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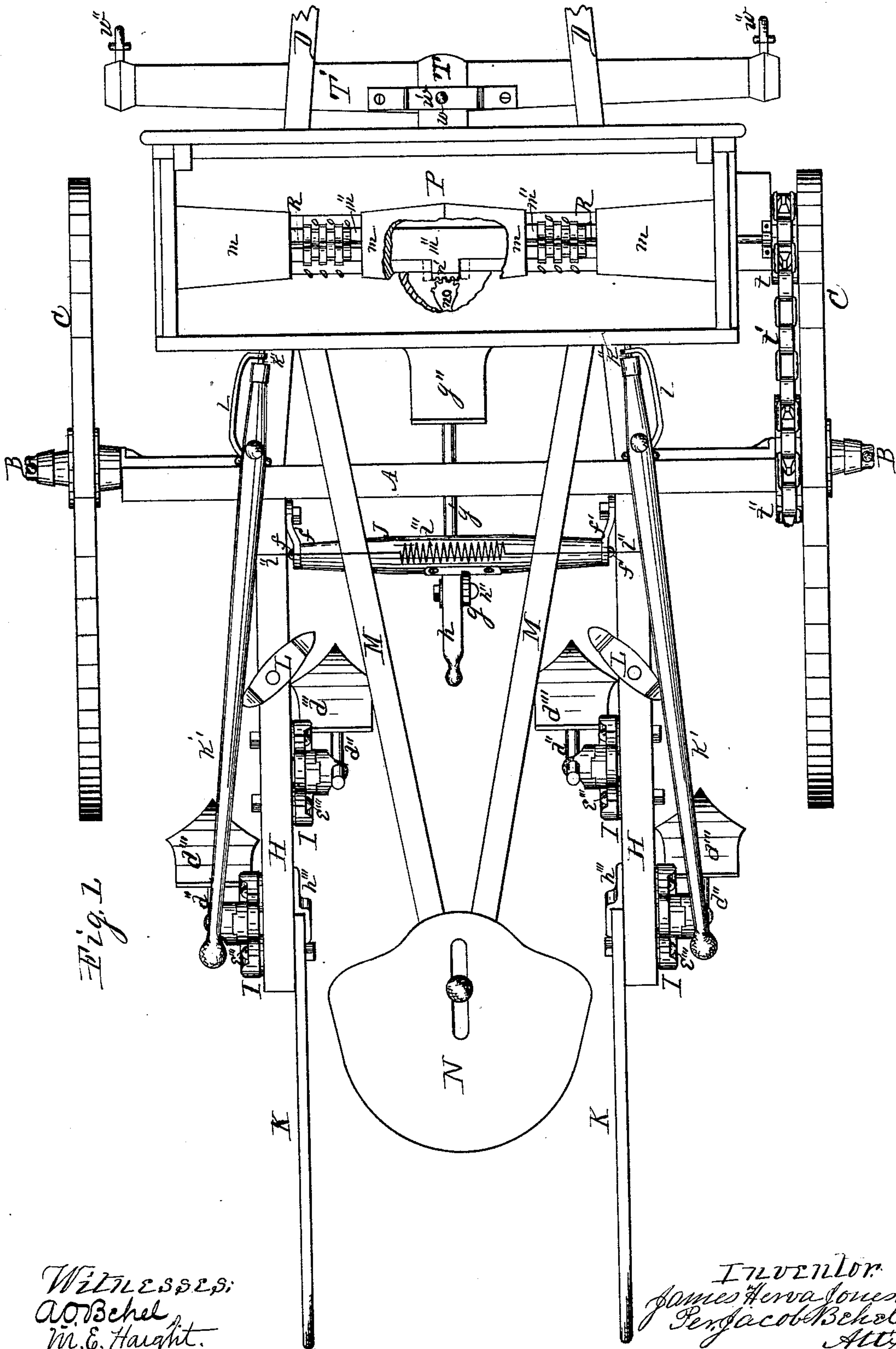
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J. H. JONES.

Combined Cultivator and Seeder.

No. 233,934.

Patented Nov. 2, 1880.



Witnesses:
A. B. Behl
M. E. Haight.

Inventor:
James H. Jones,
Per Jacob Behl,
Atty.

