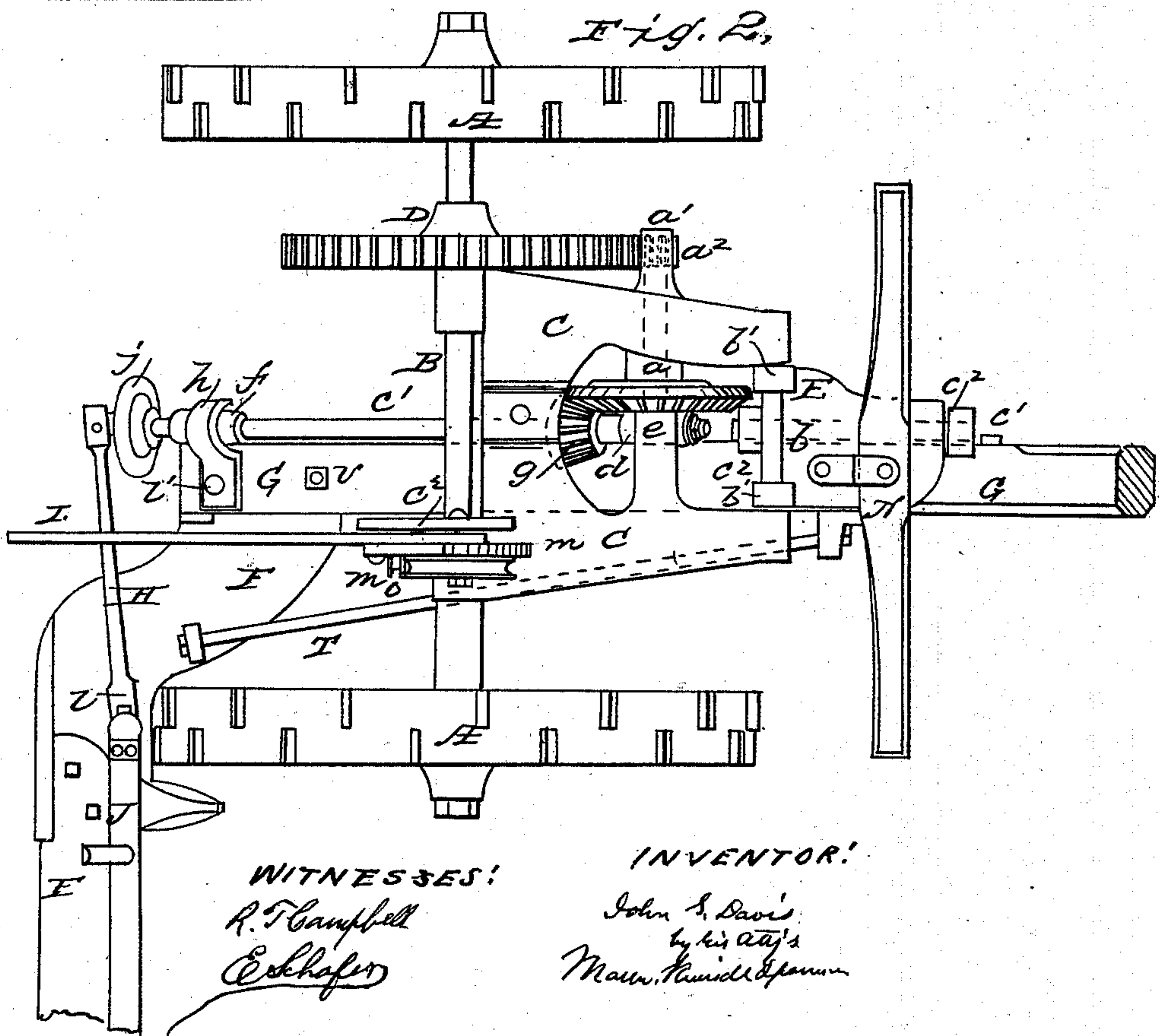
