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Harvester.

N^o 74342.

Patented Feb. 11, 1868.

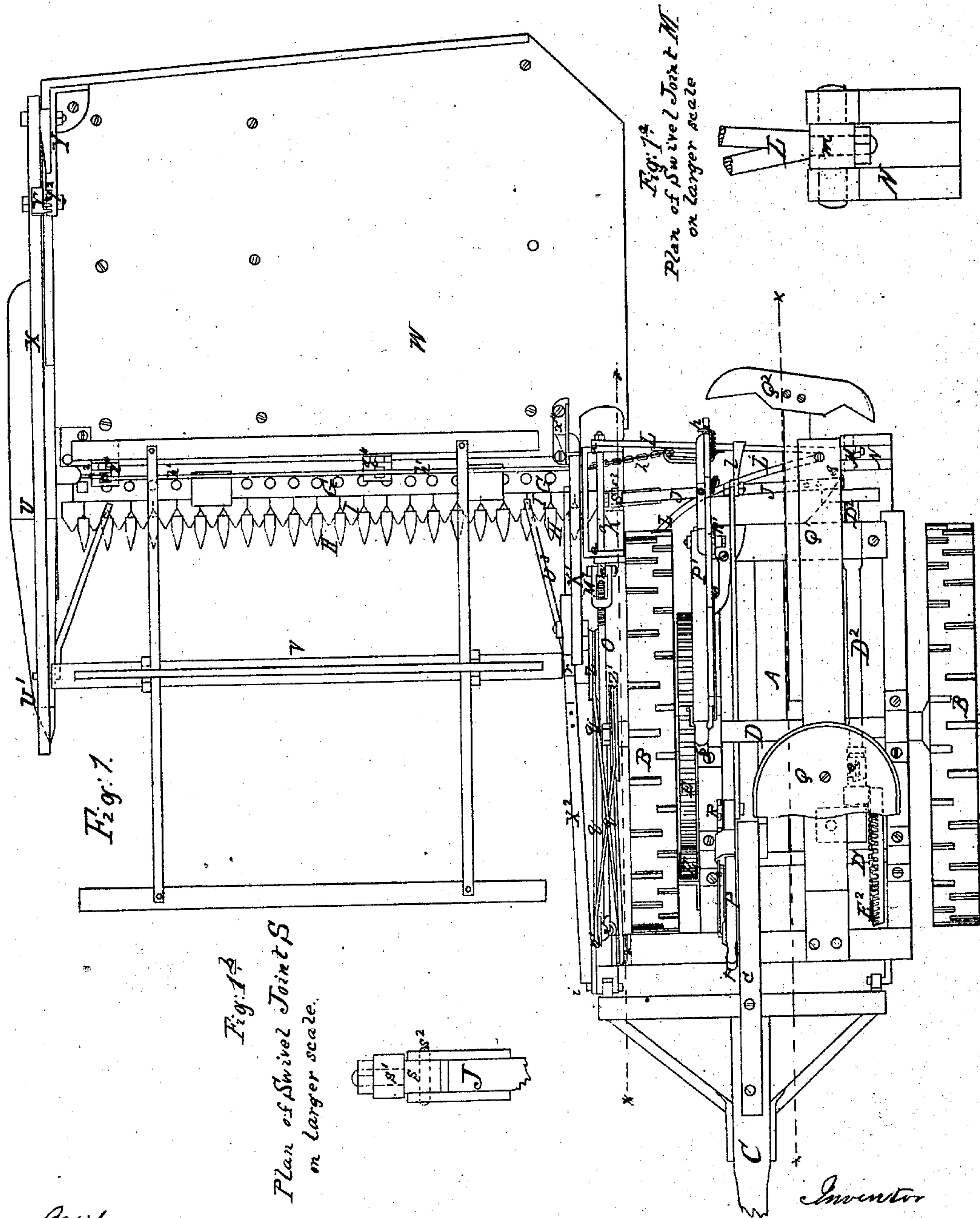


Fig. 1
Plan of Swivel Joint S
on larger scale.

Fig. 7
Plan of Swivel Joint M
on larger scale.

