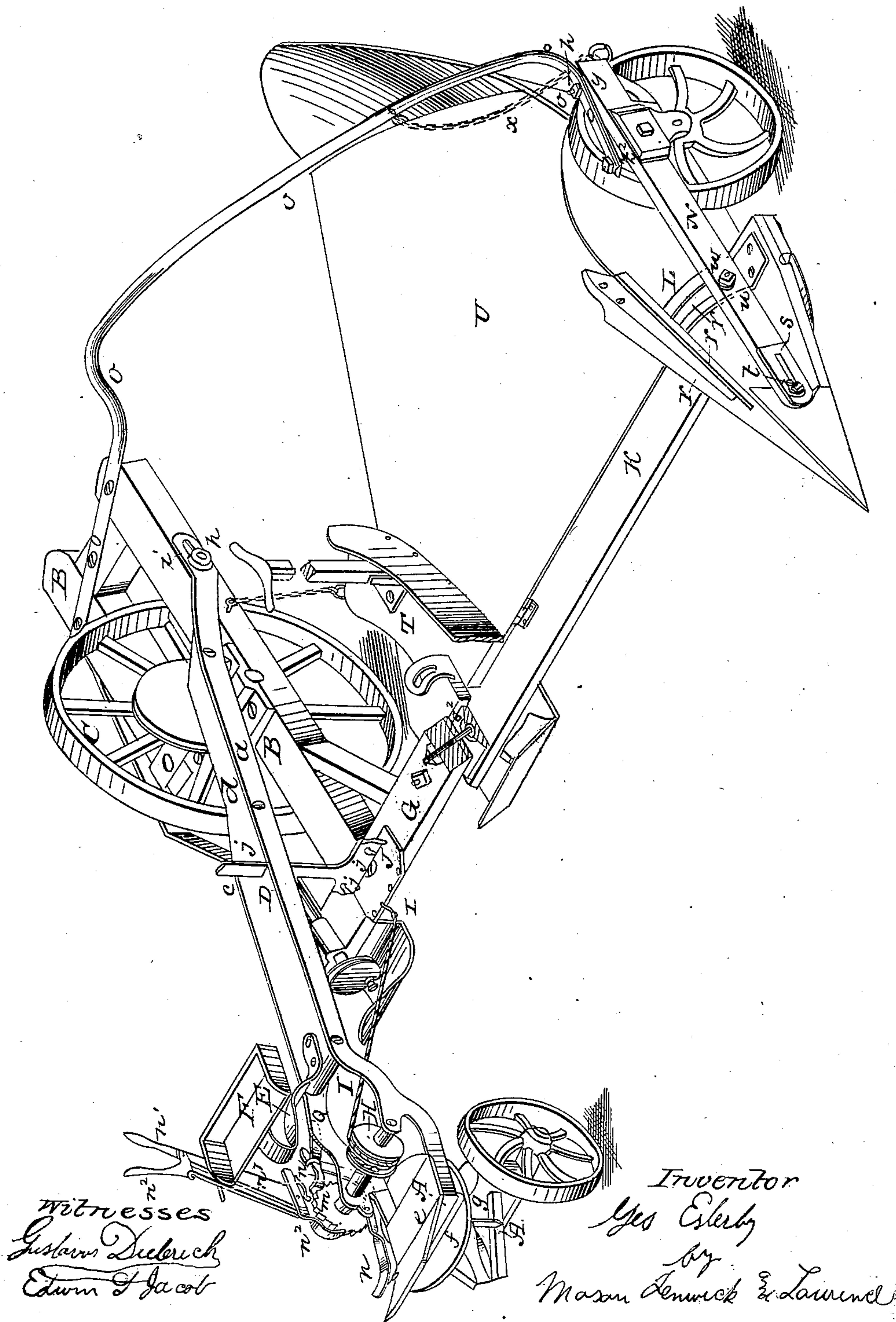


G. ESTERLY.

3 Sheets—Sheet 1.

No. 37,391.

Patented Jan'y 13, 1863.



