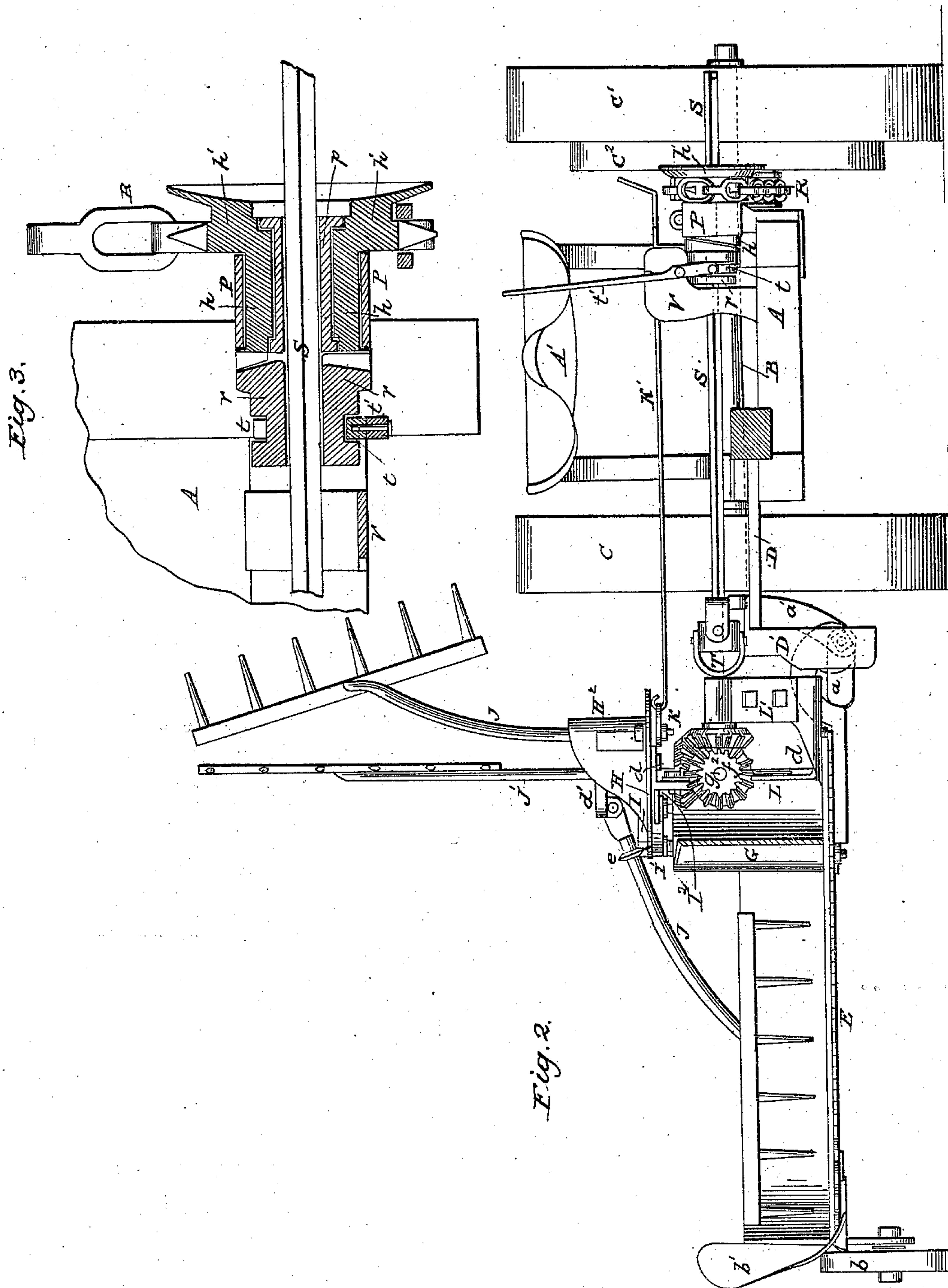
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