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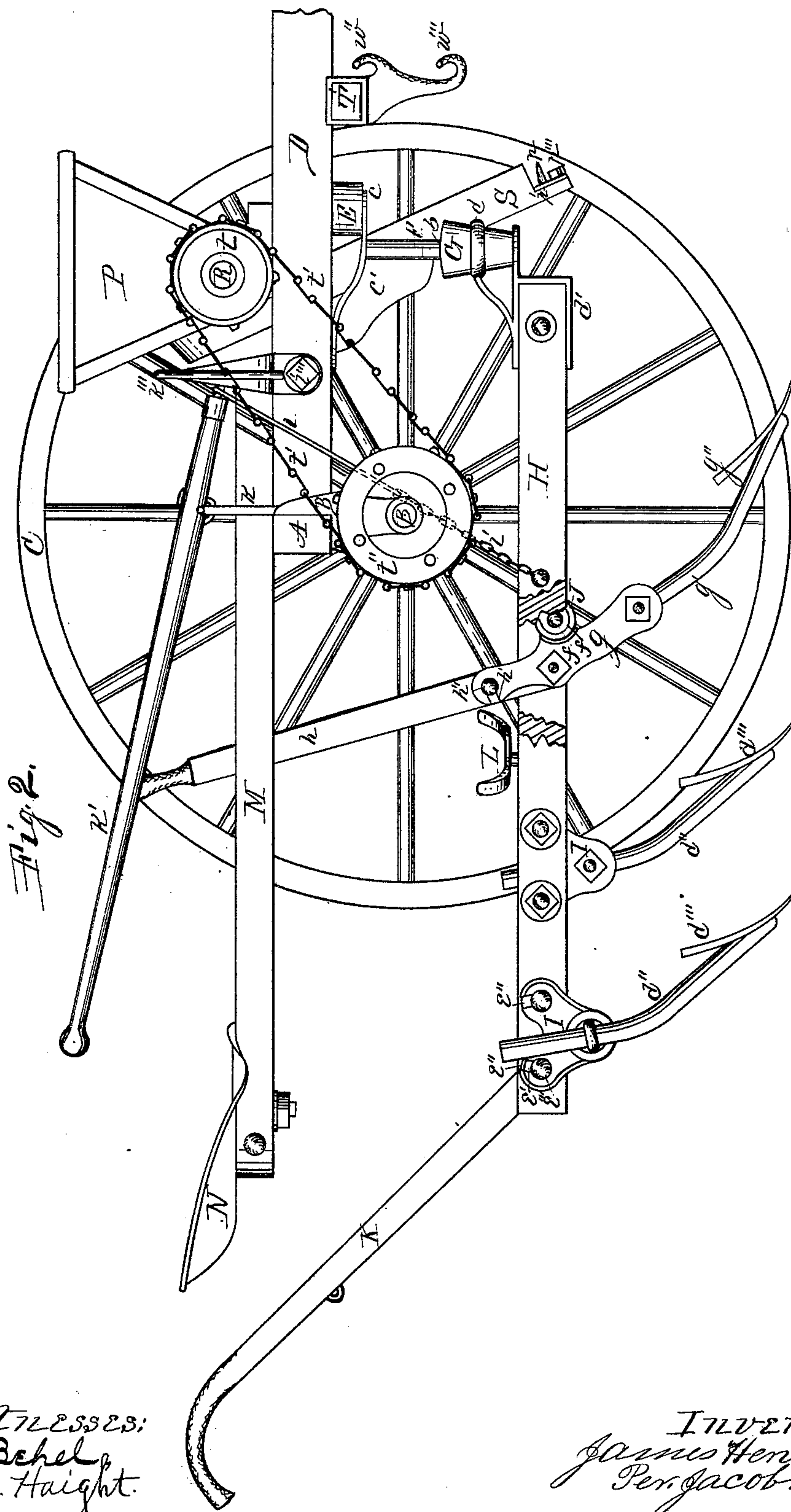
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