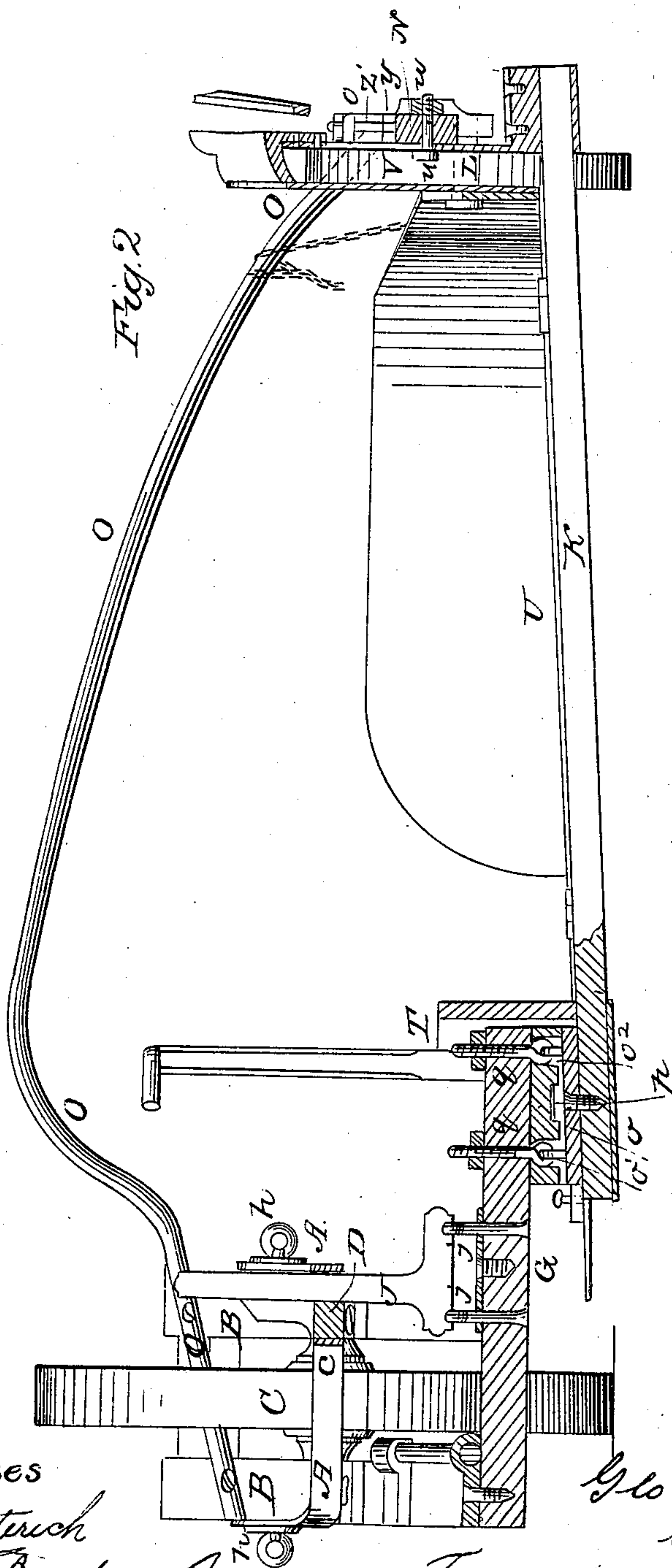
G. ESTERLY.

3 Sheets—Sheet 2.

Harvester.

No. 37,391.

Patented Jan'y 13, 1863.



