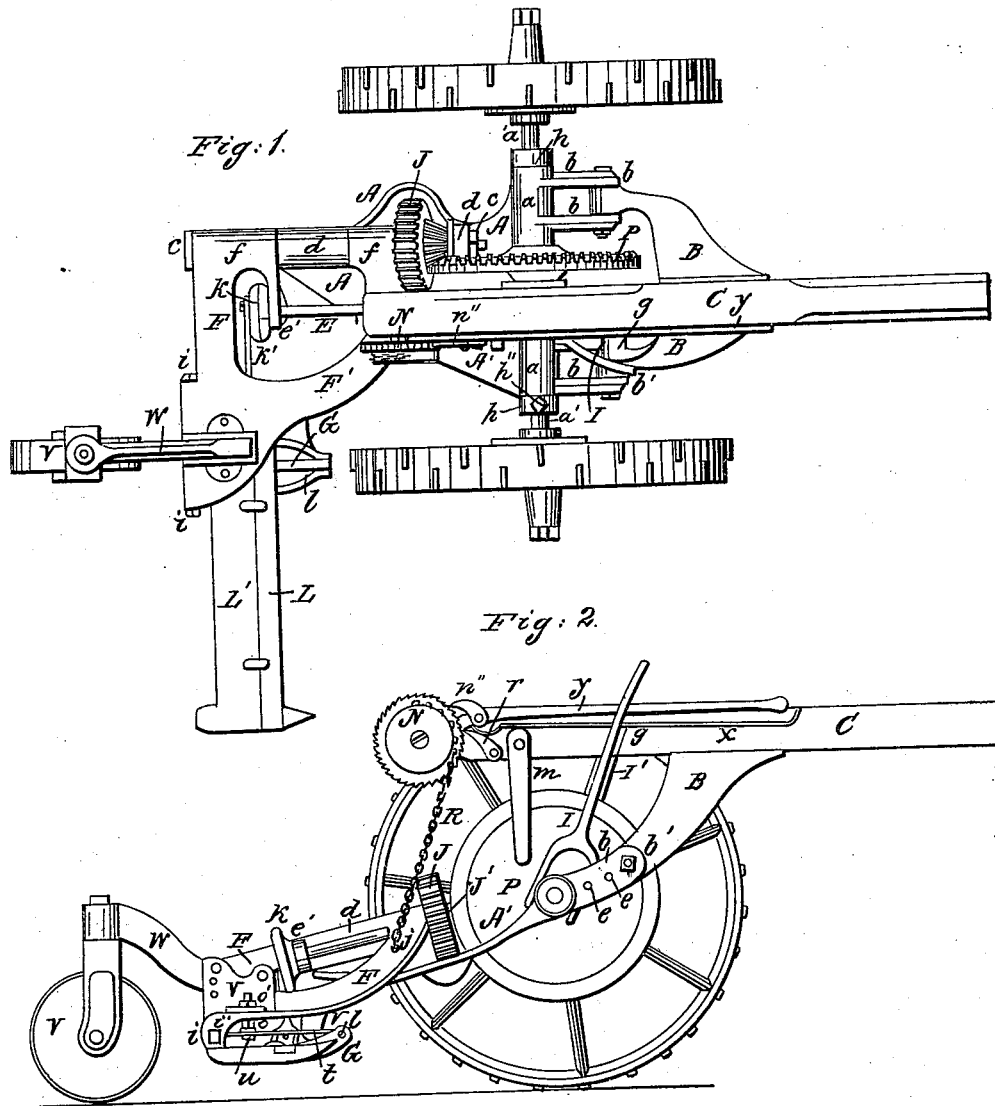


J. S. DAVIS.

Harvester.

No. 50,693.

Patented Oct. 31, 1865.



Witnesses:

W. A. Burridge.
J. Holmes.

Inventor:

John S. Davis.

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Fig. 3.

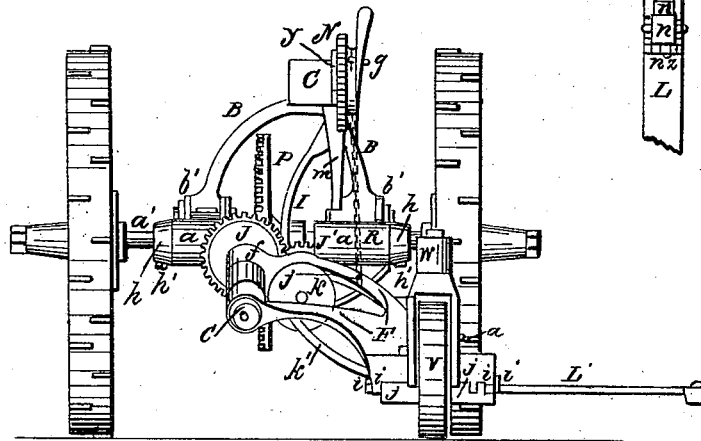


Fig. 6.

