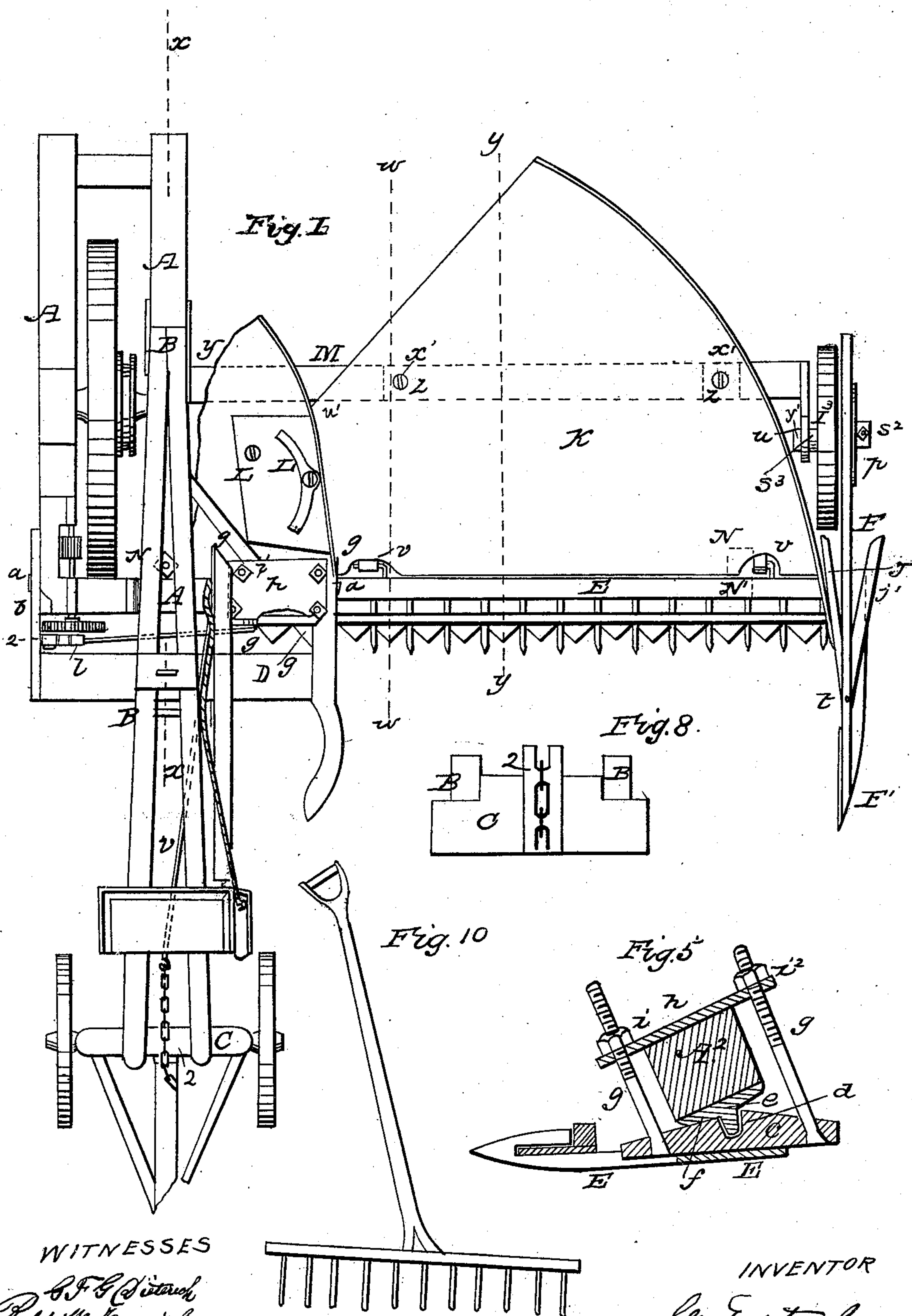


G. ESTERLY.

Combined Reaper and Mower.

No. 31,158.

Patented Jan'y 22, 1861.