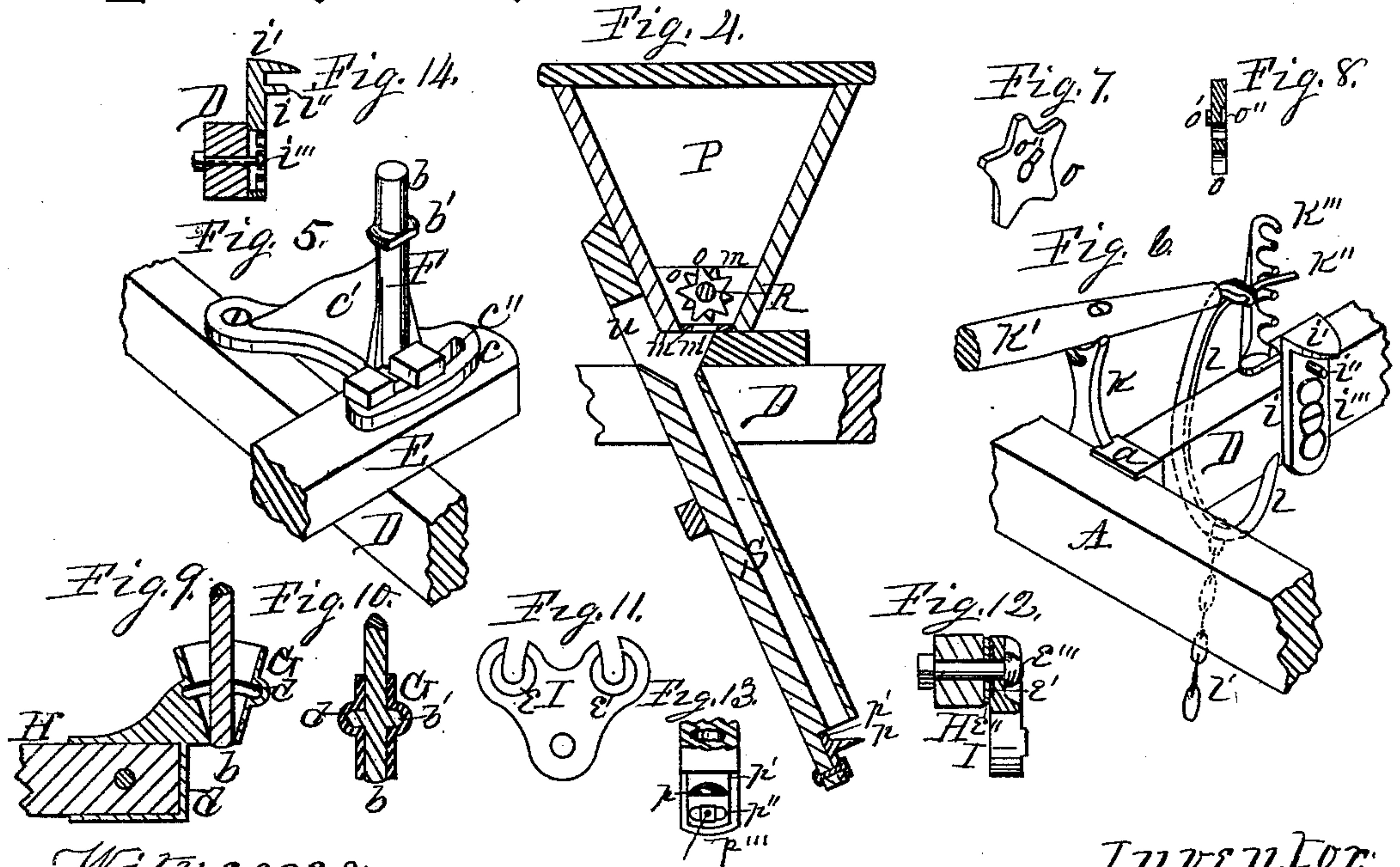
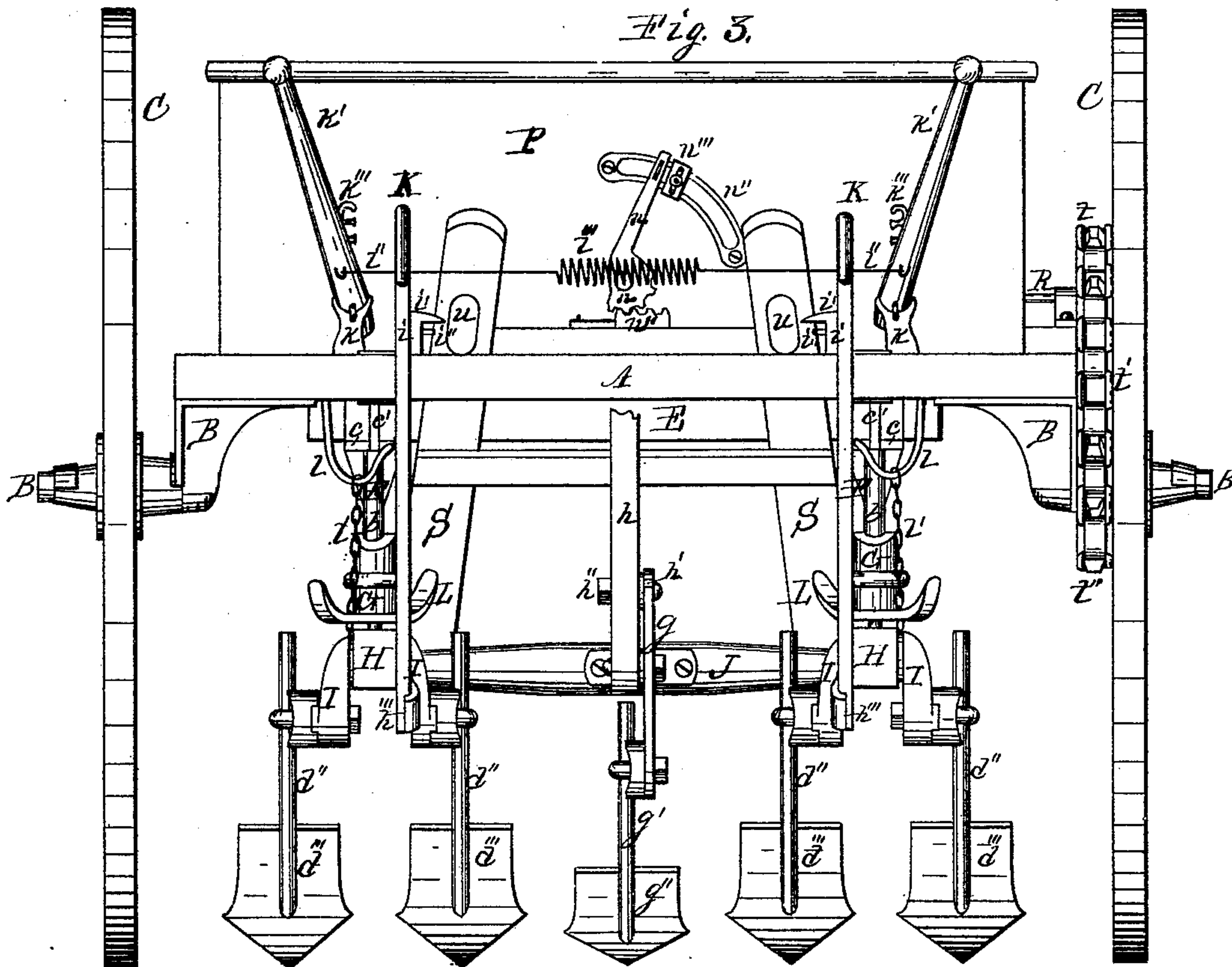
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UNITED STATES PATENT OFFICE.