Witnesses

J. N. Thurst.

R. J. Cunningham.

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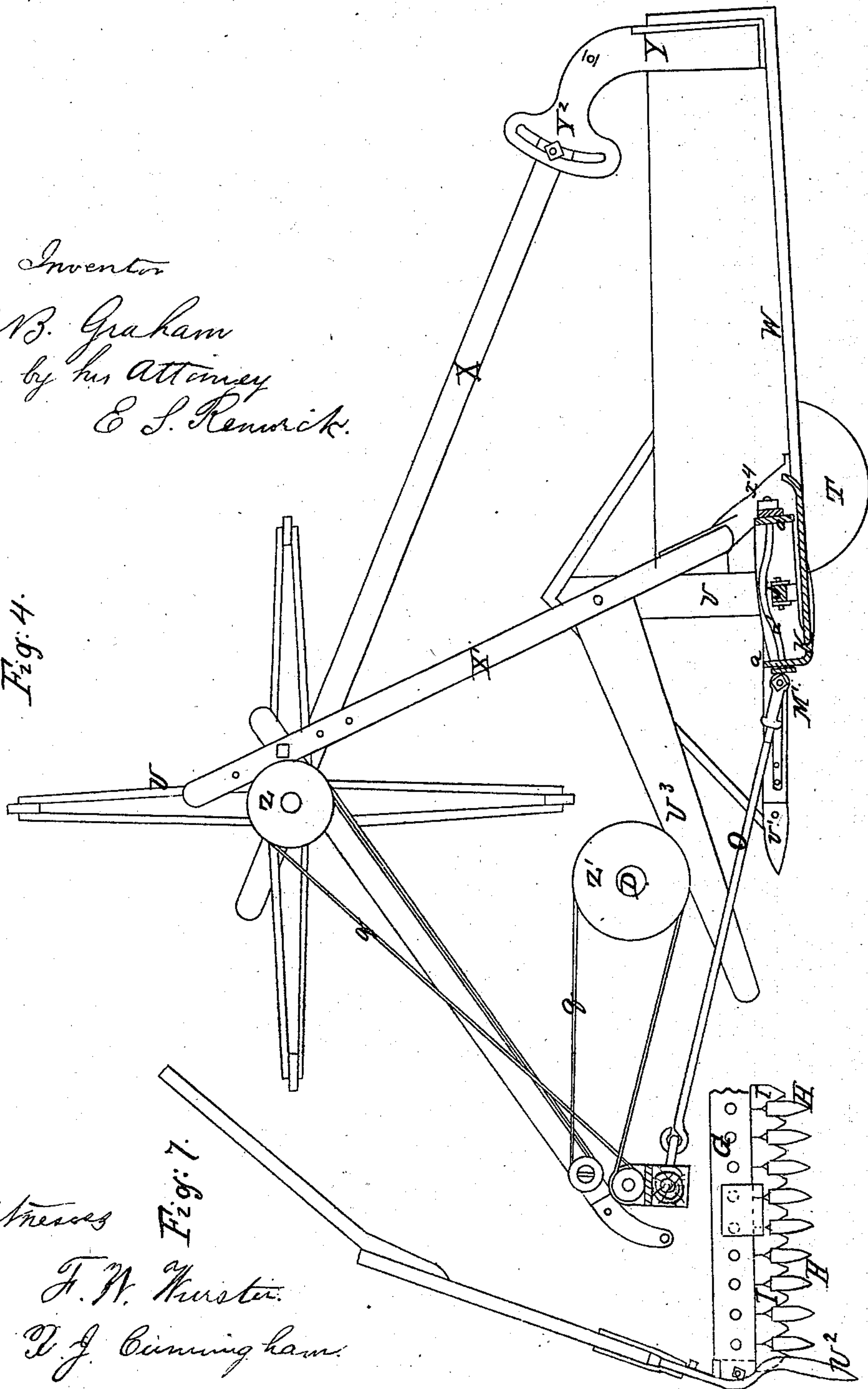
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Fig. 4.



Witnesses

Fig. 7.

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Sheet 5 - 5 Sheets.

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Fig. 5.