WITNESSES  
*R. F. G. Smith*  
*Robt. W. Hendrick*

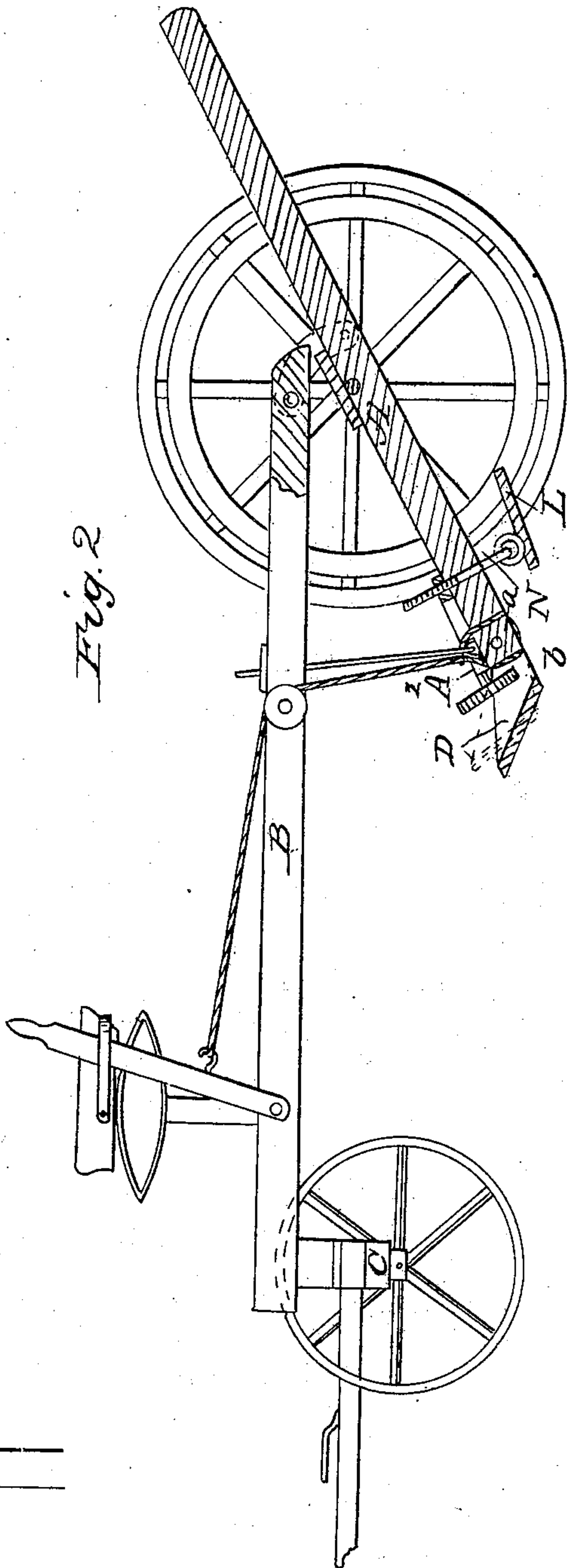