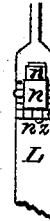
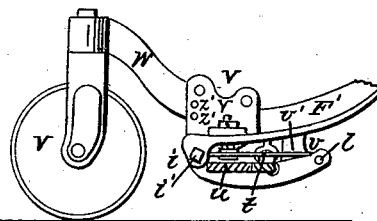
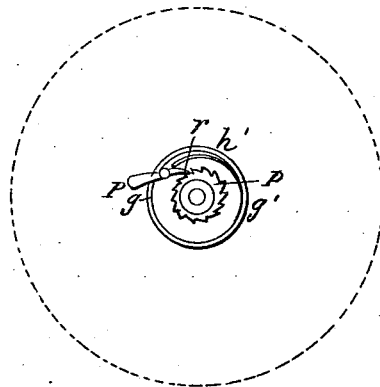


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN S. DAVIS, OF TIFFIN, OHIO.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 50,693, dated October 31, 1865.

To all whom it may concern:

Be it known that I, J. S. DAVIS, of Tiffin, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Harvesters; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of the machine. Fig. 2 is a side elevation. Fig. 3 is a view of the rear end. Figs. 4, 5, and 6 are detached sections that will be referred to in the description.

Similar letters of reference denote like parts in the different views.

A A', Fig. 1, represent the drag-bar, made in one piece and formed into two arms that have heads or bearings *a a* on the ends. These heads fit loosely on the axle *a'*, and from them project lugs *b*. To the ends of the lugs is hung or jointed a standard, B, at *b'*, curved up and formed as represented, extending under the tongue *c*, to which it is secured. There are a series of holes in the lugs, as seen at *e* in Fig. 2, by which the tongue can be adjusted so as to more perfectly counterbalance the weight of the machinery in rear of the axle. This is necessary on account of the varying weight of different individuals driving.

On one arm of the drag-bar is made a lug, *d*, from which the frame extends down under the bevel-pinion H and spur-gear wheel J, forming a guard for these gears, and terminates in a lug, *d'*, where it intersects or is formed in one with the other arm that extends up to the axle, as represented. In this way the drag-bar is constructed so as to protect the gearing, and from its peculiar form the greatest amount of strength is derived with the least weight of the material.

F F' is a frame formed in two arms, as represented, and hinged to the drag-bar by hollow bearings *f f* on the ends of the arms, there being a bolt, as indicated by the dotted lines *g*, passing through the heads or lugs *f, f*, and *d'* of the drag-bar, and also through the gear J pinion H, and lug *d*, with a nut, *e*, screwed on to the end. The arm F' forms the brace part of the frame, which not only renders it stronger but forms a bearing for one end of the crank-shaft E.

G is the shoe to which the finger-bar L is secured. The rear end of the shoe is hinged to the frame F F' by means of lugs *i* projecting down from the frame, through which a bolt passes, with nuts *i'* on the ends, the bolt passing through an upward projection, *j*, of the shoe. The projection *j* forms a hinge-joint, not only supporting the lugs *i i*, but makes a bearing to which the hinged portion of the shoe snugly fits.

t is a spring connected to the shoe, (seen in Figs. 1, 2, and 4,) which is fastened at the rear end by passing loosely around the bolt that hinges the shoe to the frame F. The spring passes through a clasp, *u*, and is fastened at the front by passing round a pin or bolt, *l*, in the end of the shoe. This spring is of sufficient strength to hold or govern the shoe in its position, yet it will yield enough to allow the hinged shoe, in the length of its base to be adapted to the ground by the weight of the drag-bar and frame F F' pressing upon it.

By means of screw-bolts *o o'*, one above and the other below the frame F, that press upon the clasp *u*, the clasp can be adjusted up or down and rigidly held at any point, thus elevating or lowering the point of the shoe to suit the condition of the ground or crop to be cut.

The elasticity of the spring can be increased or diminished by means of a slot in the frame F, whereby the clasp can be adjusted either way along the spring.

At the forward end of the shoe there is a lug, V, (seen in Figs. 2 and 4,) projecting upward, and a corresponding lug, *v'*, extending downward from the frame F. These lugs are connected together by a pin, one end of which is firmly secured to the lug *v'* and passes through a slot in the lug *v*, and there can be a nut on the end. By unscrewing the nut or removing it the shoe is allowed to move up or down, as before, by the action of the hinge and spring, removing at the same time any liability of the spring being overcome by the fingers or guards coming in contact with any obstruction. Again, when the machine is elevated for cutting wheat or any other grain that requires a platform, by means of the slotted hole and bolt in the lugs *v v'* the point of the shoe can be elevated as is required and firmly secured in that position. The lugs form a strong support for the

hinge of the shoe that connects it to the frame.

In cutting wheat or grain the spring can be removed.

One end of the crank-shaft E passes through the frame F', and on the end is secured a pinion, J', that is turned by the spur-gear J. The other end of the crank-shaft passes through a lug, e', of the frame F, and on the crank-wheel k to which the connecting-rod k' is attached. The rod k' is connected to the cutter-bar L by a universal joint, a top view of which, enlarged, is shown in Fig. 6.