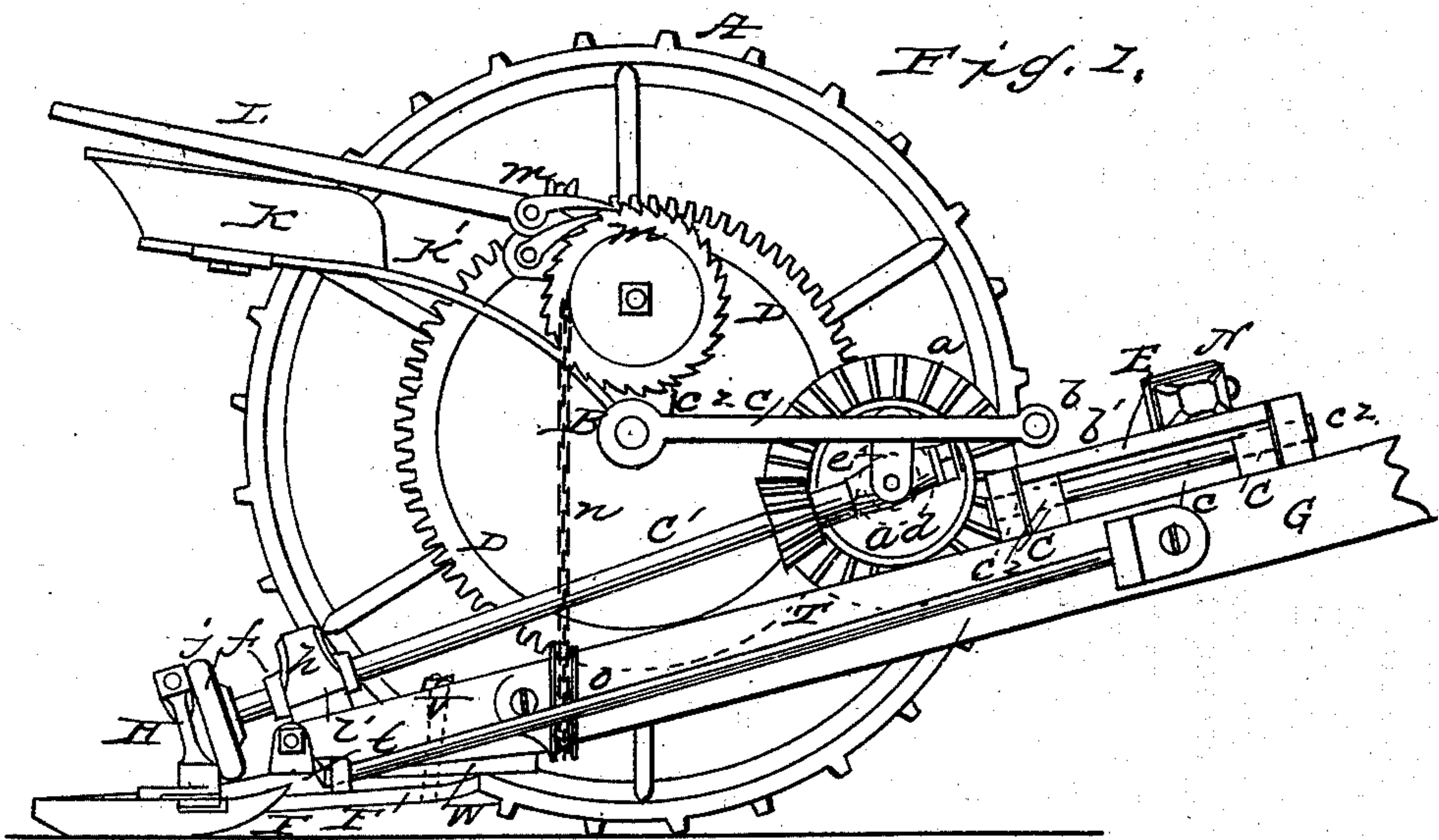