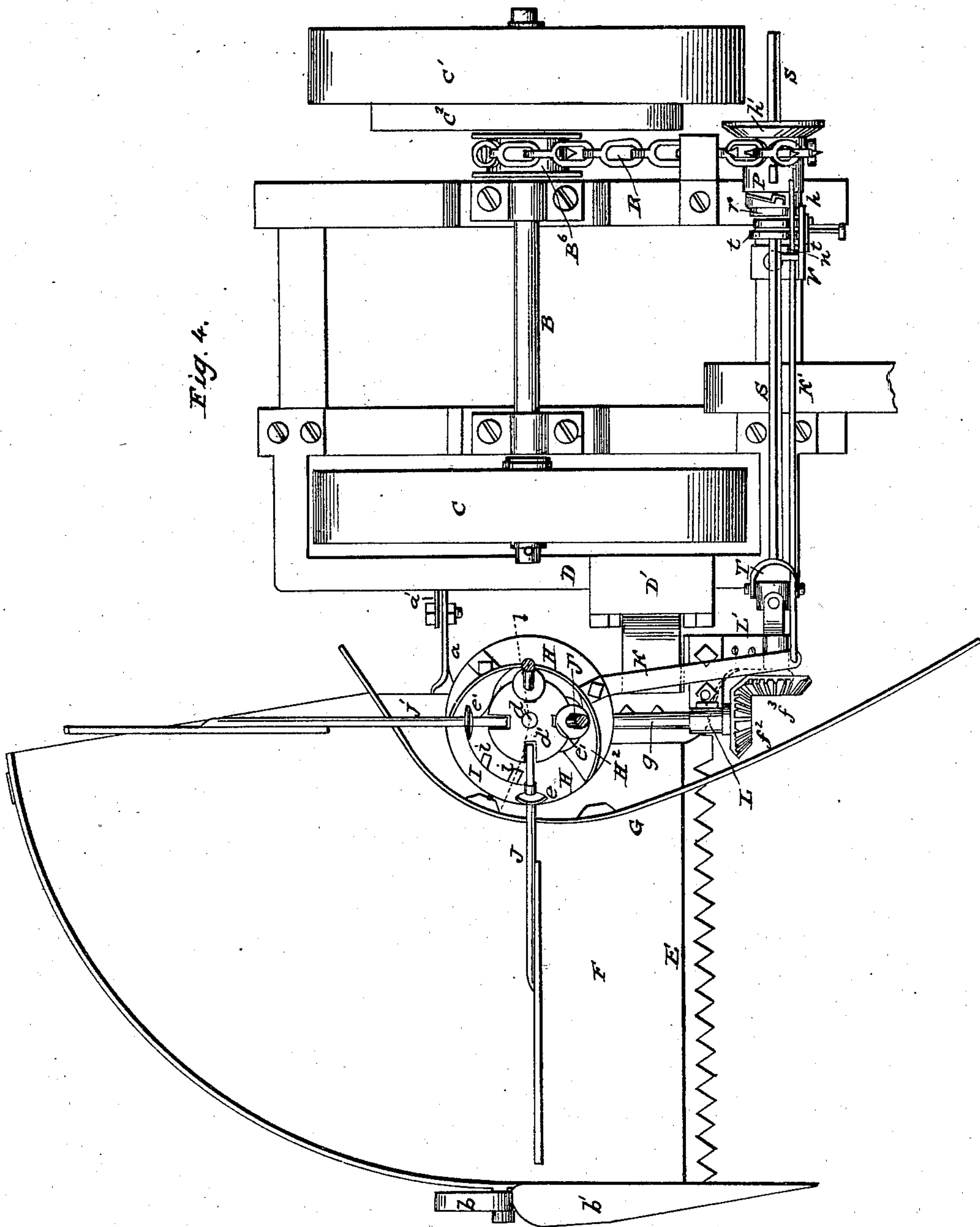