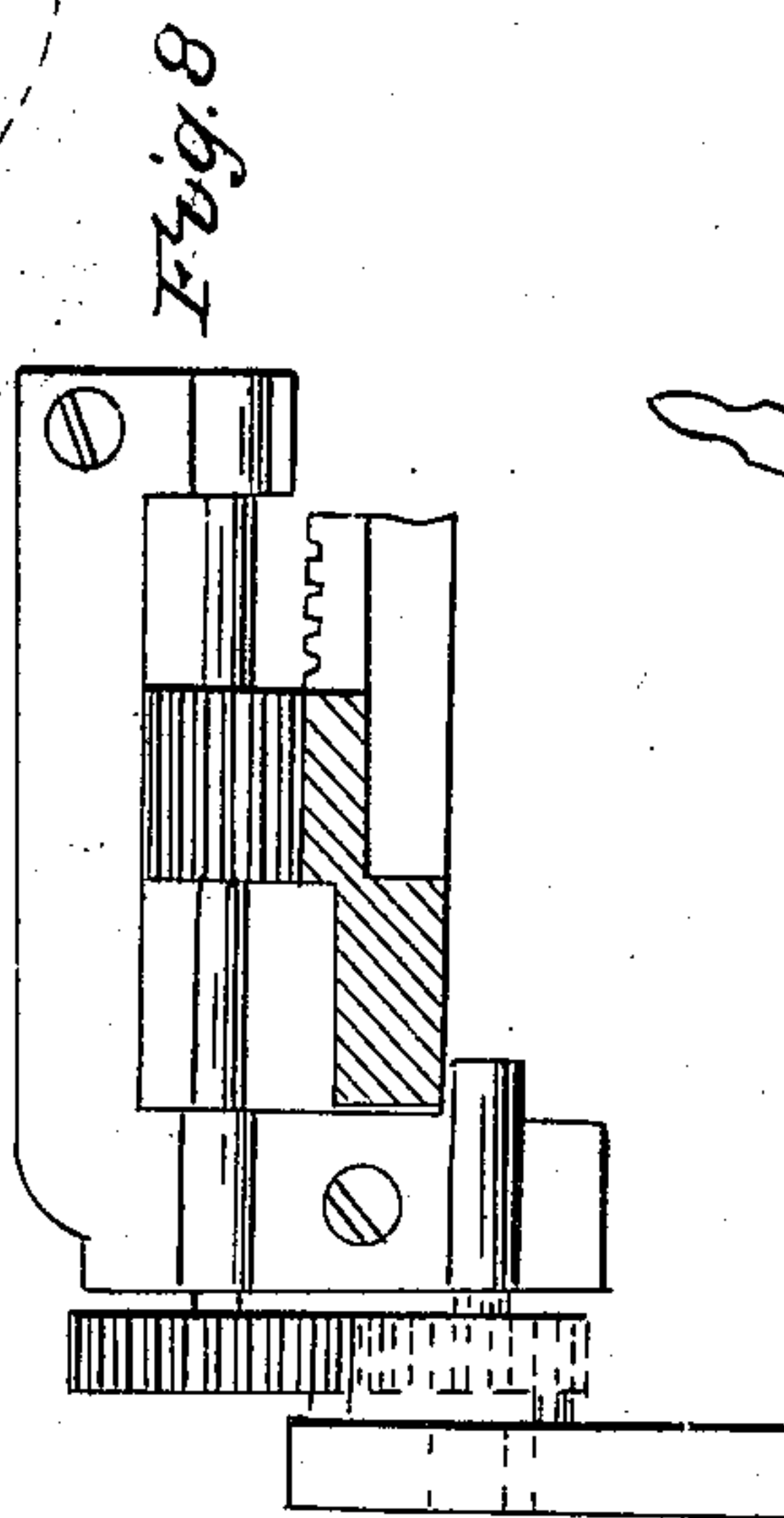
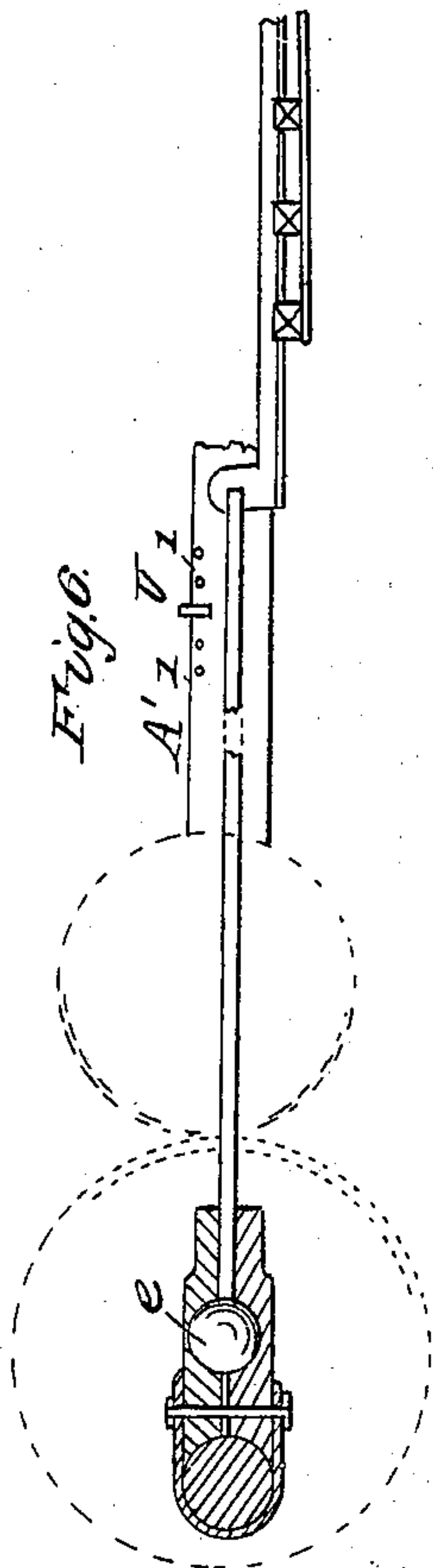