J. S. DAVIS.

Harvester.

No. 49,506.

Patented Aug. 22, 1865.



WITNESSES:

R. T. Campbell  
C. Schaffer

INVENTOR:

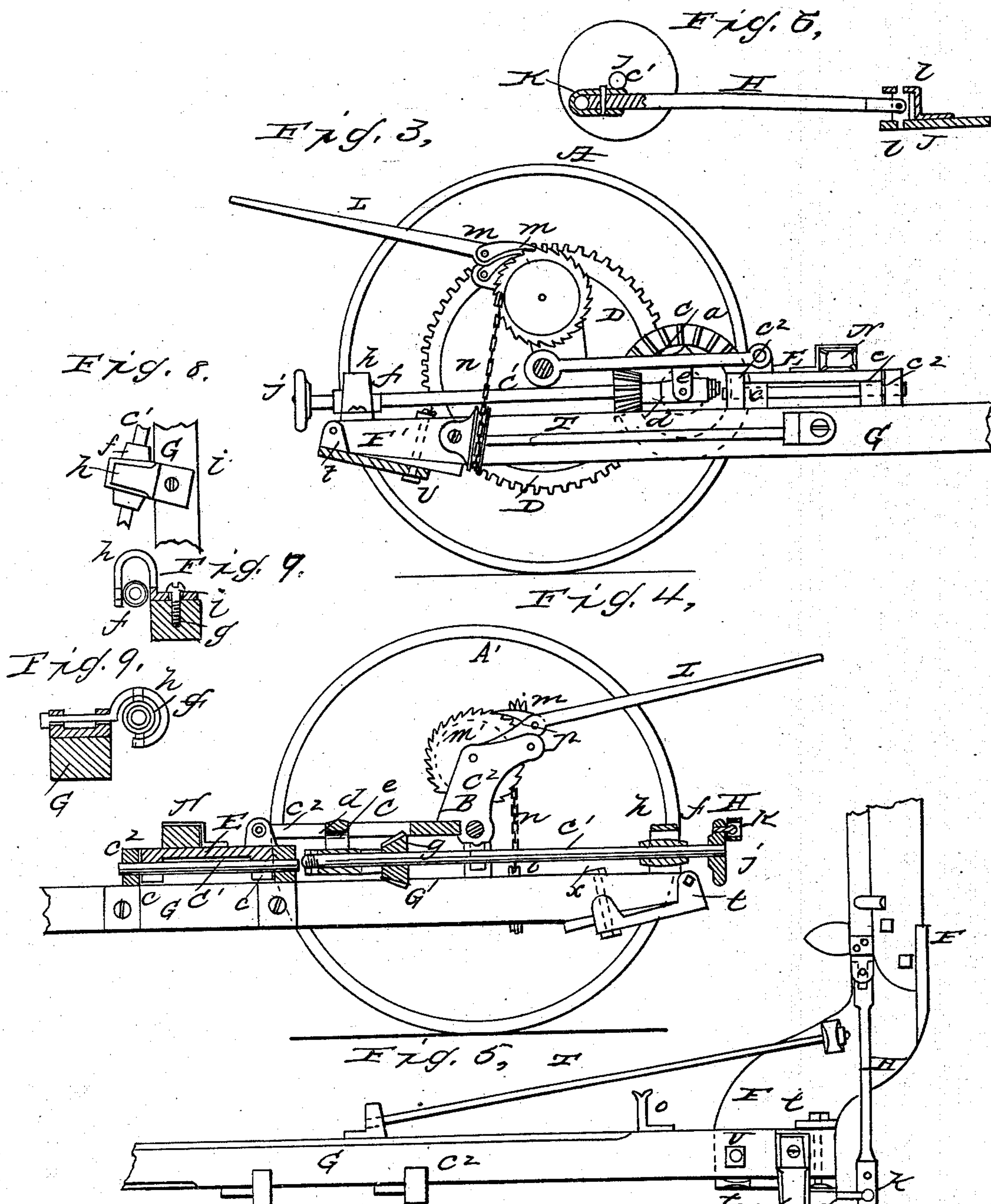
John S. Davis  
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# UNITED STATES PATENT OFFICE.

JOHN S. DAVIS, OF TIFFIN, OHIO.

## IMPROVEMENT IN HARVESTING-MACHINES.

Specification forming part of Letters Patent No. 49,506, dated August 22, 1865.

*To all whom it may concern:*

Be it known that I, JOHN S. DAVIS, of Tiffin, in the county of Seneca and State of Ohio, have invented a new and Improved Harvester; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, Sheet 1, is an elevation of one side of my machine, with the right-hand transporting-wheel removed. Fig. 2, Sheet 1, is a plan view of the machine. Fig. 3, Sheet 2, is a sectional elevation of the machine, showing the cutting apparatus and its frame elevated. Fig. 4, Sheet 2, is a longitudinal section through the machine, taken in the vertical plane indicated by red line *xx* in Fig. 2. Fig. 5, Sheet 2, shows the mode of attaching the cutting apparatus to the rear extremity of the hinged tongue. Fig. 6, Sheet 2, shows the mode of attaching the sickle-bar to the crank-shaft. Figs. 7 and 8, Sheet 2, show the mode of supporting the rear extremity of the crank-shaft upon the tongue. Fig. 9 is a modification of the hanger of Figs. 7 and 8.

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

The main object of my invention is to adapt the draft-pole or tongue of a harvester to serve as a support for the cutting apparatus, and to apply such a tongue to a two-wheel machine in such manner that it is susceptible of rising or falling at its rear end and of oscillating laterally, thus enabling me to secure the finger-beam rigidly to said tongue and allow the former to rise or fall and accommodate itself to the undulating surface over which it is drawn, as will be hereinafter described.