Fig. 4.

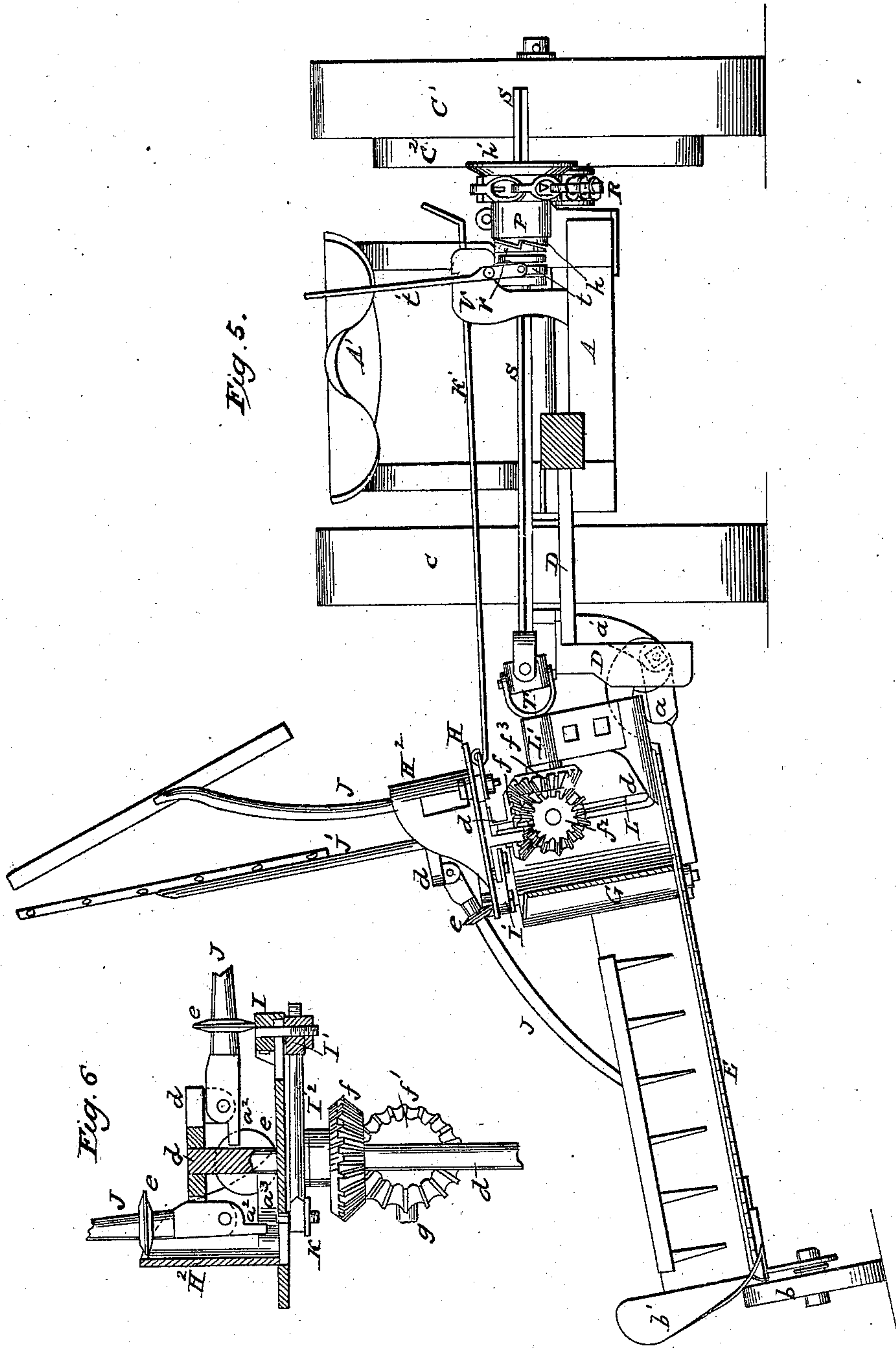
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ROBERT BRYSON, OF SCHENECTADY, NEW YORK.