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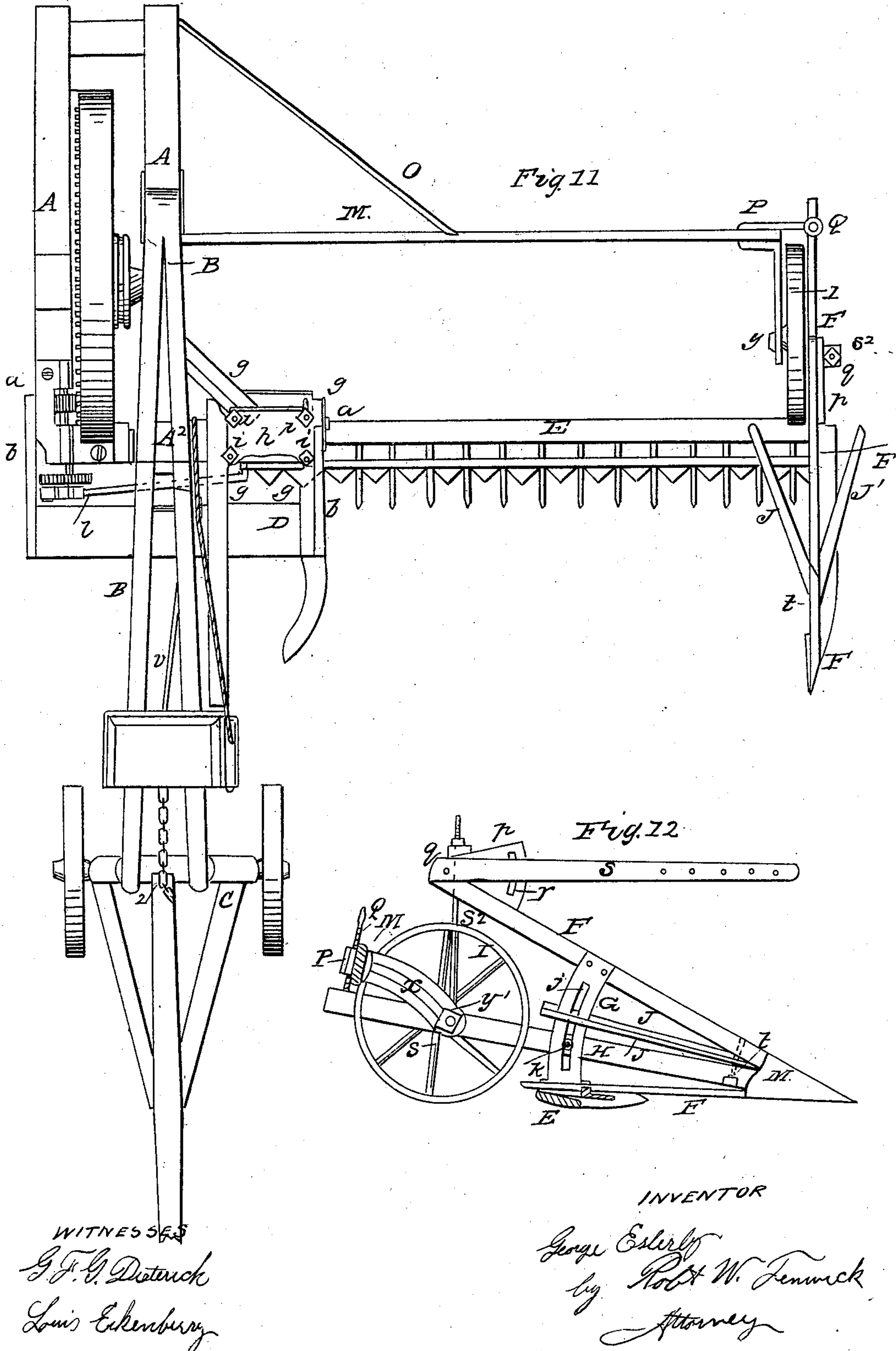