Another object of my invention is to provide for raising and lowering the cutting apparatus, and elevating the outer end of the same above the inner end when this cutting apparatus is applied to the rear extension of an oscillating tongue, without in any manner interfering with the motions of the sickle, or without rendering it necessary to throw the driving spur-wheels out of gear, as will be hereinafter described.

Another object of my invention is to secure the finger-bar to the tongue of the machine in such manner as will admit of the points of the fingers being adjusted so as to increase or di-

minish their inclination or forward pitch, 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 A'* represent the transporting-wheels, one of which is keyed to the axle *B*, and the other turns loosely on this axle.

*C* is a platform, which is hinged to the axle *B*, and extends forward of the same a suitable distance to serve as a support for a large bevel-wheel, *a*, and also the forward end of the crank-shaft *C'*. This platform is forked in order to admit the wheel *a* through it, and thus allow the shaft *a'* of this wheel to be brought up close to the bottom of the platform, as shown in Fig. 1.

*D* is a large spur-wheel, which is keyed on the axle *B*, and which engages with a pinion, *a<sup>2</sup>*, on the shaft of the bevel-wheel *a*, as shown at Fig. 2. The arc which is described by the axis of the shaft *a'* being concentric with the axis of the axle *B*, the motions of the forward end of the platform *C* will not disengage the pinion *a<sup>2</sup>* from the teeth of the large driving spur-wheel *D*. The outer end of the shaft *a'* has its bearings in an overhanging bracket, which may be cast with or bolted on the platform *C*, and the inner end of said shaft has its bearing in a lug which is formed on the bottom of the platform.

To the forward ends of the hinged platform *C* a plate, *E*, is hinged by a horizontal transverse pintle, *b*, which passes freely through lugs *b' b'*, which are formed on the upper side of this plate. On the bottom side of plate *E*, and at or near its extreme ends, lugs *c c* are formed for receiving through them a longitudinal pintle, *c'*, which connects said plate by a hinge-joint to eyes *c<sup>2</sup> c<sup>2</sup>*, that are secured rigidly on one side of a draft-pole or tongue, *G*, as clearly shown in Figs. 1, 3, and 4.

It will be seen that the pintle *b* is at right angles to the pintle *C'* and parallel to the axle of the transporting-wheels. The tongue *G* is therefore allowed to oscillate laterally, or from one side to the other of the machine, and also to articulate about the axis *b*, which latter motion admits of its rear end rising or falling, as indicated by the two positions in Figs. 1 and 3. The motion which the tongue *G* has about the axis *C'* admits of the outer end of the



finger-beam rising or falling, and the two motions combined allow the cutting apparatus to accommodate itself to the undulations of the surface of the ground. This tongue extends backward beneath and in rear of the axle-tree B, and has the rear end of the finger-beam F secured rigidly to its lower side, which is beveled so that the cutting apparatus will lie flat upon the ground while the tongue itself is in an inclined position. The mode of applying the finger-beam to the tongue G will be hereinafter described.

The crank-shaft C' is supported at its forward end in an oscillating tubular bearing, d, which has its trunnion-supports in an overhanging bracket, e, of the articulating platform C. The axis of motion of the tubular bearing d is coincident with the axis of the bevel spur-wheel a, which engages with the teeth of a bevel-pinion, g, that is keyed on the crank-shaft C', as shown in the drawings. The rear end of this crank-shaft C' is also supported in an oscillating tubular bearing, f, which is pivoted by horizontal transverse trunnions to an overhanging bracket, h, that is secured to the tongue G by a pivotal connection at i. (Seen in Figs. 2, 5, 7, and 8.)

In Fig. 9 I have represented a kind of universal joint, which enables me to secure the supporting-plate of the bracket rigidly to the tongue G. On the rear extremity of the crank-shaft C' the crank-wheel j is keyed, carrying on its rear surface a wrist-pin having a ball, k, formed on it. This ball k is fitted into a socket which is formed on one end of a pitman, H. The opposite end of this pitman is pivoted to a block, l, which is pivoted to the inner end of the sickle-bar J, as clearly shown in Fig. 6, Sheet 2.

It will be seen from the above description of applying the crank-shaft that its upper end is sustained by the hinged platform C and its rear end is sustained by the rear extension of the tongue G. This being the case, it is necessary to provide an oscillating bearing, d, or some equivalent contrivance, which will allow the crank-shaft to vibrate and accommodate itself to the motions of the rear end of the tongue G; also, to provide an oscillating bearing, f, or some equivalent contrivance, for admitting of the rising and falling of the outer end of the finger-beam and rear end of the tongue without interfering with the operation of the two bevel spur-wheels a and g.