Witnesses
Gustav D. Deutch
Edwin L. Jacob

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Mason F. Church & Lawrence

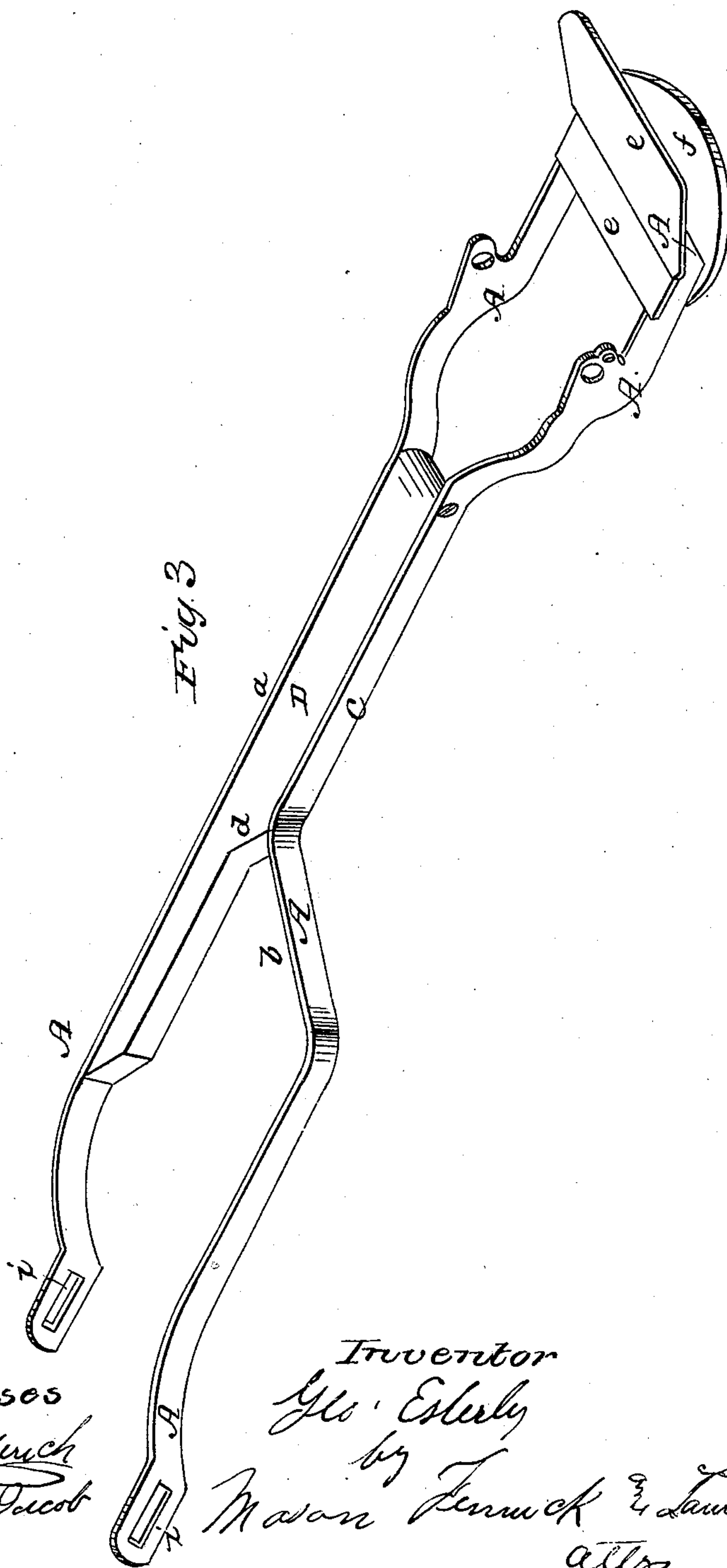
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UNITED STATES PATENT OFFICE.

GEORGE ESTERLY, OF WHITEWATER, WISCONSIN.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 37,391, dated January 13, 1867.

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 certain new and useful Improvements in Reaping and Mowing 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 a part of this specification, in which—

Figure 1 is a perspective view of a combined reaper and mowing machine, the short sill of the main frame and the castings which hinge the finger-beam to said sill being shown in transverse section. Fig. 2 is a longitudinal section of the short sill and a portion of the finger-beam, and of the grain-wheel side of the machine, the section being taken in a line at right angles to the motion of the machine. Fig. 3 is a detached perspective view of the draft-frame.