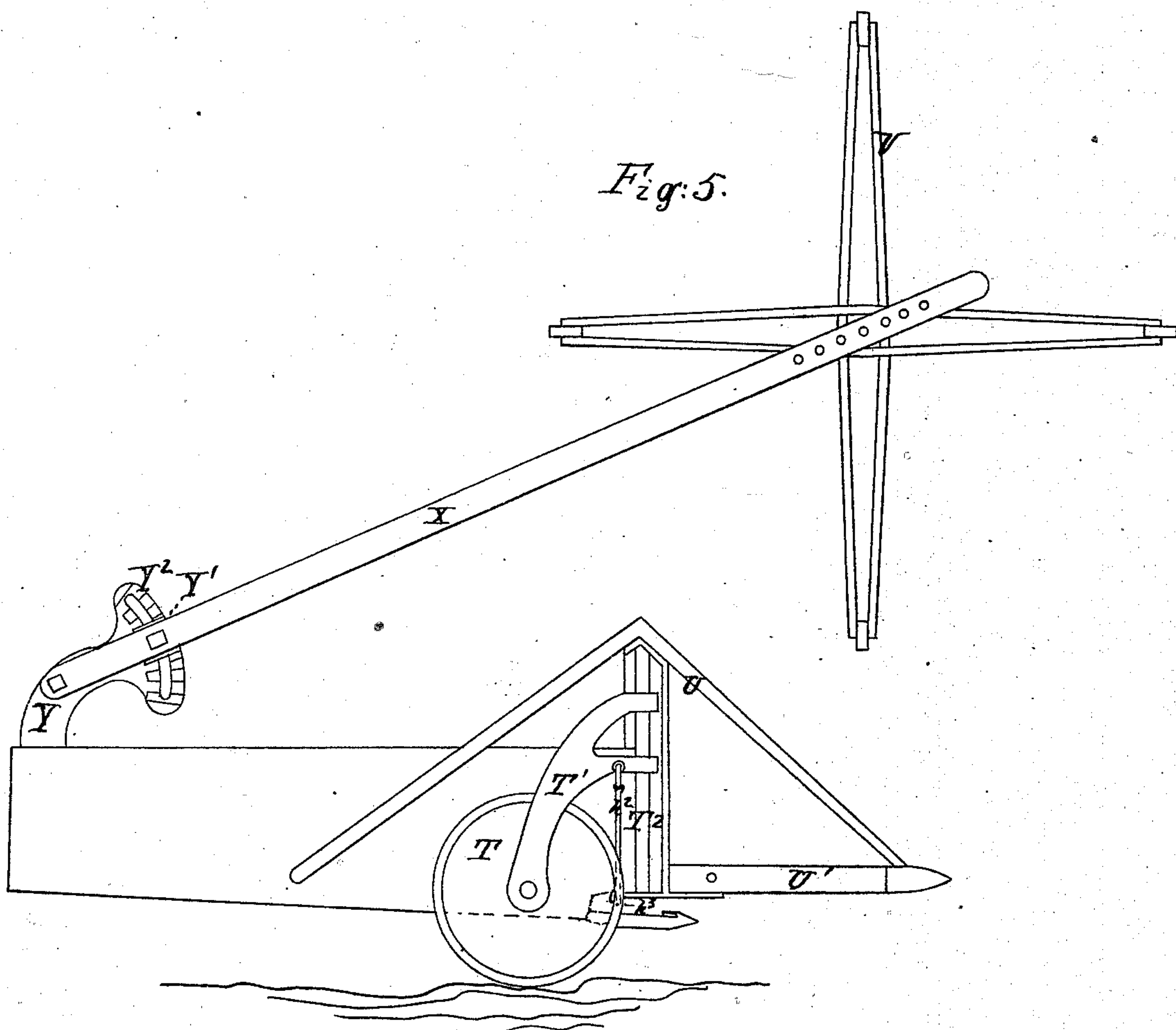
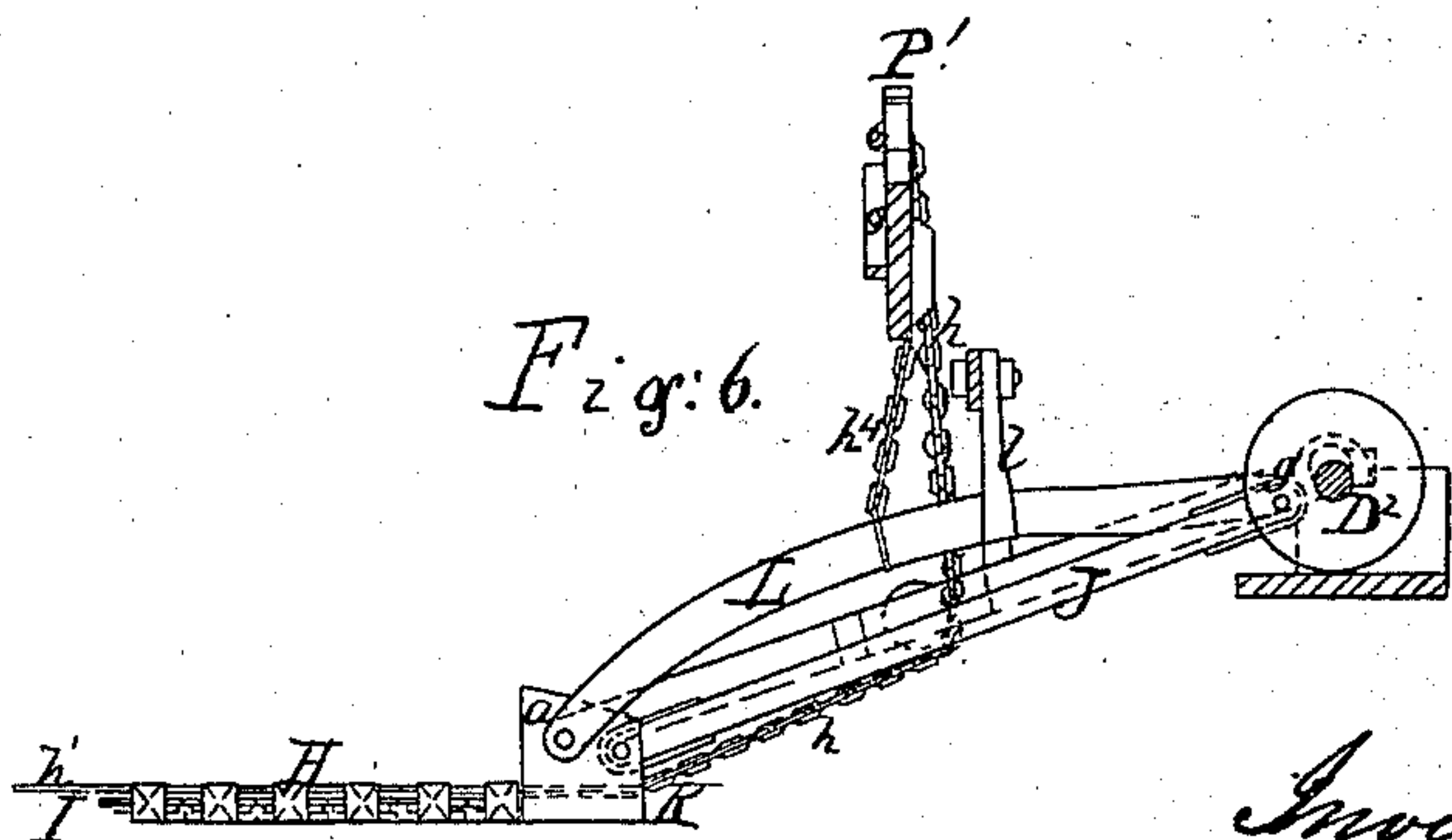


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

ALVARO B. GRAHAM, OF WAUKEGAN, ILLINOIS.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 74,342, dated February 11, 1868.