JAMES H. JONES, OF ROCKFORD, ILLINOIS.

COMBINED CULTIVATOR AND SEEDER.

SPECIFICATION forming part of Letters Patent No. 233,934, dated November 2, 1880.

Application filed April 15, 1880. (Model.)

To all whom it may concern:

Be it known that I, JAMES HERVA JONES, of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Riding and Walking Cultivator and Seeder Combined, of which the following is a specification.

The cultivator to which this invention relates is of that class known as the "straddle-row" cultivator, and in this instance is a riding and walking machine, having a seed-box, fitted with a seed-distributing device, removably mounted thereon.

In the accompanying drawings, Figure 1 is a plan view of a machine embodying my invention, of which Fig. 2 is a side elevation, in which one of the carrying-wheels is omitted. Fig. 3 is a rear elevation, in which the seat-frame is omitted. Fig. 4 is a lengthwise vertical section through the seed-box, seed-distributing device, and centrally through the conducting-spout and scatterer. Fig. 5 is an isometrical under-side view of the pendant as fixed in place on the beams. Fig. 6 is an isometrical view of the adjustable seat-supporting bracket and a portion of the raising and lowering device. Fig. 7 is an isometrical representation of one of the self-locking sections of the seeding device. Fig. 8 is a central section of one of the self-locking sections of the seeding device. Fig. 9 is a lengthwise vertical central section of the joint employed to connect the forward end of the drag-bar to the pendant, of which Fig. 10 is a vertical transverse section. Fig. 11 is an inner-face view of the slip-bracket by which the shovels are fixed to the drag-bars, of which Fig. 12 is a vertical section centrally through the pivot-bolt employed to fix it in position on the drag-bar. Fig. 13 is a front-face view of the scatterer, fixed in position to the lower portion of the conducting-spout. Fig. 14 is a transverse vertical central section of the seat-supporting bracket.

In the figures, A represents an axle-tree, consisting of a wood beam of suitable size, rectangular in cross-section and of proper length, having fixed to its end portions crank-formed axle-arms B, fitted to receive the carrying-wheels C, to revolve thereon freely.

D are beams of suitable dimensions, having

their rear ends fixed to the outer end portions of the axle-tree by a metallic socket-connection, *a*, which receives the rear end of the beams, from which point they converge and meet at a proper point to produce a tongue of proper length, and at their junctional point are fitted with a suitable appliance to receive a neck-yoke of a suitable construction to connect with the harness of the team.