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

As an improvement in draft-frames of a reaper or mower I have constructed a light wrought-iron frame, A, with its inner or left side nearly straight, as shown at *a*, and its outer or right side angling, as shown at *b*, so as to be wide enough to clasp by its rear portion the side timbers of the main or drive-wheel frame B, and narrow enough at that portion which is forward of the drive-wheel C to stand wholly on the left side of the drive-wheel, as shown at *c*. This frame I fill in with a stiff wooden timber, D, from a point near the rear extremity of the straight portion *a* to a point near the front extremity of the straight and angling portions, as represented in Fig. 3. This timber is cut away so as to accommodate the drive-wheel and any gearing that may be on its axle, as indicated at *d*. The front ends of the wrought frame are flared apart slightly, so as to be adapted for a foot-guard, *e*, and a circle coupling-plate, *f*, of the king-bolt *g*, as represented. The timber D supports at its front end a strong bent spring, E, on which the driver's seat F is mounted. The draft-frame as a whole is fitted to the main frame by means of set-screw bolts *h* and oblong slots *i*, and may be set forward or back through these connections as occasion may demand. It also is further connected to the main frame by means of a hinged guide-bar, *j*, which passes

up from the short sill G of the main frame through the timber D, as represented. This construction of draft-frame makes the machine much more permanent or substantial. The draft-frame being attached to either side of the drive-wheel frame holds it more steady, and the angle in it throws the forward end sufficiently to the left to allow the draft-chain and its graduated connection, hereinafter described, to come on the short sill of the machine, so as to equalize the draft on either side of the tongue of the machine. The angling frame is also very light, yet strong and durable.

As another improvement in reapers and mowers, I have devised a windlass, H, to be arranged directly upon the front of the draft-frame, and with its chain I passing back and hooking into one or another of a series of regulating-holes formed in a plate, J, of the short sill of the main frame B, as represented. This windlass consists of a shaft, *k*, pulley *l*, ratchet-wheel *m*, and detent *n*, and lever and pawl *n'* *n''*, the lever being located near the driver's seat, so that the driver may conveniently work the windlass by it. By this change the draft of the machine is always on the draft-chain, whether the sill is stationary or being raised or lowered. This is important, as but one chain is required, and, besides this, when two chains are used—one to draw by and one to raise and lower by—the draft is thrown off from the draft-chain when the other is used to raise, and the machine consequently is drawn from a different point, the tendency of which is to draw the finger-bar into the ground instead of up from the ground.

As another improvement, I have modified the means heretofore devised for adjusting the finger-beam K horizontally after the whole machine has been raised or lowered to cut at a certain height. This modification consists in a grooved plate, *o*, with eyes *o'*, and a tongued plate, *p*, and eye screw-bolts *q* *q*, with nuts on their ends. The plate *p* is attached to the top of the short sill G, and the plate *o* to the top of the finger-beam. The eye-bolts hinge to the eyes *o'* of the plate *o*, and the divided tongue of the plate *p* fits the divided groove of the plate *o*. Thus a loose rolling hinge-connection between the sill G and the finger K is formed. To render this connection available and have it permanent while the finger-beam

is hinged to the grain-platform or when the platform is removed, a curved slotted standard, L, is provided on the grain end of the finger-beam. To this standard the divider *r* of the grain-shoe M is firmly fastened, and to the grain-shoe the front end of the grain-wheel frame N is attached through a slot, *s*, and bolt *t*. The grain-wheel frame or beam N thus arranged answers as a means by which to retain the finger-beam firmly in any set position, and to thus use this beam N, I insert a bolt, *u*, through the slot *v* of the curved standard L and through the beam, and clamp the beam to the standard by a nut, *w*, as represented. The object of this mode of construction is to get rid of the necessity of operating several screws in order to set the finger-beam level with the ground after the whole machine, excepting the wheels, has been adjusted to cut higher or lower. With this construction it is only necessary to loosen the clamp-screw bolt *u* and adjust the finger-beam as desired, and then fasten the bolt. The curved slot of the standard admits the adjustment desired.