To all whom it may concern:

Be it known that I, ALVARO B. GRAHAM, of Waukegan, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Harvesters for Reaping and Mowing; and I do hereby declare that the following is a full, clear, and exact description of my invention.

The objects of the improvements which constitute the invention set forth in this patent are to obtain a greater capacity of movement in a floating finger-beam while retaining its connection with a gearing-carriage that is drawn forward by a stiff tongue, to facilitate the raising and lowering of the finger-beam, to improve the operation of the cutting apparatus, and to transmit motion from the gearing-carriage to a reel connected with a finger-beam that rises and falls independently of the gearing-carriage.

To these ends the first of my improvements consists of the combination of the finger-beam with the gearing-carriage by means of a vibratable link, (extending crosswise to the line of draft,) a draft-rod, (extending parallel with the line of draft,) and two swivel-joints, (the one for the vibratable link and the other for the draft-rod,) so that the finger-beam can rise and fall at either end and rock forward or backward independently of the gearing-carriage while maintaining its connection with it.

My next improvement consists of the combination of the finger-beam, gearing-carriage, vibratable link, draft-rod, and swivel-joints with an arm connected with the finger-beam, to enable it to be rocked for the purpose of setting its guard-fingers at any desirable inclination to a horizontal line.

My next improvement consists of the combination of the gearing-carriage, rocking finger-beam, and reciprocating cutter with a crank-shaft on the gearing-carriage for driving the cutter, a connecting-rod extending between the crank-wrist of the said crank-shaft and the cutter, and a swivel-joint at the cutter for the connecting-rod, so that the connection between the crank-wrist (on the gearing-carriage) and the cutter (on the finger-beam) does not obstruct the rocking of the finger-beam.

My next improvement has reference specially to the raising of the grain end of a fin-

ger-beam which is connected with the gearing-carriage by a vibratable link, and consists of the combination of the gearing-carriage, the finger-beam, and the vibratable link (that connects the two while permitting the finger-beam to move independently of the carriage) with a grain-wheel that is movable in a vertical direction relatively to the finger-beam, and with a lifting-connection extending from the bearing of the said wheel to the gearing-carriage, so that by operating upon said lifting-connection the grain end of the finger-beam may be raised or lowered relatively to the grain-wheel, and consequently to the ground on which that wheel runs.

My next improvement has reference to the raising of both ends of the finger-beam in a machine in which it is free to move independently of the gearing-carriage, and consists of the combination of the gearing-carriage, finger-beam, vibratable link, grain-wheel, and lifting-connection extending from the grain-wheel, as hereinbefore specified, with a lifting chain or connection connecting the inner or stubble end of the finger-beam with the gearing-carriage, so that by operating the said two connections both ends of the finger-beam may be raised or lowered, or by operating one or other of the said two connections the corresponding end of the finger-beam may be raised or lowered without the other.

My next improvement consists of the combination of a lifting-lever upon the gearing-carriage with the lifting-connections (connected with the finger-beam and grain-wheel) by means of V-formed notches that permit the lengths of the said connections to be readily adjusted by changing the links of the chains that are engaged in said V-formed notches.

The object of the next improvement is to prevent the casting off of the belt that imparts motion from a shaft upon the gearing-carriage to a reel that moves independently thereof when the machine is passing over rough ground; and it consists of the combination of the reel arranged to move with the finger-beam, the gearing-carriage, a radius-bar connecting the reel-shaft with the gearing-carriage, a guiding-belt pulley arranged upon the gearing-carriage, and a second guiding-belt pulley arranged upon the radius-bar. In this combination one of the said two guide-

pulleys directs the driving member of the belt into its proper line while the other guide-pulley directs the slack member of the belt into its proper line, so that the belt does not tend to cast itself off the driving-pulley or the reel-pulley.

The object of the next improvement is to insure the free rocking of the finger-beam (for the purpose of raising or depressing the points of the guard-fingers) when the machine is used for reaping grain, and consists of the combination of the finger-beam with the gearing-carriage by a swivel-joint and with the raking-platform by hinge-connections, so that the finger-beam may be rocked relatively to both the gearing-carriage and the raking-platform with which it is connected.

The object of the next improvement is to maintain the raking-platform at its proper inclination or level, notwithstanding the rocking of the finger-beam with which it is connected; and it consists of the combination of the raking-platform of the machine with the finger-beam by hinge-connections and with the gearing-carriage by an upright stay and a bar or link connecting the gearing-carriage and the upper end of said stay. The upright stay forming a part of this combination is, by preference, the inner reel-post, and the bar or link is, by preference, the radius-bar, that also connects the reel with the gearing-carriage, so that the said reel-post and radius-bar are enabled to perform duplex functions.