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# UNITED STATES PATENT OFFICE.

GEORGE ESTERLY, OF WHITEWATER, WISCONSIN.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 31,158, dated January 22, 1861.

*To all whom it may concern:*

Be it known that I, GEORGE ESTERLY, of Whitewater, in the county of Walworth and State of Wisconsin, have invented a new and useful Improvement in Combined Reaper and Mower; 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 a part of this specification, in which—

Figure 1 is plan of my improved machine as arranged for reaping. Fig. 2 is a vertical longitudinal section in the line *x x* of Fig. 1. Fig. 3 is also a longitudinal section in the line *y y* of Fig. 1. Fig. 4 is also a longitudinal section in the line *w w* of Fig. 1. Fig. 5 is a vertical section, on an enlarged scale, through the cutter-bar and sill. Fig. 6 is a vertical transverse section in the line *z z* of Fig. 1. Fig. 7 is an elevation of the grain side of the machine. Fig. 8 is a front view of the draft-frame, chain, and stop-plate. Fig. 9 is a plan view of the boxing-grate which supports the intermediate gearing shaft or shafts. Fig. 10 represents the hand-rake adapted for my improved raker-stand. Fig. 11 is a plan view of my machine as arranged for mowing. Fig. 12 is a vertical longitudinal section of the same.

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

The nature of my invention consists, first, in the combination, with the joint which allows the finger-beam to be adjusted in the path of a vertical circle, of a curved slotted standard, dividing apparatus, and a set-screw, all substantially as hereinafter described.

It consists, second, in supporting and adjusting the platform of a harvester by means of an angular slotted bar which swings on two axial pivots, and in rising or falling the platform changes its point of bearing on the pivots or angles of the bar, as herein described. By this arrangement the supporting-rod, as usual, can be swung up out of the way when the platform is not on the machine and the machine is used for mowing, and, besides this, it can, when the platform is on the machine, be adjusted and raised or lowered in such a manner as not to strain the connections between the sill and the platform.

It consists, third, in the combination, with the said angular supporting-bar, of a bracket,

a thrust-screw, a pivoted lever, and the divider, substantially as hereinafter described.

It consists, fourth, in the employment of the said pivoted lever, in combination with the divider and the axle of the grain-wheel, substantially as hereinafter described.

It consists, fifth, in the employment of a vertical pendent tension-rod, in combination with the reel-bearer, divider, and the grain-wheel axle, substantially as hereinafter described.

It consists, sixth, in the combination, with the divider and its inner adjustable wing, of an outer adjustable wing, substantially as hereinafter described.

It consists, seventh, in the combination of the short angular platform K with the continuation and raker-support facing the platform laterally, the continuation forming the raker-stand, and being located between the sill of the driving-wheel frame, the driving-wheel, and the axle thereof, and otherwise constructed so that the raker shall be located between the front sill and the axle of the driving-wheel, and be supported by the connections which support the platform, substantially as and for the purposes herein described.

It consists, eighth, in the combination, with the finger-beam and a platform hung on hinges, of an adjusting-rod which forms a hinge-connection, one or more knife-edge bearings or pivots, one or more screws or bolts, and a thrust plate or bar, substantially in the manner described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, first as a reaper and second as a mower.

A represents the driving-wheel frame, and B the draft-frame, of the harvester. The latter has the driver's seat mounted upon it, and is arranged above and pivoted by its rear end to the former, and by its front end, through the king-bolt, to the tongue-truck C, as represented.

To the front sill, A', of the frame A an oblique guard, D, is attached by set-screws *a a*, which pass through the side pieces, *b b*, of the guard and take a firm hold in the ends of the sill. This board guards the gearing, and by having it attached by set-screws it can be adjusted so as to work in concert with the finger-beam, whatever may be the adjust-



ment given to the beam. The inner end of the finger-beam E has a short plate, *c*, attached to its upper surface, and in the center of this plate, on top, a narrow curved groove, *d*, is formed. The plate *c* extends under the sill A', and its groove receives a narrow tongue, *e*, formed on a short plate, *f*, which is bolted to the sill A'. The tongued and grooved plates are held together by screw-rods *g g'*, which extend up from the plate *c*, both in front and in rear of the sill, and through a clamping-plate, *h*, retaining-nuts *i i'* being screwed on the upper ends of said rods. The grain end of the finger-beam is attached to the divider F by means of a segment-plate, *G*, which has a curved slot, *j*, cut through it, a clamping pivot-screw, *k*, which has its bearing in a lever, *H*, serving to support and retain the grain end of the finger-bar in whatever position it may have been adjusted.