E is a cross-bar, rectangular in cross-section and of proper size, placed parallel with the axle-tree, a suitable distance in front thereof, on the under face of the tongue-beams, having its ends project beyond the beams. These parts constitute the main carrying-frame of my improved cultivator.

At F are represented bracing-pendants, of the peculiar form shown, in which *b* is the pendant proper, having its lower portion cylindrical in cross-section, and provided, near its lower end, with a projecting ring, *b'*, of bead-like form, which, on the front and rear sides of the pendant, are cut away, to reduce them on those sides to, or nearly to, the size of the pendant.

The upper portion of the pendant proper is fitted with a flange or cap-plate, *c*, to rest against the under face of the cross-bar F, and this flange extends rearward, and, in connection with the bracing-web *c'*, forms a bracing-arm, which rises to meet the under face of the tongue-beams rearward of the cross-bar, at which point they are pivoted by a suitable bolt.

The cap-flange is provided with a curved slot, *c''*, the radial center of which is the pivot-bolt of the bracing-arm. Suitable screw-bolts are passed through the beams and through the curved slot in the cap-flange, in such a manner as to permit the pendant to be adjusted laterally, to increase or lessen the lateral distance between them, to vary the relative track of the shovels carried by the drag-bars hinged to the pendants, and when the pendants are adjusted they are fixed in position by means of the screw-bolts, provided with sufficient screw-nuts.

At G is represented a joint-socket having a vertical opening of proper width to receive the cylindrial portion of the pendant snugly. In the lengthwise direction of the drag-bar

this socket is of sector-form, of a proper size at its lower end to freely admit the pendant, and of sufficient size at its upper end to permit of a sufficient vertical movement of the rear end of the drag-bar for the purposes of a cultivator, without cramping. This socket, about midway of its depth, is formed with a curved recess, *d*, of semicircular form in cross-section, surrounding the inner walls of the socket, and is designed to receive the bead-like projection *b'*. The rear portion of this socket is of flanged open box-like form—as at *d'*—adapted to receive the forward end of the drag-bar *H*, resting against the side thereof, and its flanges embracing the edges and end of the drag-bar, which is firmly held in place by a sufficient screw bolt or bolts passed transversely through the parts. With the pendant fixed in position on the frame, and the socket fixed to the end of the drag-bar, the parts can be connected and disconnected by placing the drag-bar horizontally at right angles with the lengthwise direction of the machine, with its rear end outward and its socket end on the pendant, in which position the socket can be passed upward on the pendant until the projecting ring reaches the recess in the socket, at which point the drag-bar can be turned into its working position, and the projecting ring on the pendant will engage the recess in the socket and hold it in connection therewith in working position to prevent axial or rolling motion thereof, and the rear end will be free to move laterally to conform to the sinuosities of the rows, and vertically to regulate the depth of plowing or other purposes required of a cultivator. To the rear portion of these drag-bars, on the opposite sides thereof, are fixed shovel standard-slip brackets *I*, carrying shovel-standards *d''* and shovels *d'''* fixed thereto, which are substantially the same as like parts of one of my former inventions embodied in Patent No. 185,982, dated January 2, 1877; but in this instance I have recessed the inner surface of the slip-arms, as at *e*, to receive a small pivot-washer, *e'*, over which is placed a larger washer, *e''*, between the arm and beam, through all of which is passed the pivot-bolt *e'''*. This small washer is only employed on the rear arm of the slip-bracket, and serves to preserve its relative pivotal connection with the drag-bar, whatever changes may be required of the forward arm to adjust the angle of the working-face of the shovel, and the slipping of the forward arm from under the clamping-bolt to permit the shovel to swing back to pass obstructions will not operate to change the pivotal center of the rear arm, and the omission of the small washer in the forward arm will permit it to slip from under the clamping-bolt under severe strain on the shovel, and also to swing back as in my former machine.

At *J* is represented a roller having its ends fitted with pin-journals *f* projecting therefrom, on which it is supported in bracket-bearings

f' fixed to the inner surface of the drag-bars, and pins passed through the journals outside of the brackets serve to hold the drag-bars in their relative position and to move in unison laterally. Centrally to the roller *J* is fixed a bracket-arm, *g*, having its lower end fitted to receive and support a shovel-standard, *g'*, having a shovel, *g''*, fixed thereto, and made vertically-adjustable by means of its standard-connection therewith, to regulate its working depth relatively with the other shovels.