The object of my next improvement is to insure the free rocking of the finger-beam relatively to the raking-platform, notwithstanding the support of the outer ends of the finger-beam and platform by a grain-wheel; and it consists of the combination of the finger-beam with the grain-wheel through the intervention of a hinge-connection, which is, by preference, one of the same hinge-connections which combines the raking-platform with the finger-beam, and the grain-wheel is, by preference, a caster-wheel.

The object of my next improvement is to enable the clutch-connection between the crank of the cutter and the driving-wheel to be operated with facility, and consists of the combination of the movable member of the clutch with a clutch-lever composed of two parts, which are a lever proper, and a yoke that engages in a groove in the said movable member.

My improvements may be embodied in a machine having the finger-beam arranged in advance of the axial line of the shaft or arbor of the driving-wheel, or arranged in the rear of that axial line. In the former case the vibratable link that connects the finger-beam with the gearing-carriage will be arranged in advance of the driving-wheel, and in the latter case in the rear of the driving-wheel. In the former case, also, the rod hereinbefore called a "draft-rod" (because the strain to which it is subjected is a pulling strain) becomes a pushing or thrust rod and connects

the inner end of the finger-beam with the rear of the gearing-carriage. In the former case the radius-bar for the reel and raking-platform connects with the rear end of the gearing-carriage and in the latter case with its front end.

I prefer to construct a harvesting-machine with the finger-beam in the rear of the line of the axle of the driving-wheel, and as a description of such a machine perfected by my improvements will enable them to be fully understood all of my improvements are embodied in the harvesting-machine of that description, which is represented in the accompanying drawings, and which is an illustration of the best mode which I have thus far devised of embodying them in a working-machine.

Figure 1 represents a plan of the machine. Fig. 2 represents an elevation of the stubble side thereof. Fig. 3 represents a vertical transverse section thereof at the line $x\ x$ of Fig. 1. Fig. 4 represents a similar section thereof at the line $*\ *$ of Fig. 1. Fig. 5 represents an elevation of the grain side of the machine. Fig. 6 represents a front view of certain parts of the machine designated by the same letters as are applied to the same parts in the other figures. Fig. 7 represents a plan of a part of the finger-beam with the divider used in mowing and the platform and grain-divider disconnected; and Figs. 8, 9, and 10 represent a plan and side view and cross-section of the guard-fingers drawn upon a larger scale than the preceding figures, and Figs. 11 and 12 represent views of the clutch-lever of the crank-shaft, also drawn upon a larger scale.

This machine is what is commonly called a "combined" machine, and is adapted to reaping and mowing. When used for the former purpose, it is arranged as represented in Figs. 1 to 6. When used for the latter purpose, certain of its parts are removed, as hereinafter stated, and a grass-divider is substituted for the grain-divider at the outer end of the finger-beam.

The gearing which imparts motion to the sickle and reel of the machine is mounted upon a carriage, A, which is supported by two running or ground wheels, B B, and is provided with a tongue, C, to which the horses are hitched. The tongue is jointed to the gearing-carriage, and has an arm, c , which projects backward over said carriage to a standard, c' , mounted thereon. The standard and arm are both pierced with holes through which a bolt, c^2 , is passed, by which the tongue is made fast, so that the tongue is then a stiff tongue; but the inclination of the tongue to the carriage may be varied by shifting the said bolt from one hole to another in the standard c' , so as to vary the position of the rear end of the carriage with which the cutting apparatus is connected.

The running-wheels B B by their revolution impart motion to the cutter and reel of

the machine. To this end they are fitted to turn upon a shaft, *D*, with which each is connected by a spring-pawl, *d*, and a ratchet-wheel, *d'*, (the latter secured to the shaft and the former to the running-wheel,) so that the running-wheel that turns fastest acts as the driver. This shaft is fitted with a cog-wheel, *E*, whose teeth engage with those of a pinion, *E'*, secured to a counter-shaft, *D'*, and this counter-shaft is fitted with a beveled wheel, *E²*, whose teeth engage with those of a beveled pinion, *E³*, (represented in dotted lines in Fig. 1,) that is mounted upon the crank-shaft *D²*, with which the cutter is connected. The hub of the pinion *E³* is fitted to turn upon the crank-shaft *D²*, and is connected with it by means of a saw-toothed clutch, one member, *e*, of which is arranged to slide longitudinally upon the crank-shaft, but compelled to turn therewith by means of a pin or feather, while the other member of the clutch is formed upon the hub of the pinion *E³*. The sliding clutch member *e* is controlled by a lever, *f*, which is composed (see Figs. 11 and 12) of two parts, the lever proper and a yoke, *f³*, which enters a groove in the sliding clutch member *e*, and is pivoted to the frame of the machine with its upper end passing through a slotted plate, *f'*, fitted with two notches, in one or other of which the lever may be engaged for the purpose of holding the clutch in gear or out of gear. In the former case the crank-shaft *D²* and the cutter are caused to operate as the running-wheels turn. In the latter case the crank-shaft and cutter, being disconnected from the running-wheels, remain at rest. The requisite lateral play of the lever to permit its engagement and disengagement is obtained by constructing it to fit loosely upon its pivot, and a spring, *f²*, is coiled upon the pivot to hold the lever engaged in either notch of the slotted plate *f'*. The two parts of the clutch-lever are notched and fit loosely into one another; hence the yoke can play upon the lever proper to accommodate itself to the varying positions of the lever proper and sliding clutch member.