As a further improvement, I have devised an iron back beam, O, which is bent as represented, and arched up and set diagonally above the platform, being attached by one of its ends to the rear part of the main or drive wheel frame and by its other end to the upper rear part of the grain-wheel beam, so as to be back and up out of the way while the grain is being swept off the platform by either an automatic or a hand rake, it admitting the bundle and rake under itself in the most desirable manner. The main object of this beam is to balance the front part of the machine, and without it the machine at that part is too heavy. This elevated beam answers admirably with a reaper which has the raker-stand T located as represented, as the rake sweeps freely under it; and in all cases where the rake will sweep under it, whether hand-worked or automatically, I desire to be protected in its use. It further is a great advantage in connection with adjustable platforms or hinged platforms U, as it stands high, performs its function of balancing and staying the machine, and affords sufficient room for the discharge of the grain, even when the platform, at its rear edge, is thrown up considerably, and the back beam thrown down, these changes in position being due to the elevating of the cutting apparatus through the windlass on the axle of the drive-wheel, and the elevation of the rear of the platform by means of the chains *xx*. It is evident that as the drive-wheel axle is the axis of motion of the cutting apparatus the curved back beam descends as the cutting apparatus rises, and therefore, if the beam were not of the form substantially as shown, it would come down so closely to the platform as not to permit the bundle of grain to pass off. With my back beam, which is elevated above a direct line, are obviated all of these difficulties, and it also is out of the way in mowing, and in reaping it answers as a means on

which to suspend the hinged platform. By attaching the back beam diagonally across the machine it can be used as a lever for holding up the outer end of finger-beam, and the grain-shoe, so as to prevent sagging of the same. To employ it for this important end it is only necessary to insert a washer, *y*, of the proper thickness, under it, as indicated in Fig. 1 of the drawings, and then to screw down the nuts of the two screws *z z'*. The effect of the forward nut is to draw upon the rear end of the main drive-wheel frame through the back beam, and thus make the weight of said frame, through the back beam in turn, aid in holding up the grain-wheel shoe and the outer end of the finger-beam and take the "sag" out of the same.

My several improvements are more particularly designed for use in connection with harvesters and mowers constructed according to the several patents granted to me at different dates, and those machines are usually termed "single-gear" machines; but I, of course, do not limit the use of the same to such special machines.

It perhaps may be proper to state here that to mow with this machine the platform U is removed by unhinging it from the rear of the finger-bar and attaching such ordinary devices as may be necessary to mow advantageously, in place of some of the parts used in reaping.

I have not represented a reel for holding in the grain to the reaper cutting apparatus; but in practice one may be employed in any of the well-known ways.

The machine shown may also be used in connection with a "header" by removing the platform and cutting apparatus, the header being arranged over the drive-wheel and extended down and hinged to a cutting apparatus attached by hinge-connection to the short sill; but as such header and its mode of connection constitute a separate application for a patent of even date with this, it is not necessary to refer to it here more particularly.

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

1. The metal draft-frame A, with its left side nearly straight and its right side angling, and the whole otherwise constructed substantially as described, in combination with the wooden plank D, driver's seat F, and foot-guard *e*, substantially as and for the purposes set forth.

2. The arrangement consisting of the windlass H, draft-chain I, and connection J, or their equivalents, in combination with a draft-frame and the main frame B, substantially in the manner described, so that the draft of the machine is always on the draft-chain, whether the sill G is stationary or being raised or lowered.

3. The eyebolts *q q*, eyes *o' o'*, and tongued and grooved plates *o* and *p*, for the purposes of forming a jointed connection between the short sill G and finger-bar K, substantially in the manner described.

4. The combination, with the elements named

in the third claim, of the slotted standard L, slotted timber or beam N s, and the bolts *w t*, substantially in the manner and for the purpose described.

5. The metal back beam, O, made substantially in the form represented, applied to the top of the rear part of the main frame B B and to the top of the beam N, and standing diagonally over the platform or across the space occupied thereby, and by its arched and otherwise bent form being thrown high up above the same, substantially as and for the purposes set forth.

6. The construction of the back beam in form substantially as represented, in combination with the diagonal arrangement thereof between the frame B and the beam N, and with the bolts *z z* and washer *y*, or the equivalent thereof, for the purpose of taking the sag out of the grain end of the finger-bar, substantially in the manner described.

7. The combination of the back beam, O, constructed in form substantially as represented, and an adjustable platform, U, substantially as described, for the purpose of affording a free discharge from the platform of the grain by means of a rake, although the platform may have been elevated at its rear end to a considerable height, as set forth.

8. The combination of the back beam, O, constructed substantially in form as represented, and the hinged or adjustable platform U and raker-stand T, located at the inner corner of the platform, substantially as described and shown.

GEO. ESTERLY.

Witnesses:

GEO. W. ESTERLY,
P. W. BURROWS.