At *n* is represented a hand-lever, pivoted to the bracket-arm *g* near its connection with the roller, and the upper end of the bracket-arm is fitted with a lateral slot, *n'*, opening on its rear edge, which receives a clamping-bolt, *n''*, passed through the standard, producing a slip-connection capable of holding the shovel sufficiently rigid for the purposes of cultivation; but when subjected to a greater strain than the parts would sustain with safety, will permit the bracket to slip from under the clamping-bolt and permit the shovel to swing back to prevent breaking the parts. When this shovel is properly adjusted and working the lever-handle will rest against the rear face of the axle-tree to support it against the earth-resistance, and in such a manner as to partake of the movements of the drag-bars, and when the drag-bars are elevated for the purpose of transportation this center shovel may be elevated above the plane of the shovels in its rear, which can be readily accomplished by the attendant swinging the handle portion rearward.

At *K* are represented handles of the ordinary form, and are fixed to the rear ends of the drag-bars supported thereon at two points by means of the same bolts which fix the slip-brackets of the shovel-standards in place, the rear one of which is passed directly through the handle some distance from its end, and a bracket, *n'''*, fitted to embrace the lower end of the handle, is fixed in place to support the handle by means of the clamping-bolt of the forward arm of the slip-bracket. By this means I obtain a firm fastening for the handles without additional bolts.

At *L* is represented foot-supports of a suitable form to receive the feet of the operator, which are provided with upturned ends to prevent the feet from slipping therefrom. These foot-rests are adjustably fixed to the drag-bars by means of a screw-bolt, which is passed through them toward one end thereof and through the drag-bar. These foot-rests are made reversible and interchangeable, and by means of their eccentric fastening, when reversed or interchanged, the lateral distance between the foot-rests will be increased or decreased as their like respective ends are turned toward or from each other, and are also made adjustable lengthwise of the drag-bars by means of a series of holes therein provided for the purpose.

At *M* is represented beams, suitably joined

at their rear ends, producing a seat-frame of the usual V form, having a seat, N, mounted on its rear end, and made lengthwise adjustable thereon.

5 Heretofore various different forms of devices have been employed for vertically adjusting the seat-beams of wheel-cultivators. One of these forms provides a constant bearing for the upper edge of the seat-beam throughout all adjustments of the latter, but the construction is subject to the disadvantage of requiring a metallic loop formed independent of the slotted vertical arm and a bolt which passes through the beam in order to secure the loop to said arm. My form of adjusting device provides a constant bearing for the upper edge of the seat-beam throughout all adjustments of the latter, is simple in construction, and obviates the disadvantages above recited as incident to the previous devices.

The forward portion of the seat-frame has its fulcrum-support on the axle-tree, and its extreme forward ends in advance thereof are held in position and made vertically adjustable to raise and lower the seat over its fulcrum-support by means of bracket *i*, fitted with a portion, *i'*, to overlap the beams of the seat-frame, and are also fitted with studs *i''*, projecting from their inner face to enter a hole in the outside face of the beams prepared to receive them. The vertical arms of these brackets are slotted lengthwise to receive a clamping-bolt, *i'''*, by which they are adjustably fixed to the tongue-beams, and at proper intervals are provided with counter-sinks to receive the head of the clamping-bolt. By means of this vertically-adjustable seat-frame and the seat made lengthwise adjustable thereon, in connection with the reversible and interchangeable foot-rests, my machine can be readily adjusted to adapt it to the varying size of operators.

At *k* are represented fulcrum-supports fixed to the axle-tree, from which they rise to receive the raising and lowering levers *k'*, supported on their upper forked ends, to which they are hinged by a free staple-joint connection to permit of a free up-and-down and a limited lateral movement. The forward arms of these levers are provided with a projecting arm, *k''*, fitted to engage a pin-toothed ratchet, *k'''*, fixed to the outer face of the tongue-beams, in this instance at a point opposite to the seat-supporting brackets, in such a manner that they shall be held in position by the same clamping-bolt *i'''* which holds the bracket in place.

At *l* are represented hook-links, having their upper ends pivoted on the projecting arms *k''* of the levers, and their lower ends are of open hook form adapted to embrace the tongue-beams when the hooks are raised to a proper height by the action of the levers. These hooks receive a link of a suitable chain, *l'*, which connects with the drag-bar at any proper point rearward of their hinge-joint connection with the pendants. The raising and lowering

levers rearward of their fulcrum-supports are connected by suitable links *l''* with a spiral spring, *l'''*, the action of which operates to contract their rear ends, and consequently hold their forward ends in contact with the pin-toothed ratchets. The rear portion of these levers extend to within easy reach of an operator mounted in the seat, in which position the drag-bars and the shovels thereto attached will be fully under his control to be raised, lowered, and held at any elevation within the limits of the devices by means of the lever-connection therewith and with the pin-toothed ratchets, and when the drag-bars are elevated for transportation the hook-links will embrace the tongue-beams and limit their lateral swinging movements.