The finger-beam *G* of the machine projects at one side of the rear end of the gearing-carriage *A*, and is fitted with guard-fingers *H*, through the slots of which a scalloped cutter, *I*, is arranged to reciprocate endwise. The end of this cutter that is nearest the gearing-carriage is connected with the crank-wrist *g* of the crank-shaft *D²* by means of a connecting-rod, *J*. The finger-beam is connected with the rear end of the gearing-carriage in the following manner: The end of the beam nearest the carriage is provided with a shoe, *K*, from which lugs *a* project upward. These lugs are perforated to admit a joint-bolt, *a'*, which connects the shoe with one end of a vibratable forked link, *L*, whose other end is connected by a swivel-joint, *M*, with a bracket, *N*, secured to the rear of the gearing-carriage. This swivel-joint is formed by

a cross-head, *m*, Fig. 1^a, the center of which is bored transversely to permit a journal formed on the end of the forked link *L* to turn in it. The ends of the cross-head *m* are formed into journals which turn in bearings upon the bracket *N*; hence the finger-beam can both rise and fall freely at either end, and rock forward and backward without twisting the link that forms its connection with the gearing-carriage. Moreover, the axis of the cross-head *m* of the swivel-joint is arranged in line, or thereabout, with the axis of the crank-shaft *D²*, that imparts motion to the cutter, so that such rising and falling or rocking does not materially change the distance between the crank-shaft and the cutter. The shoe *K* of the finger-beam is connected also with the front end of the gearing-carriage by a draft-rod, *O*, and the connection between the rear end of this draft-rod and the said shoe is a swivel-joint, *M'*, of which the joint-pin *a'* of the vibratable link *L* is the longitudinal axis and its T-head *m'* the horizontal axis. The swivel-joint, therefore, while maintaining a firm connection with the draft-rod, gives free play for both the longitudinal and rocking movements of the finger-beam; hence when the machine is used for cutting grass the said finger-beam may be left free not only to rise and fall at either end, but also to rock or to be rocked forward and backward, so that the points of its guard-fingers incline toward or from a horizontal plane.

In order that the finger-beam may be rocked by the conductor of the machine, the vibratable link *L* is fitted with an arm, *l*, whose upper end is connected by a rod with the lower end of a lever, *P*, that is pivoted to the gearing-carriage near its forward end. The upper end of this lever *P* extends within the reach of the driver, who sits upon the driver's seat *Q*, so that he may rock the finger-beam by moving the said lever to and fro. This rocking lever *P* is fitted with a spring-bolt whose end can engage in any one of a number of notches formed in a segment, *R*, which is attached to the gearing-carriage concentrically with the pivot of the rocking lever, so that the finger-beam may be fastened in the desired position by the engagement of the spring-bolt in the appropriate notch. The rocking lever is fitted with a lever-handle, *p*, and rod connecting with the spring-bolt, by which the spring-bolt may be withdrawn from the notched segment and held disengaged therefrom during the movement of the lever. In order that the connection between the cutter on the finger-beam and the crank-shaft on the gearing-carriage may not obstruct the free rocking of the finger-beam, the connecting-rod *J* is connected with the cutter *I* by means of a swivel-joint, *S*, consisting (see Fig. 1^b) of a head, *s*, that is pivoted to the cutter-stock, (by a shank that extends lengthwise therewith and turns in an ear, *s'*, secured to the end of the cutter-stock,) and of a cross-pivot,

s², that passes through the said head and through two ears formed upon the connecting-rod J.

The outer end of the finger-beam is sustained by a grain-wheel, T, which is pivoted to an arm, T', that projects from and is constructed to turn upon an upright arbor, T², so that the said grain-wheel operates as a caster-wheel. This arbor T² is secured to the frame-work U of the divider U'.

In order that the finger-beam may be raised and lowered while the machine is in operation, the arbor T² of the caster-wheel is constructed to slide up and down in the hubs of the caster-arm T', and the said arm is connected with the shorter arm of a bent hand-lever, P', that is pivoted upon the gearing-carriage by a flexible connection consisting of a chain, h, rod h', and a cord, h², the first of which passes around a sheave mounted upon the vibratable link L, and the last of which passes around a sheave, h³, secured in the divider frame-work U, so that the forward movement of the bent hand-lever or lifting-lever P' pulls the divider end of the finger-beam upward and causes it to approach the hub of the caster-wheel arm T', thereby compelling it to rise from the ground.

In order that the inner end of the finger-beam may be correspondingly raised, the vibratable link L is provided with a chain, h⁴, which is applied to the same lifting-lever P' as the chain leading from the outer end of the platform, and as this second chain is attached to the link near its middle, so that the finger-beam is raised twice as much as the part or the link at which the attachment is made, the chain is applied to the middle of the bent arm of the lifting-lever.