L is the cutter-bar, which has fastened upon it lugs n n, between which there is a rock-shaft, n', having a rounded tenon on each end which projects through the lugs so as to rock or turn, and transversely through the rock-shaft there is a pin, z, extending on each side through the lugs n, as indicated. By means of this joint, as constructed, the point of the shoe can have its up-and-down movement without cramping or twisting the connecting-rod, which can be made in one piece, and not swiveled in the middle or at either end.

Outside of the bearings a a' of the drag-bar are collars h, that fit loosely on the axle, and in each collar there is a set-screw, h', by which they can be firmly secured at any point on the shaft, and as the drag-bar can be moved either way on the shaft by means of these collars and set-screws fitting close on the ends it can be secured in any position. By this means the tongue, being connected to the drag-bar, can readily be placed at the center of draft, either for reaping or mowing. This arrangement is necessary, for when a platform is attached to the finger-bar of a mowing-machine it creates side draft, even when the tongue is in the center of draft for mowing.

P is the main driving-gear, secured on the axle that gives motion to the pinion H, and as this pinion is cast solid with the gear-wheel J, it revolves it, turning the pinion J' on the end of the crank-shaft which operates the cutter-bar. The gear J is turned in such a direction in relation to the pinion J' as to have an elevating or lifting tendency, which elevates or transfers in part the weight of the finger-beam to the driving-wheels, thereby removing the side draft, causing the direct draft to be less, and gives more power to the driving-wheels.

There are two staples, j' j'', on the arms A' of the drag-bar and F' of the frame. Into the staple j' on the frame is hooked a chain, R, that is suspended from a ratchet-wheel, N, which is operated by a lever, y, the end of the lever being on the wrist that secures the wheel N to the tongue.

On the side of the lever is a pawl, n'', which, by raising the lever, catches into the ratchet-teeth on the wheel and will move it around. That draws up the chain, elevating the rear end of the drag-bar and frame F', with the heel of the finger-bar. The drag-bar and frame can thus be raised until the arm A' of the drag-bar comes against a stop, m, extending down-

ward from the tongue, to which it is secured, after which the point of the finger-bar can be elevated. In this way either the heel or entire cutter-bar can be raised, and, by a pawl, r, secured to the tongue, it can be firmly held in any position.

There is a rod, x, that is attached to the pawl r, which extends forward and is turned up at the end, by which the driver, with one of his feet, can throw the pawl r out of the notches on the wheel, when, by means of the lever, he can lower the finger-bar to the ground.

When it is desired to transport the machine the chain is unhooked from the staple j' and hooked into the staple j'' on the drag-bar. The finger-bar is then raised into a perpendicular position, after which the driver from his seat can elevate the drag-bar until it comes in contact with the stop m, as before stated. The finger-bar will incline a little to the right, when the arm F' of the frame will rest against the rear end of the tongue. In this way the finger-bar is held in nearly a perpendicular position for transportation.

I (seen particularly in Fig. 2) is a shifter, forked at the lower end, so as to fit into a groove on the hub of the driving-gear P.

I' is a shifter-stand secured to the tongue, to the lower part of which the shifter is connected by a pivot, on which it turns, and at the upper part there is an arm, g, extending out, in which there are two notches. When the handle I'' of the shifter is adjusted into one of these notches it moves the gear P along on the driving-shaft and holds it in gear, and when adjusted into the other it moves and holds it out of gear. The shifter operates equally well in any position that the tongue or drag-bar may be adjusted into, assuming automatically its proper position in relation to the hub of the driving-gear.

Fig. 5 shows the inside of the hub of one of the driving-wheels, that consists of a disk, g', within which there is a spring, h'', and ratchet-wheel P' on the axle.

r' is a pawl that catches into the ratchet-wheel. The pawl is provided with a handle, p, that projects outside of the disk, and in the edge of the disk there is a slot, q, that allows the handle to be brought down, adjusting the pawl in the ratchet-wheel, so as to hold it rigidly in place, throwing the machine out of gear, so that the axle will not revolve and that backing the machine will not throw the pawl out of its catch in the ratchet-wheel.

Fig. 4 represents the caster V, connected to the stand V' by an arm, w. The stand is secured on the frame above the shoe by screw-bolts, the clasp u being on one side and a bolt on the other. The arm is fastened in the stand by a pivot, and at the rear of the stand there are a series of holes, z', by means of which the caster-wheel can be adjusted, so that the machine in rear of the axle can be elevated to any desired height for cutting wheat or grain that requires a platform to be attached. The

caster and stand are not needed only in connection with the platform.

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

1. The construction and arrangement of the drag-bar A A' and the standard B, for the purpose of balancing the machine upon the axle, substantially in the manner and for the purpose set forth.

2. The gearing P H J J', in combination with the drag-bar A A', and frame F F', for working the cutters and allowing the finger-beam to rise and fall, substantially as specified.

3. The frame F F', constructed as set forth, and hinged to the shoe and drag-bar, substantially in the manner described.

4. The construction and arrangement of the shoe G, substantially as and for the purpose set forth.

5. The spring *t*, in combination with the hinged shoe G, constructed and arranged in the manner and for the purpose set forth.

JOHN S. DAVIS.

Witnesses:

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M. SHOUDER.