At P is represented a seed-box of the usual hopper form, removably mounted on the tongue-beams in advance of the axle-tree. This hopper is fitted with sectional inclined bottoms *m* in such a manner as to divide it, to deliver the seed from two equal divisions of the hopper through openings *m'*, provided for the purpose, which are fitted with an adjustable slide, *m''*, made movable lengthwise of the seed-box by means of a segment-toothed lever, *n*, pivoted to the rear outer face of the hopper, having its teeth engage the teeth of a rack, *n'*, connected with the slide in such a manner that the movement of its free end in either direction will cause the slide to move in the opposite direction to enlarge or lessen the openings through which the seed is discharged to regulate the quantity sown. This seed-box is also provided with a shaft, R, placed to revolve in its lengthwise center immediately over the seed-openings, at which points it is fitted with a seed-distributing device consisting of a series of star-formed sections, *o*, each of which are fitted with a prominence, *o'*, projecting from one side, and a corresponding sink, *o''*, on its opposite side, placed in such relative position to each other that when placed on the shaft the prominence of each section shall engage the depressions in its contiguous sections, and the star-points of each section shall be centrally between the star-points of its contiguous sections.

By this construction I produce an effective seeding device capable of discharging the seed in equal quantities in passing over equal distances, and the quantity discharged will depend on the size of the openings, which are regulated by means of the slide operated by its toothed gear-connection with the lever *n*, the free end of which is fitted to move over a slotted segment, *n''*, fitted with an adjustable screw-stop, *n'''*, to limit the movement of the lever. By this arrangement the lever can be moved to a vertical position to cut off the distribution of seed independent of the adjusted stop, the position of which limits the movements of the lever to regulate the quantity of seed distributed.

At S are represented conducting-spouts, hav-

ing suitable lengthwise openings to permit of the free descent of the grain, and their upper portions are fixed to the seed-box in such a manner that their openings shall connect with the seed-outlet openings of the seed-box, from which point they descend in a diverging angle inclining outward and forward, for the purpose of conducting the seed a proper distance in advance of the shovels, and to produce an equal distribution of the seed laterally over the space covered by the machine.

At *p* is represented a scatterer of semi-conic form, rising from a bed-plate, *p'*, which is provided with a transverse slot, *p''*, to receive a clamping-bolt, *p'''*, by means of which they are fixed in position to the spouts immediately below their outlet-openings, and by means of their slotted connections are made laterally adjustable to receive the seed descending through the spouts in such a manner as to distribute it equally over the space covered by the machine. The outward-projecting end of the seed-distributing shaft is fitted with a sprocket-wheel, *t*, fitted to carry a chain-belt, *t'*, which also engages a like sprocket-wheel, *t''*, fixed to the carrying-wheel. By this arrangement the forward movement of the machine will impart motion to the seeding device, which will cause the seed deposited in the box to flow through the outlet-openings, to descend through the spouts upon the scatterers to be distributed within the track of the machine. The conducting-spouts are provided on their rear sides, near their junction with the seed-box, with openings *u*, through which may be seen the descending seed by the attendant mounted in his seat, to enable him at all times to detect irregularities in the distribution of the seed.

At *T* is represented a draft-bar fixed centrally on the cross-bar *E*, and projecting in front thereof.

T represents an evener, of proper dimensions, centrally pivoted to the forward portion of the draft-bar by a suitable bolt, *w*, which is passed through a keeper, *w'*, through the draft-bar and evener. The keeper *w'* is of staple form, as represented, adapted to embrace the draft-bar, and having its foot portion firmly fixed to the evener near its rear edge, which arrangement serves to counteract the rolling tendency of the evener when the team are connected to the lower draft-hook on the ends of the evener. The ends of the evener are fitted with draft-hooks *w''* and *w'''*, designed to receive the single-trees to which the team are attached, the upper one of which is designed for use when the machine is employed as a riding-machine, and the lower one when used as a walking-machine, and serves to preserve the proper balance of the machine in either capacity.

From the foregoing the improvements and operation of my machine will be fully understood without further detailed description, and it will also be seen that my machine, as here-

inbefore described, may be used as a combined seeder and riding-cultivator, or as a combined seeder and walking-cultivator, in which instance the removal of the operator's seat will be found to render it more convenient.

It is also capable of use as a cultivator for the purpose of stirring the ground, which is often desirable to prepare it for seeding or planting, in which instance, if desired, the seed-box may be removed. It is further designed for use as a riding straddle-row cultivator, for which purpose the center shovel must be removed, and to remove the seed-box will render it a more convenient machine; and by the further removal of the driver's seat a complete straddle-row walking-cultivator will be produced. In all these different capacities my machine will be found a complete machine for the purpose.