In order that the chains may be adjusted so as to vary the position of the finger-beam from any required mean distance from the ground, they are not made fast to the lifting-lever, but are caught in V-formed notches w w', from which they can readily be removed and be as readily replaced. The lifting-lever is provided with a spring-bolt, which is arranged to engage in any one of a series of notches formed in a segment-plate, R', so as to secure the lifting-lever, and consequently the finger-beam G, with which it is connected, in any desired position. A lever-handle, p', also is applied to the lifting-lever to control the spring-bolt.

The guard-fingers H have a peculiar form, the upper faces of their lower members being made concave, as represented at n, Fig. 10. This construction permits the cutter or sickle to bear on the rims of the fingers, the edges of which are kept sharp by the constant attrition, so that the cutting-edges of the fingers are made self-sharpening. The lower members of the fingers are also constructed with spurs n' n' at their sides, made in one piece with them, the spurs being long enough to prevent the grain or grass from passing backward along the side of the finger into the

notches of the scallops of the cutter; but not so long as to meet and form a continuous bearing, which would involve the necessity of fitting their adjacent ends accurately to each other. This mode of preventing the backward passage of the material being cut is an improvement upon that in which the effect is produced by riveting a long bar to the under members of the fingers, as it involves less expense in construction.

The raking-platform W of the machine (when grain is to be harvested) is attached to the finger-beam G. The reel V is supported by this platform so as to move with the finger-beam when it is raised or lowered. The gudgeon of the outer end of the reel is received in one of a series of holes formed in a reel-bearer, X, which projects forward from a short reel-post, Y, secured to the platform at its outer rear corner. The reel-bearer is pivoted at its rear end to the head of this reel-post, and is provided with a toothed plate, Y', which engages in the spaces between the teeth of a segment, Y², secured to the reel-post. The segment has a curved slot in it through which a bolt is passed, which also passes through the reel-bearer so as to hold the toothed plate and bearer to the segment. The inclination of the reel-bearer may be varied, for the purpose of raising or lowering the outer end of the reel, by slacking the nut of the bolt and engaging the toothed plate with others of the spaces between the teeth of the segment Y². The shaft of the reel is supported at its inner end by a reel-post, X', erected upon the inner forward corner of the platform. The reel-shaft is fitted with a belt-pulley, Z, to which a round belt, q, is applied to cause it to revolve. This belt is put in motion by being applied to a second belt-pulley, Z', that is secured to the shaft D of the running or ground wheels B B.

In order that the tautness of the belt may not be materially affected by the change in the position of the reel, due to its movement with the finger-beam and platform relatively to the gearing-carriage, the bearing r of the inner end of the reel-shaft, although supported by the inner reel-post, X', is connected with the forward end of the gearing-carriage by a radius-bar, X², so as to maintain its distance therefrom, although it rise and fall, and the belt q, instead of being conducted directly from the pulley Z' on the driving-shaft D to the reel-pulley Z, is conducted forward and backward to and from two supplementary belt-pulleys, z z', that are located at or near the pivot i, that connects the radius-bar X² with the gearing-carriage, one pulley, z, being pivoted to the gearing-carriage and the other, z', to the radius-bar. As these pulleys are for all practical purposes substantially at the center of movement of the reel in rising and falling with the radius-bar, such movement does not materially affect the belt q, and the latter retains its tautness, while the rising and descent of the reel is not affected by the trans-

mission of power to it. On the other hand, the pulley z , located upon the gearing-carriage, maintains always the same relation to the driving-pulley Z' , and therefore guides the driving member of the belt properly to that pulley, notwithstanding the change of position of the reel caused by the unequal rising or descent of its two ends, while the other pulley, z' , being located on the radius-bar X^2 , maintains the same relation to the reel-pulley Z . However, the reel and the said pulley may vary its position relatively to the gearing-carriage, and therefore guides the slack member of the belt properly to the reel-pulley, notwithstanding its change of position; hence the pulleys z z' are guide-pulleys to guide the belt properly, and thereby prevent it from being cast off by the movement of the reel with the finger-beam in passing over uneven ground.

Another and equivalent arrangement of the belt and pulleys for maintaining the tautness of the belt (but not for preventing the casting of it off the pulleys) is represented at Fig. 3^a. In this case the radius-bar X^3 is pivoted upon a counter-shaft, D^3 , which is carried by the gearing-carriage, and is fitted with a pulley, z , from which the belt g proceeds to the pulley Z on the reel-shaft. The counter-shaft D^3 on the gearing-carriage may be caused to revolve by a belt encircling pulleys secured to the shaft of the running-wheels and this counter-shaft, or in any other convenient manner.

The inner end of the reel may be set more or less forward of the finger-beam by shifting its bearing r forward or backward on the radius-bar, and the radius-bar X^2 is pierced with a series of holes, to which the bolt that holds the bearing r of the reel-shaft may be transferred when that bearing is shifted forward or backward. The inner end of the reel may be raised or lowered by turning the radius-bar X^2 up or down on its pivot i , and the reel-post X' is pierced with a series of holes, to one of which the bolt that holds the radius-bar to it may be transferred when that radius-bar is turned to a different position.