By having the inner and outer ends of the finger-bar attached in the manner described, it will be seen that by loosening the clamping-screw *k* and the nuts *i* and setting up the nuts *i'* the front edge can be thrown up, and therefore whenever the machine is adjusted so as to cut low or tall grain the finger-bar can be turned in the path of a vertical circle, independently of the sill A' of the frame, so as to lie horizontally or nearly horizontally with the surface of the ground, by simply manipulating with the screws in the manner above stated, or vice versa.

In order not to have the pitman interfere with the adjustment of the finger-beam, the connection between the wrist-pin box and pitman is formed by a swivel or universal joint, *l*, as represented, said joint allowing the pitman to accommodate itself to the circular movement imparted to the finger-beam.

The lever *H* is situated between the grain-shoe F' and divider F, being pivoted at *n*, and extended back some distance, so as to support the grain-wheel I, and also perform another office, which will be hereinafter named.

The divider F is set inclined, and extended from the front of the shoe F' to a point over the axle of the grain-wheel I, and on its outer side, near its extremity, a plate, *p*, is bolted. This plate has a horizontal flange, *q*, projecting from it, and a curved slot, *r*, cut through it. To the plate the reel-bearer *s* is pivoted, and through the slot is passed, a clamping set-screw, *s'*, which by being loosened allows of the reel-bearer being raised or lowered, and by being tightened serves for retaining the said bearer in position. A vertical thrust screw-rod, *s<sup>2</sup>*, which is looped round or otherwise connected to the grain-wheel axle, extends up through the flange *q* of the plate *r*, and serves as a stay between the divider, reel-bearer, and axle of the grain-wheel I.

It will be observed that by setting up the nut on the upper end of the screw-rod the front end of the divider is thrown up, and the weight of the reel and bearer is borne by the axle of the grain-wheel, and the liability of the

divider and shoe to sag is overcome to a considerable extent.

J J' are two inclined wings arranged under the divider. These wings are confined at their front ends by means of a vertical clamping-screw, *t*, and both of them are adjustable on the one screw. These wings are for assisting the divider in throwing over to the right or left such grain as may have been bent down by storms or otherwise. It will be seen that they close upon one another, like the blades of a scissors, but that both or either may be turned out, as occasion may require, and thus if the grain bends over from the inner side of the divider and the inner wing is turned out, or the grain bends over from the outer side of the divider and the outer wing be turned out, or the grain bends over on both sides and both wings be turned out, a perfect straightening of the grain on either or both sides of the divider will be accomplished.

K is the grain-platform. It has two curved grain-guards, *w w'*, projecting up from its top. L is the raker-stand, forming a part or an extension of the platform. This stand has the raker-support L' mounted upon it, and extends from the inner narrow side of the platform to a position under the axle of the driving-wheel and close alongside the back of the sill A' of the frame, as represented, and by being thus located for a greater portion of its length in front of the axle of the driving-wheel the raker stands inclining directly over the grain, and has a perfect control of the same on the platform, and he can rake off the grain with ease, as he has to move it a short distance, and withal he has a very steady foundation to stand upon, as the stand is attached directly to the driving-wheel frame. The combined platform and raker-stand thus constructed is attached to the rear of the sill by means of hinges *v* and a hinge screw-rod, *N*, and is supported and stayed by means of an angular bar, *M*, and thrust-plate N', which latter is attached to the under side of the grain-platform and passes under the grain end of the finger-beam. The two hinges *v v* support the front edge of the grain-platform, while the hinge screw-rod *N* supports the inner edge of the raker-stand. The angular bar *M* has curved slots *x x* in its end pieces, and said slots admit the inner end of the axle of the grain-wheel and a clamping-screw, *y*, to pass through said end pieces, as represented, and thus when a clamping-nut, *y'*, is screwed on the said end of the axle, and the clamping-screw set up, the bar may be said to be supported by the combined agency of the clamping-screw *y* and nut *y'* and grain-wheel axle. The bar is located under the platform and the platform secured to it by screws *x' x'*, and by having its end pieces slotted, it, with the platform, by loosening the clamping-screw *y* and nut *y'*, can be adjusted higher or lower in the path of a vertical circle, and thus the platform, with raker-stand, may be conveniently set in position to suit the grain to be cut; and, besides this, the bar may



be thrown up to the position shown in Fig. 12, out of the way, when the platform is removed and the machine is adjusted for mowing, as represented in Figs. 11 and 12.