I claim as my invention—

1. The combination, with a main frame and a drag-bar, of a bracing-pendant pivoted to said main frame, to have lateral adjustment in a horizontal plane, said pendant maintaining a constant angle relative to the main frame during said adjustment, substantially as set forth.

2. The combination, with a drag-bar, of a bracing-pendant secured to a bracket, which latter has one portion vertically pivoted to the main frame and another portion adapted to be connected to different horizontal points of said frame, substantially as set forth.

3. The combination, with a drag-bar, of a bracing-pendant secured to a bracket, having its rear portion pivoted to the main frame and its forward portion provided with a curve-slot, in which latter fits a bolt adjustably connecting the bracket to said main frame, substantially as set forth.

4. The combination, with a shovel-standard, a slip-bracket, and a bolt fastening the latter to the outer side of a drag-bar, of a handle fitted between the inner side of the drag-bar and a clamp, the latter being secured to the drag-bar by the same bolt which passes through an arm of the slip-bracket, substantially as set forth.

5. The combination, with a shovel-standard, a slip-bracket having two arms, and bolts fastening the latter to a drag-bar, of a handle fitted between the drag-bar and a clamp, said clamp being secured to the drag-bar by the same bolt which passes through one of said slip-arms, the bolt of the other slip-arm passing through the handle itself, substantially as set forth.

6. The herein-described slip-brackets to support the shovel-standards, having their slip-arms provided with a recess to receive a pivot-washer, substantially as hereinbefore set forth.

7. The combination, with a shovel-standard and a slip-bracket, of a pivotal washer fitted to the recessed slip-arm, substantially as set forth.

8. The combination, with an oblong socket secured to a drag-bar and having its sides pro-

vided with arched grooves, of a bracing-pendant having lateral projections which fit in said arched grooves, substantially as set forth.

9. The combination, with a transverse roller extending between the two side drag-bars, of a slip-bracket centrally-secured to said roller, and a shovel-standard secured in vertical adjustment to the bracket, substantially as set forth.

10. The combination, with the slip-bracket carrying a shovel-standard, with shovel thereto attached and fixed to the transverse roller, of a lever-handle pivoted to the slip-bracket and held in position thereto by a safety slip-bolt connection, substantially as and for the purpose hereinbefore set forth.

11. The herein-described center shovel, consisting of a slip-bracket fixed to a transverse roller, a shovel-standard, with a shovel fixed thereto, supported in the bracket and made vertically-adjustable thereon, and a lever-handle pivoted to the slip-bracket and held in position thereto by a safety slip-bolt connection, substantially as and for the purpose hereinbefore set forth.

12. The combination, with the drag-bars, of the herein-described center shovel having the journal ends of its transverse roller supported in journal-bearing bracket fixed to the drag-bars, substantially as and for the purpose hereinbefore set forth.

13. The lifting and supporting levers, in combination with their forked fulcrum-supports, the levers hinged thereto by a free staple-joint connection, substantially as and for the purpose hereinbefore set forth.

14. The combination, with a lever fulcrumed on the main frame, and a hook depending therefrom and adapted to embrace a tongue-beam, of a drag-bar, and intermediate connection of the latter with the hook, said drag-bar being restricted in its lateral swinging movement when raised by said hook engaging with the tongue-beam, substantially as set forth.

15. The combination, with a lever fulcrumed on the main frame, a hook adapted to embrace a tongue-beam, and intermediate connection between the hook and drag-bar, of an upright secured to the tongue-beam and provided with a longitudinal series of lateral notches, which provide engagement for the forward extremity of the lever, substantially as set forth.

16. The combination, with levers fulcrumed on the main frame, hooks which embrace the tongue-beams, and connections between the hooks and drag-bars, of upright rack-bars secured to the tongue-beams and engaged by the forward arms of the levers, and a spring which connects the rear arms of the levers, substantially as set forth.

17. The combination, with a seat-beam, and a vertical arm having a slotted body provided with a lateral stud, of a bolt which secures the arm in vertical adjustment to the drag-bar without passing through the seat-beam, said arm having its upper extremity provided with a horizontal flange which provides constant bearing for the edge of the beam, the lateral stud fitting in the side body of said beam, substantially as set forth.

18. The combination, with a seed-hopper having its opposite extremities respectively provided with discharge-openings, of two independent spouts extending from said openings laterally outward in opposite inclination; substantially as set forth.

19. The herein-described conic scatterers, in combination with the seed-conducting spouts, made laterally adjustable thereon, substantially as and for the purpose hereinbefore set forth.

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Witnesses:

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