In order that the finger-beam may be rocked to depress or raise the points of the guard-fingers when the machine is used for reaping grain, the raking-platform W is not attached rigidly to the finger-beam, but is attached to it by hinges g^4 g^4 , Fig. 1, so that the finger-beam may be rocked while the platform retains its position, and the platform is retained in its proper position by being connected with the gearing-carriage by the inner reel-post, X' , and radius-bar X^2 , which thus act as stay and link to hold the platform, in addition to supporting the reel, and in order that the inner reel-post may so operate its lower end is firmly connected with the raking-platform W by a metal shoe, x^4 . The rocking of the finger-beam independently of the raking-platform W is insured by the connection of the

caster or grain wheel T with the said platform, so that the said wheel is combined with the finger-beam through the intervention of the hinge or hinges g^4 , which combine the platform with the finger-beam; hence the rocking of the finger-beam is not prevented by its combination with a raking-platform or a grain-wheel, but is under the control of the driver, who effects it by means of the rocking lever P , as may be found expedient, to cut the grain at a greater or less distance from the ground or to raise up lodged grain. Moreover, as the weight of the outer half of the platform is sustained by the grain-wheel, instead of by the finger-beam, the latter is relieved from much strain, and is not so apt to vibrate or spring as it otherwise would be.

When the machine is to be used for cutting grass, the reel V , radius-bar X^2 , and platform W , with the reel-supports, divider-frame, and caster-wheel T , are removed from the finger-beam G , and a small grass-divider, with a track-clearer, is bolted to the outer end of the finger-beam in the place of the outermost finger, as represented at U^2 , Fig. 7. The rocking of the finger-beam is then under the control of the driver, who effects it by means of the rocking lever P , as may be found expedient to conform to the surface over which the cutter is passing. When used for reaping grain, the grain-divider U' , Figs. 1, 4, and 5, which projects laterally beyond the end of the finger-beam, gathers in a mass of standing grain wider than the breadth of the cutting apparatus, and the grain at the stubble side is correspondingly gathered in by a grain-guard, U^3 , that is supported by the inner reel-post, X' , and consequently moves up and down with the platform and cutting apparatus. When the machine is used for cutting grass, the grass-divider U^2 , being at the end of the finger-beam, gathers in no more grass than the cutting apparatus can advantageously cut, and the swarth is narrower than when cutting grain. When the machine is used for reaping, the driver sits upon the seat Q and the raker upon the end of the spring-frame Q' , with his feet resting on a removable foot-board, Q^2 , which is detached from the machine when the machine is used for mowing.

Having thus described a machine embodying all my improvements, I declare that I do not limit my new combinations to the particular forms represented in the drawings, but intend to vary the form and construction of the members of the combinations, or to use equivalent members in their places, as circumstances may render expedient.

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

1. The combination, as set forth, in a harvester, of the finger-beam with the gearing-carriage by means of the vibratable link, the draft-rod, and the two swivel-joints M and M' , so that the finger-beam may both rise and fall at either end and rock forward and backward.

2. The combination, as set forth, in a har-

vester, of the finger-beam, gearing-carriage, vibratable link, draft-rod, swivel-joints, and arm by which the rocking of the finger-beam is controlled.

3. The combination, as set forth, in a harvester, of the gearing-carriage, rocking finger-beam, vibratable link, reciprocating cutter, crank-shaft on the gearing-frame, connecting-rod, (connecting said crank-shaft with the cutter on the rocking finger-beam,) and swivel-joint at the cutter.

4. The combination, in a harvester, of the gearing-carriage, finger-beam, vibratable link, grain-wheel, and lifting-connection for the grain end of the finger-beam, substantially as set forth.

5. The combination, as set forth, in a harvester, of the gearing-carriage, finger-beam, vibratable link, grain-wheel, lifting-connection, and lifting-connections for the inner or stubble end of the finger-beam, so that each end of the finger-beam may be raised or lowered relatively to the gearing-carriage.

6. The combination of the reel arranged to move with the finger-beam, the gearing-carriage, radius-bar, and two guide belt-pulleys for the driving and slack members of the reel-

belt, one of said guide-pulleys being arranged upon the gearing-carriage and the other upon the radius-bar, substantially as set forth.

7. The combination, as set forth, of the finger-beam, gearing-carriage, swivel-joint M, between the finger-beam and gearing-carriage, raking-platform, and hinge-connections between the finger-beam and raking-platform.

8. The combination of the raking-platform, finger-beam, hinge-connections, gearing-carriage, upright stay, and link, substantially as set forth.

9. The combination, as set forth, of the finger-beam, with the grain-wheel and platform, through the intervention of a hinge-connection.

10. The combination of the movable member of the clutch (for throwing the cutter-crank out of or into gear) with a clutch-lever composed of two parts connected by notches, substantially as set forth.

In witness whereof I have hereto set my hand this 28th day of January, A. D. 1867.

ALVARO B. GRAHAM.

Witnesses:

D. N. BARKER,
GEO. W. DIVER.