In order to have the platform act as a lever to hold up the outer end of the cutter-bar, the hinge screw-rod N and thrust-plate N' are employed, and in order to have the same available, one or more knife-edge bearings, z, are placed between the bar M and the grain-platform, and the holes in the platform through which the screws or bolts  $x' x'$  pass are made large enough to allow the platform a chance to play slightly on said bearings. Now, it will be seen that if the nut of the hinge screw-rod N is tightened, the inner end of the combined raker-stand and grain-platform will be elevated, the rear end depressed, and the outer end elevated, and thus an upward thrust, through the plate N', thrown upon the grain end of the finger-beam, and the same consequently prevented from sagging down.

In order to regulate the draft, and thus have the machine work without side draft, the draft-chain U is attached to the sill A' of the frame A by means of a screw-bolt, U', said bolt being adjustable laterally by means of a series of holes, 1 1, cut through the sill A', as represented in Fig. 6. The chain is also passed from the adjustable screw-bolt to a position directly over the king-bolt of the draft-frame and tongue, and retained by means of a stop plate or pin, 2, which is fastened to the front beam of the draft-frame. Having the draft-chain arranged so as to be adjustable laterally and to draw from the center of the draft-frame obviates much of the difficulty from side draft experienced with harvesters at present in use.

The gearing of my harvester is very similar to that usually employed, excepting that the eccentric is toothed on its circumference and may be made to gear with an intermediate pinion, as illustrated in red in Fig. 9.

In Figs. 11 and 12 the machine is represented as adjusted for mowing; but all the parts which have been described are shown, and also some additional parts, and therefore it will only be necessary to describe the parts not before alluded to.

O is a brace for supporting the angular bar when it is thrown up to a position above and in rear of the driving-wheel axle. P is a bracket on the grain end of the bar. This bracket has a screw-threaded tube on its outer end, and through this tube a thrust-screw, Q, passes, as represented. The thrust-screw bears upon the extremity of the lever H, and, owing to this, when it is screwed down, the lever is caused to turn on the grain-wheel axle and its

front end to rise, and consequently the divider F and shoe F' are held from twisting, or caused to maintain a proper position as the machine moves through the grain.

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

1. The combination, with the joint  $e d$ , which allows the finger-beam E to be adjusted in the path of a vertical circle, of a curved slotted standard, G j, the dividing apparatus, and a set-screw, k, substantially as and for the purposes set forth.

2. The combination of the angular adjustable bar M, curved slots  $x x$ , and axial pivots  $s^3$  and y, and a hinged platform, K, substantially in the manner and for the purpose herein described.

3. The combination, with the slotted curved brackets of the angular supporting-bar M, of a bracket, P, a thrust-screw, Q, a pivoted lever, H, and the divider F, substantially as and for the purposes set forth.

4. The employment of the said pivoted lever H, in combination with the divider F and the axle  $s^3$  of the grain-wheel I, arranged substantially as and for the purposes set forth.

5. The employment of the vertical pendent tension-rod  $s^2$ , in combination with the reel-bearer s, divider F, and the grain-wheel axle  $s^3$ , substantially as and for the purposes set forth.

6. The combination, with the divider F G and inner adjustable wing, J, of an outer adjustable wing, J', arranged substantially as and for the purposes set forth.

7. The combination of the short angular platform K with the continuation L and raker-support L', facing the platform laterally, the continuation L forming the raker-stand, and being located between the sill A' of the driving-wheel frame, the driving-wheel, and the axle thereof, and otherwise constructed so that the raker shall be located between the front sill, A', and the axle of the driving-wheel, and be supported by the connections which support the platform, substantially as and for the purposes set forth.

8. The combination, with the finger-beam E and a platform, K, hung on hinges  $v v$ , of an adjusting screw-rod, N, which forms a hinge-connection, one or more knife-edge bearings or pivots, z, one or more screws or bolts,  $x' x'$ , and a thrust plate or bar, N', substantially as and for the purposes set forth.

GEO. ESTERLY.

Witnesses:

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ROBT. W. FENWICK.