Letters Patent No. 74,983, dated March 3, 1868.

IMPROVEMENT IN HARVESTER-RAKES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ROBERT BRYSON, of Schenectady, in the county of Schenectady, and State of New York, have invented certain new and useful Improvements in Harvesting-Machinery; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, sheet 1, is a perspective view of a harvester with my improvements applied to it.

Figure 2 is an elevation of the front of the improved harvester, with a portion of the inner guard broken away to show those parts which are behind it.

Figure 3 is an enlarged horizontal section of the front chain pulley, its clutch, and a portion of the sliding shaft which communicates motion to the rake.

Figure 4, sheet 2, is a plan view of the machine, with two of the rake-arms partly broken away.

Figure 5 is a front elevation of the machine, showing the platform included.

Figure 6, sheet 2, is an enlarged vertical section of the rake-mechanism, as seen by making a section in the plane indicated by the line $x x$ in fig. 4.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on harvesters, wherein rakes and reels are employed, which are so supported as to move in unison with finger-bars and platforms that are hinged, or so attached to their draught-frame as to move independently thereof.

The invention also relates to an improvement on revolving rakes and reels, whereby the attendant can regulate the size of the sheaf or bundle at pleasure while cutting heavy or light swaths.

The object of the first part of my invention is to communicate motion to a raking and reeling-apparatus, of the description hereinafter described, through the medium of an endwise-sliding shaft, which is applied upon the main frame of the machine, and provided on one end with a gimbal-joint, and near the other end with a shifting-clutch, a clutch-drum, and a pulley, so arranged and constructed that the finger-bar and platform, with the raking and reeling-attachments, are allowed perfect freedom to vibrate, and to rise and descend bodily during the raking or reeling operations, as will be hereinafter described.

The object of the second part of my invention is to provide, in a novel manner, for allowing the attendant, whilst riding upon the machine, to cause any one or all of a series of revolving raking and reeling-devices to operate either as rakes or reels at pleasure, for the purpose of regulating the size of gavels in cutting thick or thin-growing grain, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the main draught-frame, which may be constructed in any suitable manner, and provided with a driver's seat, A'. This frame is suspended beneath the axle B by two transporting-wheels, C C', either one or both of which may be used as driving-wheels for operating a raking and reeling-apparatus, and also the sickle. The inside gear-wheel C², which is fast on the axle B near the driving-wheel C', is used for giving motion to devices which operate the sickle, that are not shown in the drawings.

On the grain-side of the draught-frame A, and rigidly secured to it, is an auxiliary frame, D, which extends horizontally around the wheel C, and has a slotted hanger, D', depending from it near its front end. To this hanger the finger-bar E is attached so that its outer end can vibrate freely, and also so that its inner end can rise and descend. In rear of this loose-joint connection of the finger-bar E, the platform F is attached to the frame D, by means of a lateral arm, a , pendant a' , and a jointed connection. This rear-jointed attachment may be made in such manner that while it serves to keep the finger-bar in proper position, and to sustain it against backward thrust, it will also allow the platform to rise and fall at its inner end, and to vibrate at its outer end. This might be done by allowing the pendant a' to rise and fall vertically, or by having this pendant rigid, and slotting it at the point where the pivot-pin passes through it.

The platform is of the well-known segment-form, and it is provided with an outer rolling support, b , outer divider b' , and an inner grain-guard, G, as shown clearly in figs. 1 and 4.

The drawings represent the cutting-apparatus arranged nearest the front end of the draught-frame, but, if

desirable, this cutting-apparatus may be arranged nearest the rear part of the draught-frame, thus making either a front or a rear-cutting machine, and, if desirable, the finger-bar and platform may be hinged to the draught-frame, or an auxiliary attachment thereof, in suitable manner, which will allow this bar and platform to conform to the undulations of the ground in cutting grain.