The contrivances which enable the driver, while sitting upon the seat K, to raise or lower the cutting apparatus consist of a long lever, L, which is pivoted to a standard, C<sup>2</sup>, on the platform C, and which carries a pawl, m, that engages with the teeth of a ratchet-wheel, m', on the shaft of lever L. This ratchet-wheel has a grooved wheel formed on one side of it, over which a chain, n, passes, that is carried down and attached to the lower end of a grooved segment, o, which is secured rigidly to and projects from that side of the tongue

G nearest the standing grain. A pawl, p, is pivoted to the upper end of the standard C<sup>2</sup>, and engages with the teeth of the ratchet-wheel m', for the purpose of preventing this wheel from turning backward.

The segment o serves the purpose of a lever (after the cutting apparatus is raised to the position shown in Fig. 3 and a friction-wheel, s, is brought into contact with the axle B) to still further raise the outer end of the cutting apparatus by tilting or oscillating the tongue G. The friction-wheel s, which, applied to the upper side of the tongue G, serves, when in contact with the axle B, as a fulcrum to produce the result above stated.

The finger-beam F is constructed with or bolted to a curved inner extension, F', which enables me to locate the cutting apparatus at a proper point in rear of the wheel A, and also to form a rigid attachment of said beam to the rear extremity of the tongue G. This I effect by casting three lugs, t t t', on the upper side of the extended portion F' and passing bolts through said lugs and through the tongue, as shown in Fig. 5. The lug t' need not be bolted to the tongue, its office being to brace and to gage the finger-beam. In advance of the lugs t t' is a vertical bolt, v, which passes down through the tongue and the beam F' and secures these parts rigidly together. This bolt v also passes through a wedge, w, which is introduced between the beam and tongue, and which is intended for adjusting the pitch of the fingers. This adjustment is effected by loosening the nuts on bolt v and moving the wedge.

On the upper side of the hinged plate E, I apply the double-tree N, to which the horses are hitched. Consequently it will be seen that the attachment of the horses to the machine will not interfere in the least with the lateral rocking motions of the tongue G. By this arrangement the horses will draw directly upon the forward end of the hinged platform as though the tongue was applied to it and the double-tree applied to the tongue in the usual manner.

The driver's seat K is secured to a curved support, K', which is bolted on the rear end of the platform C and projects upward and backward therefrom over the axle-tree and some distance in rear of the same. Provision is made for adjusting the seat forward or backward, according to the weight and convenience of the driver.

It may be found necessary to employ a diagonal brace, T, for sustaining the cutting apparatus against backward thrust. If so, the brace T is secured at its forward end to a bracket on the side of the tongue, and at its rear end to a bracket which is cast on the curved portion F' of the finger-beam, as shown in Figs. 1, 2, and 5.

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

1. Securing the finger-beam of the cutting



apparatus to the hinged tongue or draft-pole of the machine, substantially as described.

2. Adapting a hinged draft-pole or tongue to serve as a support and means of attachment for the cutting apparatus of a harvesting-machine, substantially as described.

3. Hinging the tongue to the machine in such manner that it is allowed to oscillate laterally and admit of the rising and falling motions of the outer end of the cutting apparatus, substantially as described.

4. Providing for sustaining the tongue G at its rear end in an elevated position, in combination with contrivances adapted for elevating and lowering said tongue, substantially as described.

5. Extending the rear portion of the tongue G beneath the axle B, in combination with hinging this tongue to the platform C, substantially as described.

6. The combination of the laterally-oscillating tongue G and plate E with the hinged platform C, substantially as described.

7. Sustaining the forward end of the crank-shaft C' by means of the platform C, and its

rear end by means of the rear extension of the tongue G, substantially as described.

8. The segment O, applied to a rocking tongue, G, substantially as described.

9. The friction-roller s, applied to an oscillating tongue, G, substantially as described.

10. The articulating platform C, applied between the axle B and laterally-oscillating tongue G, substantially as and for the purpose described.

11. Supporting the crank-shaft C' of a harvesting-machine in oscillating bearings, and arranging these bearings in such manner that the tongue is free to move up or down at its rear end, and also to oscillate laterally without cramping the crank-shaft or its driving-gear, substantially as described.

12. Interposing a wedge, w, between the inner extension, F', of the finger-beam and the tongue G, for the purpose substantially as described.

JOHN S. DAVIS.

Witnesses:

HARRISON NOBLE,  
WARREN P. NOBLE.