The draught-frame A may be supported upon or above the axle B, instead of being suspended beneath it, but I prefer to adopt the latter arrangement, so as to have said-frame as low as practicable without using transporting-wheels too small in diameter. Upon the platform F, and in rear of the front laterally-flaring position of the grain-guard G, is a post or shaft, d , which is supported in a suitable manner, perpendicular, or nearly so, to said platform, and which passes up through the centre of a circular plate or track-bed, H, which is mounted upon a frame, H', so as to have a permanent position in a plane parallel to the platform F. On the upper end of said post d , and above the track-bed H, is a circular bearing-plate, d' , which carries the rakes and reels or gatherers. This plate has four slots made in its periphery, diametrically opposite each other, in which the heels or inner ends of the rake and reel-arms work. These arms are pivoted to ears which are formed on the bottom of the plate d' , as shown in figs. 1 and 6, so that the arms of the rakes and reels are allowed to vibrate vertically, and assume the upright or inclined positions shown in the drawings.

The rake-arms J and reel-arms J' carry rake-teeth upon their outer ends, so that the raking and reeling can be done by either the rakes or reels, as may be desired, and from the inner or pivoted ends of said arms, teeth, a^2 , project, which are acted upon by a small tripping-cam, a^3 , upon the track-bed H, when said arms successively arrive at a point in their revolution at which it is necessary for them to descend toward the front of the platform, which cam will throw the inner ends of said arms toward the post d , and thereby cause the arms to descend at the proper point in their circuit. The fixed cam H² upon the track-bed H causes the arms J J' to rise after sweeping over the platform, and allows them to descend in a proper manner, and at proper times to commence their strokes across the platform.

The rake and reel-arms J J' have small double-convex anti-friction wheels, $e e'$, applied to them, so as to support them while making their circuit around their vertical axis. The wheels e upon arms J J are placed nearer the pivots of these arms than the wheels e' upon arms J', for the purpose of having the two pairs of wheels travel in different paths, that is to say, the wheels e will traverse in a path nearer the post d than the wheel e' , as shown in fig. 4.

Upon the flat upper surface of the circular track-bed H is a narrow adjustable segment-track, I, the front edge of which is inclined, so as to allow the wheels e or e' to ascend upon it, as shown in figs. 1 and 6. This segment is so arranged that, by moving it outward, as shown in figs. 1 and 4, the wheels on arms J' will rise upon it, and lift these arms out of raking position after they have performed the operation of reeling or gathering in the standing grain to be cut, and by moving it inward, the wheels on arms J will rise upon it, and lift these arms out of raking position. Thus it will be seen that any one or more of the arms J J can be thrown up out of raking position by moving the segment I in the path of the wheel on the arm which it is desired to elevate. The rear end of said segment I works sufficiently close to the rear portion of the large cam H² to allow the wheels on the arms J J' to pass freely from it upon this cam.

The segment I has pins passing vertically through it, and through slots $i i$ made in the bed-plate H, which pins enter a sliding foot-piece I' beneath the said bed-plate, as shown in the sectional view, fig. 6. An arm, I², projects horizontally from the foot-piece I', and is jointed to the short arm of a lever, K, which lever is pivoted beneath the track-bed H, and extends forward a suitable distance to have attached to it a rod, K', which is arranged in a convenient position to the driver's seat upon the draught-frame, as shown in fig. 1.

I do not desire to confine myself to the precise means herein described for operating the sliding segment, as other means may be employed than those which I have shown.

Upon the rake and reel-post d a bevel-spur wheel, f , is keyed, which engages with a corresponding spur-wheel, f^1 , on a longitudinal shaft, g . This shaft g has its bearings in frame H¹, and also in post L, projecting up from the inner ends of the finger-bar, or the inner front corner of the platform; and upon the front end of this shaft a bevel-spur wheel, f^2 , is keyed, which engages with the teeth of a corresponding spur-wheel, f^3 , upon a short transverse shaft, which is supported upon the upper end of a post, L', upon the finger-bar or platform. The inner end of the short shaft of wheel f^3 is connected, by means of a gimbal or universal joint, T, to a square rod, S, which extends transversely across the draught-frame A, and passes through the centre of the hub h of a chain-wheel, h' , as shown in figs. 1, 2, 3, 4, and 5. The hub h is supported upon the draught-frame A by means of a collar-bearing, P, so as to receive a rotary motion from the axle B through the chain R and grooved chain-drum B⁶, as shown in the drawings. The square rod S passes through a hole of corresponding shape, which is made through the centre of a tube, p , which tube is applied concentrically in the hub h , so as to turn freely therein, and to allow this hub, with its chain-wheel h' , to rotate independently of it, as clearly shown in fig. 3. On one end of the hub h , opposite the chain-wheel h' , a clutch-face is formed, and upon the rod S is applied a cylindrical clutch, r , which rotates with this rod, and which is allowed to receive an endwise movement thereon. This clutch r has an annular groove formed in it, which is embraced by a yoke, t , upon the lower end of a hand-lever, t' . This hand lever t' is pivoted to a standard, V, upon the frame A, and used for moving the clutch into gear with the rotary hub h , and disconnecting it therefrom. The chain-wheel h' and its hub h turn freely around the tube p , and this tube remains stationary when the clutch r is not engaged with the said hub h , but when the clutch r is engaged with said hub h this hub will communicate a rotary motion to the rod S through the clutch. The rod S is free to slide back and forth through its bearing p , and to accommodate itself to the vibrations of the finger-bar and platform, whether this rod be rotating or not.

It will be seen that the gimbal-joint T will allow the finger-bar and platform to vibrate freely, without

causing a material deflection of the rod S, or preventing this rod from communicating a regular rotary motion to the rake and reel-post.

Instead of using a chain or belt for communicating motion to the hub h , a spur-wheel may be formed on or otherwise applied to this hub in place of the chain-wheel h' , and driven by means of a spur-wheel upon the axle B. I do not confine myself, therefore, to the use of a chain for driving the shaft or rod S.

From the above description it will be seen that the attendant, whilst riding upon the draught-frame A, can cause any one of the rake or reel-arms to rise so high, after gathering in the standing grain, as not to rake the cut grain from the platform, and that, when a sufficient amount of grain has been cut to form a gavel, he can cause any one of the rakes or reels to remove it from the platform, and deliver it upon the ground out of the way of the team in cutting the succeeding swath. This the attendant can do by simply moving the rod K, which passes freely through an eye, n , upon standard V, and which slides back and forth through said eye as the finger-bar and platform vibrate.

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

1. The laterally-sliding segment I, applied to the plate or track-bed H by means of a slot and guide, or slots and guides, substantially as and for the purpose described.

2. The rod K' and guide n upon the draught-frame A, in combination with lever K and sliding segment-track I, substantially as and for the purpose described.

3. The combination of the sliding segment I, and its lever and connecting-rods for operating it, with the track-bed H, fixed cam H^2 , and a series of revolving rakes and reels, substantially as described.

4. The combination of a sliding elevating segment-track, I, with rake and reel-arms, which revolve around an axis, and with anti-friction wheels e e' applied upon said arms at different distances from their respective axes of motion, substantially as and for the purposes described.

5. A gimbal-jointed rod, S, which is allowed to slide freely through the clutch-hub h , and which carries upon it a sliding clutch, r , in combination with spur-wheels f^3 f^2 , longitudinal shaft g , and spur-wheels f f^1 , arranged to operate substantially as described.

6. The sliding rod S and its gimbal or universal joint T', in combination with a clutching-device, r h , a rotating bearing, p , and a driver, h' , substantially as and for the purpose herein described.

7. The arrangement of the rod K', and the slide-rod S, with its clutch, upon the draught-frame of a front-cut machine, and in front of the driver, all in such relation to the driver's seat that the driver can conveniently stop or start the rakes and reels, and also cause any one of them to operate either as a rake or reel at pleasure, substantially as described.

ROBERT BRYSON.

Witnesses:

ABNER McOMBERS,
ROBERT GRAY.